



国际民用航空组织

危险物品专家组 (DGP)

第三十次会议

2025年10月6日至10日，蒙特利尔

报告夹

本报告中的材料未经空中航行委员会审议。报告所表达的观点应被视为专家组向空中航行委员会提出的建议，而不代表本组织的观点。在空中航行委员会审查本报告之后，将发布一份报告补篇，阐明空中航行委员会就报告采取的行动。

危险物品专家组（DGP）第三十次会议（2025年）

送文函

收件人：空中航行委员会主席

发件人：危险物品专家组（DGP）主席（2025年）

我谨荣幸地提交危险物品专家组（DGP）第三十次会议的报告，此次会议于2025年10月6日至10日在蒙特利尔举行。

A handwritten signature in blue ink, appearing to be 'Teun Muller', with a large loop at the top and a horizontal line at the bottom.

主席
Teun Muller
(签名)

2025年10月10日，蒙特利尔

目录

	页码
会议情况	
1. 会期.....	ii-1
2. 出席情况.....	ii-1
3. 会议干事和秘书处.....	ii-3
4. 会议议程.....	ii-3
5. 工作安排.....	ii-4
6. 空中航行委员会主席的开幕词.....	ii-4
7. 空中航行局局长的开幕词.....	ii-6
会议报告	
议程项目 1: 国际民航组织危险物品的规定与联合国《关于危险货物运输的建议书》的协调统一 (REC-A-DGS-2027)	
1.1: 如有必要, 拟定对附件 18 — 《危险物品的安全航空运输》的修订提案	1-1
1.2: 如有必要, 拟定对《危险物品安全航空运输技术细则》(Doc 9284 号文件) 的修订提案, 以便纳入 2027 年 — 2028 年版.....	1-2
1.3: 如有必要, 拟定对《危险物品安全航空运输技术细则补篇》(Doc 9284SU 号文件) 的修订提案, 以便纳入 2027 年 — 2028 年版	1-6
议程项目 2: 管理航空特有的安全风险和查明异常情况 (REC-A-DGS-2027)	
2.1: 如有必要, 拟定对附件 18 — 《危险物品的安全航空运输》的修订提案.....	2-1
2.2: 如有必要, 拟定对《危险物品安全航空运输技术细则》(Doc 9284 号文件) 的修订提案, 以便纳入 2027 年 — 2028 年版	2-2
2.3: 如有必要, 拟定对《危险物品安全航空运输技术细则补篇》(Doc 9284SU 号文件) 的修订提案, 以便纳入 2027 年 — 2028 年版	2-5

2.4:	如有必要, 拟定对《涉及危险物品的航空器事故征候应急响应指南》 (Doc 9481 号文件) 的修订提案, 以便纳入 2027 年 — 2028 年版.....	2-7
议程项目 3:	促进危险物品的安全航空运输 (编号: REC-A-DGS-2027)	3-1
议程项目 4:	管理航空载运储能装置带来的安全风险 (编号: 工作卡 DGP.003.05)	4-1
议程项目 5:	在附件 18 中明确国家监督责任 (编号: 工作卡 DGP.005.05)	5-1
议程项目 6:	支持遥控驾驶航空器系统 (RPAS) 运行的危险物品规定 (编号: 工作卡 DGP.007.02)	6-1
议程项目 7:	航空安保/危险物品的协调	7-1
议程项目 8:	与空中航行委员会其他专家组的协调	8-1
议程项目 9:	《危险物品专家组 (DGP) 帮助编制技术细则和辅助文件的指导材料》 与经修订的危险物品规定的协调统一	9-1
议程项目 10:	其他事项	10-1
报告附录 A:	根据议程项目 1、2、3、4 和 6 对《技术细则》的综合修订.....	A-1
报告附录 B:	根据议程项目 1 对《技术细则补篇》的综合修订	B-1
报告附录 C:	根据议程项目 2 对《与危险物品有关的航空器事故征候应急响应指南》 的修订	C-1

建议清单*

1/1	对《危险物品安全航空运输技术细则》（Doc 9284 号文件）进行拟议修订，使其与联合国《关于危险货物运输的建议书》保持一致，以便纳入 2027 — 2028 年版.....	1-5
1/2	对《危险物品安全航空运输技术细则补篇》（Doc 9284SU 号文件）进行拟议修订，使其与联合国《关于危险货物运输的建议书》保持一致，以便纳入 2027 — 2028 年版.....	1-6
2/1	为应对航空特有的安全风险和所查明的异常情况对《危险物品安全航空运输技术细则》（Doc 9284 号文件）进行修订，以便纳入 2027 — 2028 年版.....	2-4
2/2	为应对航空特有的安全风险和所查明的异常情况对《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）进行修订，以便纳入 2027 — 2028 年版.....	2-9
3/1	为了运输便利化而对《危险物品安全航空运输技术细则》（Doc 9284 号文件）进行修订，以便纳入 2027 — 2028 年版	3-2
4/1	管理机上携带锂电池驱动的助行设备的相关风险	4-5
4/2	管理旅客、机组成员和运营人携带充电宝相关的安全风险	4-7
4/3	与相关专家组协调，管理与日俱增的航空器客舱锂电池相关的火灾风险	4-7
RSPP	5/1 修订附件 18 以明确国家在危险物品安全航空运输方面的责任.....	5-4
	6/1 修订《危险物品安全航空运输技术细则》（Doc 9284 号文件）以支持遥控驾驶航空器系统运行	6-3
	6/2 修订《危险物品安全航空运输技术细则补篇》（Doc 9284 SU 号文件）以支持遥控驾驶航空器系统运行	6-3
	6/3 制定指导材料，以支持在特定类别无人航空器上运输危险物品	6-3

* 标注有“RSPP”的建议指的是对附件中标准、建议措施和《空中航行服务程序》或指导材料的修订提案。

危险物品专家组（DGP）

第三十次会议

2025年10月6日至10日，加拿大蒙特利尔

会议情况

1. 会期

1.1 危险物品专家组（DGP）第三十次会议于2025年10月6日上午10时在蒙特利尔开幕，此次会议由空中航行委员会主席梁均荣先生致开幕词。空中航行局局长 Michele Merkle 女士、负责空中航行与航空安全的副局长 Pascale Luciani 先生以及运行安全科科长 Carys Knowles 机长亦出席开幕式，Merkle 女士代表国际民航组织（ICAO）向与会人员表示欢迎。本次会议于2025年10月10日结束。

2. 出席情况

2.1 由二十个缔约国和六个国际组织提名的成员和观察员以及顾问和其他人员等出席了本次会议，出席者名单如下：

成员	顾问	提名国
S. Bitossi		澳大利亚
L. Cascardo		巴西
D. Sylvestre	F. Bernier D. Bolton S. Ellsworth L. Tellier	加拿大
Peng Guo	Sin Yi Cynthia Choi Yang Qiang Zhenhua Qiu	中国
P. Tatin	M. Cosset	法国
N. Kumar		印度
M. Seddighi		伊朗
E. Toriello	C. Chiodi	意大利

T. Tabata	T. Kazuhide K. Nakano H. Oda T. Okamoto K. Yanagawa	日本
T. Muller	E. Boon R. Dardenne T. Groffen K. Vermeersch	荷兰
J. Finlayson		新西兰
	N. Jaejoon	大韩民国
A. Eboigbe		尼日利亚
N. Smit		南非
M. A. de Castro		西班牙
G. Kiliç	S. Cebi	土耳其
	K. Al Belooshi M. Ebrahim T. Howard Ahmed Wagih	阿拉伯联合酋长国
H. North		联合王国
S. Kelley	K. Leary	美国
B. Firkins		国际航空运输协会 (IATA)
D. Schlichting	M. Phaneuf	航空公司驾驶员协会国际联合会 (IFALPA)
顾问		
A. Altemos G. Leach E. Wilson		危险物品咨询理事会 (DGAC)
I. Elek		欧洲化学工业理事会 (CEFIC)
观察员		
I. Alsayer		沙特阿拉伯
L. Calleja-Barcena		欧洲航空安全局 (EASA)

T. Rogers	全球快递协会（GEA）
C. Litus-Koza	北大西洋公约组织（NATO）
J. Bojnansky	万国邮政联盟（UPU）

3. 会议干事和秘书处

3.1 Teun Muller 先生（荷兰）和 Shane Kelly 先生（美国）被提名担任会议主席，Leonardo Cascardo 先生（巴西）被提名担任会议副主席。Teun Muller 先生（荷兰）当选为会议主席，Leonardo Cascardo 先生（巴西）当选为会议副主席。

3.2 会议的秘书是货物安全科技术干事 Lynn McGuigan 女士，她的助手是该科货物安全技术干事 Virgilio Alegria 先生。

4. 会议议程

4.1 空中航行委员会于 2025 年 5 月 19 日批准了下列会议议程。

- | | | |
|------|------|---|
| 议程项目 | 1: | 国际民航组织危险物品的规定与联合国《关于危险货物运输的建议书》的协调统一（REC-A-DGS-2027） |
| | 1.1: | 如有必要，拟定对附件 18 — 《危险物品的安全航空运输》的修订提案 |
| | 1.2: | 如有必要，拟定对《危险物品安全航空运输技术细则》（Doc 9284 号文件）的修订提案，以便纳入 2027 年 — 2028 年版 |
| | 1.3: | 如有必要，拟定对《危险物品安全航空运输技术细则补篇》（Doc 9284SU 号文件）的修订提案，以便纳入 2027 年 — 2028 年版 |
| 议程项目 | 2: | 管理航空特有的安全风险和查明异常情况（REC-A-DGS-2027） |
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- 议程项目 7: 航空安保/危险物品的协调
- 议程项目 8: 与空中航行委员会其他专家组的协调
- 议程项目 9: 《危险物品专家组 (DGP) 帮助编制技术细则和辅助文件的指导材料》与经修订的危险物品规定的协调统一
- 议程项目 10: 其他事项

5. 工作安排

5.1 专家组作为一个单一机构举行会议, 并根据需要设立特设工作组。主会场的讨论用阿拉伯文、中文、英文、法文、俄文和西班牙文举行。某些工作文件仅用英文提交。报告的叙述部分以阿拉伯文、中文、英文、法文、俄文和西班牙文印发, 对《危险物品安全航空运输技术细则》及其《补篇》(Doc 9284SU 号文件)的修订以中文、英文、法文、俄文和西班牙文印发。

6. 空中航行委员会主席的开幕词

6.1 危险物品专家组的成员和观察员们、女士们、先生们, 早上好。欢迎各位来到国际民航组织总部参加危险物品专家组第三十次会议。我是空中航行委员会主席梁均荣。我代表航委会, 首先衷心感谢你们的奉献和专业知识, 使危险物品能够得到安全航空运输。你们的工作对于确保国际民航组织的危险物品规定保持切实可行和适应我们面临的不断变化的安全挑战至关重要。

6.2 我谨向加入专家组的新成员表示特别欢迎。自 DGP/29 次会议以来，委员会批准了两项新提名和五项替代离任成员的提名：

- 1) 由伊朗提名的 Mohammadmehdi Seddighi 先生；
- 2) 由尼日利亚提名的 Augustine Eboigbe 先生；
- 3) 由意大利提名的 Eliana Toriello 女士，替代 Paulo Privitera 先生；
- 4) 由南非提名的 Nico Smit 先生，替代 Luvuyo Gqeke 先生；
- 5) 由联合王国提名的 Helen North 女士，替代 Mario Ranito 先生；
- 6) 由美国提名的 Shane Kelley 先生，替代 Duane Pfund 先生；和
- 7) 由 IFALPA 提名的 David Schlichting 先生，替代 Scott Schwartz 先生。

6.3 你们的崭新视角和专业知识和专家组将极为宝贵。同时，我们也感谢离任成员的服务，他们的奉献精神塑造了专家组多年来的成就。由于成员构成的变动，本专家组现由 27 名成员组成，由 24 个国家和 3 个国际组织提名。我们对所有成员的工作都表示高度赞赏。

6.4 我谨在此强调你们作为专家组成员的三个关键职责：

6.4.1 首先请记住，虽然你们是由你们所在国家或国际组织提名的，但你们是以个人专家身份参加专家组，协助航委会研究和解决国际航空问题，造福于所有国家。

6.4.2 其次，至关重要的是你们每个人都为专家组工作做出贡献。《对空中航行委员会各专家组的指示》规定：“如果某位专家组成员没有对专家组的工作做出贡献，或者连续两次没有出席会议，国际民航组织可以询问相关国家或国际组织是否希望保持其被提名人的专家组成员身份。如果在三个月内没有收到答复，将认定该国家或国际组织希望撤回其被提名人”。我之所以提醒大家这一点，是因为专家组的规模越来越大，我们希望确保其继续卓有成效。

6.4.3 最后请记住，任何国际民航组织专家组会议的成功都取决于与会者以合作方式解决技术问题的能力，而共识驱动的解决方案是成功的关键所在。这将有助于确保各项修订在全球范围内适用，并在成员国间得到一致实施。

6.5 我知道你们将在本次会议中选举新的专家组领导。我要感谢主席和副主席在过去两年中对专家组工作的领导和奉献。祝所有参选的候选人一切顺利。

6.6 我特别要祝贺专家组在 2023 年 11 月举行的第 29 次会议上取得的成就。委员会在其第 225 届会议期间审查了你们的报告，随后理事会批准了你们提出的修订，但须经委员会作出一些小幅修改。所有修订均已纳入 2025 — 2026 年版文件中。

6.7 委员会还审查了你们今年 3 月提出的对附件 18 的修订，涉及澄清国家在危险物品安全航空运输方面的责任。这些修订获得了委员会的广泛支持。委员会通过秘书处向专家组提交了具体意见，并认识到本次会议将提出对附件 18 更成熟的修订。委员会还强调了危险物品专家组、飞行运行专家组、安全管理专家组、飞行运行专家组下属货物安全运输专门工作组以及航空安保专家组之间进行协调的重要性。委员会尤其突出强调了货物安全运输专门工作组，因为该工作组的工作卡涉及与危险物品专家组相关的主题。我期待看到本次会议产生与相关专家组经过充分协调的最终修订。

6.8 跨专家组协调对于维护国际民航组织各项标准和建议措施（SARP）和空中航行服务程序（PANS）的一致性和完整性至关重要。你们的工作计划中已有三张获得批准的工作卡。你们的工作卡得到了另外九个专家组的支持，同时，危险物品专家组还支持着另外八个专家组的十六张工作卡。大家在提供意见投入时，请记住各项工作卡的优先等级和交付时间表，包括你们所支持的工作卡以及其他专家组中可能较为优先的工作卡。重要的是要帮助相关专家组按时完成工作，以满足航委会的期望。

6.9 在你们的工作计划中，DGP.003.05 “减缓航空载运锂电池带来的安全风险”是一个高度优先事项，这意味着航委会期望积极推进和监测这一工作卡的进展，并制定行动计划以确保为其提供充足资源。应按照航委会设定的时间框架进行这一工作，或按照航委会根据主要专家组或工作组所作的影响评估而重新定夺的时间框架进行，这种影响评估提供了拟议推迟的理由及其后果。当预计高优先级工作卡按时交付存在风险时，应及早向航委会示警。

6.10 你们本周要完成的日程十分繁重。诸如储能装置和遥控驾驶航空器等不断演变的挑战，需要各领域专家持续进行对话。我鼓励大家公开分享经验和见解，使我们继续一道加强航空安全。如果你们在工作中需要任何建议或协助，我相信你们的主席会毫不犹豫地联系秘书处、我本人或航委会的任何成员。

6.11 我现在宣布危险物品专家组第三十次会议开幕。航委会各位委员和我本人期待周五与大家会面听取汇报。祝你们会议顺利且富有成效。

7. 空中航行局局长的开幕词

7.1 空中航行局局长 Michele Merkle 女士欢迎与会者光临国际民航组织，并对专家组的奉献精神 and 辛勤工作表示感谢。她承认专家组的工作往往是日常工作之外的工作，可能会影响个人生活，并强调他们的贡献对国际民航组织的使命极为宝贵和重要。

7.2 她特别感谢那些在专家组和工作组中担任领导职务的人员，指出他们的额外努力对于通过航委会和理事会进程推动专家组工作而言至关重要。她感谢来自阿拉伯联合酋长国、卡塔尔和印度的专家组成员们组织了面对面的工作组会议并为秘书处出席会议提供了支持。

7.3 她提到了创纪录的大会第 42 届会议，出席大会的代表人数是有史以来最高的。会上共提交了 500 多份工作文件和信息文件，其中若干份文件与危险物品相关。大会上提出的大多数问题已纳入专家组工作计划。大韩民国的一份文件强调航空器客舱中锂电池日益增加的风险，这是专家组将在本周讨论的一个主题。

7.4 她指出，大会核准了 2026 — 2028 年全球航空安全计划，用以指导地区和国家安全规划。该计划重申了国际民航组织对航空安全的承诺，以及与国际民航组织 2026 — 2050 年战略计划相一致的国际民航事故零死亡或非法行为零死亡的理想目标。

7.5 她强调在整个货物运输供应链中需要积极的安全文化。她提到了 2025 年 4 月在土耳其举行的第一届航空货运峰会，会上也强调了这一点。

7.6 她鼓励与会者享受蒙特利尔的美丽天气和风景，并再次感谢他们的辛勤工作及其贡献的价值。

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议程项目 1: 国际民航组织危险物品的规定与联合国《关于危险货物运输的建议书》的协调统一
(REC-A-DGS-2027)

1.1: 如有必要, 拟定对附件 18 —《危险物品的安全航空运输》的修订提案

专家组未查明为与联合国《关于危险货物运输的建议书》保持一致而需要对附件 18 进行的任何修订。

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议程项目 1: 国际民航组织危险物品的规定与联合国《关于危险货物运输的建议书》的协调统一 (REC-A-DGS-2027)

1.2: 如有必要, 拟定对《危险物品安全航空运输技术细则》(Doc 9284 号文件) 的修订提案, 以便纳入 2027-2028 年版

1.2.1 对《技术细则》的修订草案, 以便与联合国《建议书》保持一致

背景

会议审查了对《技术细则》的修订, 以反映联合国危险物品运输和全球化学品统一分类和标签制度专家委员会(以下在报告中简称为“UNCOE”)第十二届会议(2024年12月6日, 日内瓦)所做的决定。修订由危险物品专家组与联合国协调统一工作组(DGP-WG/UN Harmonization)拟定, 并在2025年危险物品专家组工作组会议(DGP-WG/25会议, 2025年4月21日至25日, 印度德里)上进行了初步审查(见DGP-WG/25会议报告第4.1.2.1段)。DGP-WG/25会议之后, 危险物品专家组与联合国协调统一工作组继续进行了审查, 并提出了进一步修订的建议。下文关于DGP/30会议的讨论报告对这些修订作了说明。

1.2.1.1 危险物品专家组工作组2024年会议(DGP-WG/24)和危险物品专家组工作组2025年会议(DGP-WG/25)制定的对《技术细则》第1部分的修订(DGP//30-WP/11)

1.2.1.1.1 会议同意了提交给DGP-WG/25的第1部分修订, 但须作出一项编辑修订, 以纠正正在1;1.1.5.1 i) 2)中的一项参引。

1.2.1.2 危险物品专家组工作组2024年会议(DGP-WG/24)和危险物品专家组工作组2025年会议(DGP-WG/25)制定的对技术细则第2部分的修订(DGP//30-WP/12)

1.2.1.2.1 会议同意了提交给DGP-WG/25的第2部分修订, 但须:

- a) 对高能样品分类的新规定进行修订, 以解决《联合国规章范本》中提及的部分物质被禁止空运的问题;
- b) 对2;2.5.1、2;9.3和2;9.4进行编辑修订。

1.2.1.3 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则》第 3 部分的修订 (DGP//30-WP/13)

1.2.1.3.1 会议同意了提交给DGP-WG/25的第3部分修订, 但须:

- a) 不采纳《联合国规章范本》中的修订, 即不为 UN 2029 — 无水肼指定要求对其进行隔热保护的一条特殊规定, 因为 UN 2029在航空运输时不允许带气瓶。
- b) 不把特殊规定A235 (该规定要求将包含锂离子电池芯和钠离子电池芯的混合电池指定给表3-1内的适当锂离子条目) 指定给UN 3536 — 装在货运装置中的锂离子电池、UN 3563 — 装在货运装置中的锂金属电池和UN 3564 — 装在货运装置中的钠离子电池, 因为这些物品禁止空运; 并在补篇中将一条新的特殊规定指定给这些条目 (见本报告1.3.1.1 a))。
- c) 对特殊规定A107和A237作出编辑修订;
- d) 将划入UN 3082 — 危害环境的液态物质, 未另作规定的*混合物免于接受带活动盖塑料桶包装性能试验的标准, 从新的特殊规定移到现有的UN 3082 包装说明 (包装说明 964) 中; 和
- e) 将表3-1中对UN 2941 — 氟苯胺类的交叉参引替换为对通用条目的参引, 因为UN 2941的条目已从表中删除。

1.2.1.4 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对技术细则第 4 部分的修订 (DGP//30-WP/14)

1.2.1.4.1 会议同意了提交给DGP-WG/25的第4部分修订, 但须:

- a) 在包装说明854中, 取消对UN 2029 — 无水肼单一包装的补充包装要求, 因为该物质不允许采用单一包装; 和
- b) 用对包装说明967、970和978的参引来取代从这些包装说明第II节复制到包装说明962的相关规定, 这些规定允许UN 3363 — 器械中的危险物品或机器中的危险物品或物品中的危险物品含有锂电池芯或电池或钠离子电池芯或电池。

1.2.1.4.2 为解决包装说明中的不一致问题, 会议确定在下一个两年期内有必要处理以下事项:

- a) 制定判定标准, 用以确定具体规定应纳入包装说明还是特殊规定之中, 并制定对《技术细则》的修订和继发修订, 以确保相关规定与该标准保持一致;

- b) 考虑一种一致且有效的做法，以纳入关于允许含有危险品的物品也含有锂或钠离子电池和电池芯的相关规定，并纳入继发修订，以确保相关规定与这一做法保持一致；和
- c) 审查《技术细则》与《联合国规章范本》之间关于UN 2990 — 救生设备，自动膨胀式和UN 3072 — 非自动膨胀式救生设备的相关规定可能存在的~~不一致~~之处。

1.2.1.5 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则》第 5 部分的修订 (DGP//30-WP/15)

1.2.1.5.1 会议同意了提交给DGP-WG/25的第5部分修订，但须：

- a) 作出编辑修订，以纠正4.1.5.1.1中的错误参引；
- b) 对危险物品运输文件中允许使用的第 1 类爆炸品的计量单位缩略语进行修订，以便与第1;3部分中关于净爆炸质量的修订定义保持一致；
- c) 对危险物品运输文件中引用的特殊规定清单作出继发修订，这是因为作出决定，将 UN 3082的例外适用标准从特殊规定移至包装说明（见本报告第1.2.1.3.1 d) 段）。

1.2.1.6 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则》第 6 部分的修订 (DGP//30-WP/16)

1.2.1.6.1 会议同意了提交给DGP-WG/25的第6部分修订。

1.2.1.7 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则》附篇 1 的修订 (DGP//30-WP/19)

1.2.1.7.1 会议同意了提交给DGP-WG/25的对附篇1的修订。

1.2.1.8 包装说明603 (DGP//30-WP/24)

1.2.1.8.1 会议同意了一项编辑修订，以纠正包装说明603中的一项参引错误，涉及UN 3507 — 六氟化铀，放射性物质，例外包装，非裂变或例外易裂变，并同意了一项更正缺失文本的编辑修订。

1.2.1.9 例外包装件航空运输文件（航空货运单（AWB））上要求的信息 （DGP/30-WP/25）

1.2.1.10 会议同意了对第 1 部分 6.1.5.1 和第 5 部分 1.2.4.2 中关于运输装有放射性物质的例外包装件的一般规定和文件要求方面的编辑修订，以纠正因新增分段而在 2025—2026 年版中意外引入的过时参引。要求秘书通过对《技术细则》2025—2026 年版发布勘误予以更正。

1.2.2 建议

1.2.2.1 根据上述讨论，会议拟定了以下建议：

建议 1/1 — 对《危险物品安全航空运输技术细则》（Doc 9284 号文件）进行拟议修订，使其与联合国《关于危险货物运输的建议书》保持一致，以便纳入 2027-2028 年版

将报告附录 A 中确定为“为与联合国保持一致而进行修订”所涉及的修订纳入《技术细则》中。

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议程项目 1: 国际民航组织危险物品的规定与联合国《关于危险货物运输的建议书》的协调统一 (REC-A-DGS-2027)

1.3: 如有必要, 拟定对《危险物品安全航空运输技术细则补篇》(Doc 9284SU 号文件) 的修订提案, 以便纳入 2027-2028 年版

1.3.1 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则补篇》的修订 (DGP/30-WP/20)

1.3.1.1 《技术细则补篇》的修订草案由危险物品专家组与联合国协调统一工作组拟定, 以反映联合国危险物品运输和全球化学品统一分类和标签制度专家委员会 (UNCOE) 所作的决定。在 DGP-WG/25 会议上对危险物品专家组与联合国协调统一工作组的输出文稿进行了初步审查。危险物品专家组与联合国协调统一工作组在 DGP-WG/25 会议之后继续进行了审查, 并建议如下:

- a) 在《技术细则》中参照特殊规定 A235, 增加一条新的特殊规定, 适用于装在货运装置中且划入 UN 3536 — 装在货运装置中的锂离子电池、UN 3563 — 装在货运装置中的锂金属电池和 UN 3564 — 装在货运装置中的钠离子电池的混合电池; 和
- b) 进行编辑修订, 在含有危险品的物品包装说明中将“2; 6.0”的参引改为“2, 引言章, 6.0”。

1.3.1.2 会议同意了相关修订。

1.3.2 建议

1.3.2.1 根据上述讨论, 会议拟定了以下建议:

建议 1/2 — 对《危险物品安全航空运输技术细则补篇》(Doc 9284SU 号文件) 进行拟议修订, 使其与联合国《关于危险货物运输的建议书》保持一致, 以便纳入 2027 — 2028 年版

将报告附录 B 中确定为“为与联合国保持一致而进行修订”所涉及的修订纳入《技术细则补篇》中。

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议程项目 2: 管理航空特有的安全风险和查明异常情况 (编号: REC-A-DGS-2027)

2.1: 如有必要, 拟定对附件 18 — 《危险物品的安全航空运输》的修订提案

2.1.1 在此议程项目下, 专家组没有拟定对附件18的任何修订。

- 议程项目 2: 管理航空特有的安全风险和查明异常情况 (编号: REC-A-DGS-2027)
- 2.2: 如有必要, 拟定对《危险物品安全航空运输技术细则》(Doc 9284 号文件) 的修订提案, 以便纳入 2027-2028 年版

2.2.1 术语统一: 积载或储存 (DGP/30-WP/8)

2.2.1.1 会议同意了旨在确保《技术细则》第 7 部分及其补篇第 S-7 部分中“储存”、“装载”和“积载”术语使用一致性的修订。这是对 DGP-WG/25 会议讨论的后续跟进 (参见 DGP-WG/25 报告第 4.2.2.4 段)。专家组一致认为, “储存”一词适用于货物的长期保管 (通常在仓库中), 而“积载”则适用于航空器上货物的排列与处理, 尽管 DGP-WG/25 报告中对该术语的描述有所不同。专家组还商定, 在《技术细则》语境中“装载”与“积载”为同义词, 但在第 7 部分和 S-7 部分标题中应保留这两个术语的表述, 因其经常并用出现, 此举可增强规定的清晰度并确保与相关规定协调一致。专家组指出需要进一步开展工作, 确保第 1; 4 部分的培训规定与《基于胜任能力的危险物品培训和评估做法指导》(Doc 10147 号文件) 协调一致。专家组委托危险物品专家组培训工作组 (DGP-WG/Training) 在未来两年内开展审查工作。

2.2.2 术语统一: 批准或专门批准 (DGP/30-WP/9)

2.2.2.1 专家组跟进了 DGP-WG/25 会议期间开展的讨论: 即经指定的邮政业务经营人在根据第 1 部分 2.3 的规定开始收运邮寄设备中所含的锂电池之前, 是否应提及该经营人必须获得民航管理局的“专门批准”。运行安全科科长解释指出, 附件 6 中将专门批准定义为商业航空运输运行规范中明文列示的批准, 因此不宜将该术语用于经指定的邮政业务经营人。专家组同意在第 1 部分 2.3.4 中将该术语改为“准许”, 准许一词范围更广, 能够涵盖所有类型的批准和接受。

2.2.3 危险物品专家组工作组 2024 年会议 (DGP-WG/24) 和危险物品专家组工作组 2025 年会议 (DGP-WG/25) 制定的对《技术细则》第 7 部分的修订 (DGP/30-WP/17)

2.2.3.1.1 会议审查了危险物品专家组工作组于 2024 年 (DGP-WG/2024) 和 2025 年 (DGP-WG/2025) 商定的对《技术细则》的修订。这些修订包括:

- a) 纠正《技术细则》与《补篇》之间的一项差异, 涉及运输过程中需分隔的爆炸性物质和物品表 (《技术细则》表 7-2 与《补篇》表 S-7-1); 和
- b) 用以纠正参引错误的编辑修订。

2.2.3.1.2 会议同意了相关修订。

2.2.4 爆炸物分类程序 (DGP/30-WP/27)

2.2.4.1.1 制定了对第 2 部分 1.5 的修订，这些修订旨在澄清生产商和国家主管部门在爆炸物分类方面的作用，并确保在爆炸物重新包装以供后续分发时遵守与分类相关的包装条件。这些修订考虑了在 DGP-WG/24 和 DGP-WG/25 讨论期间提出的意见（见 DGP-WG/24 报告第 4.1.2.3 段和 DGP-WG/25 报告第 4.2.2.1 段）。专家组一致认为，有必要让相关国家主管部门参与进来，这也是《联合国规章范本》和《技术细则》的意图所在。因此，修订案明确指出，必须由相关国家主管部门完成、批准或接受爆炸物的分类。根据工作组会议上提出的意见，修订案的起草方式既不要求主管机构必须来自与制造商或托运人相同的国家，也不暗示必须提供实体形式的分类文件。修订案根据各国自身能力以及对所涉风险的评估，为各国提供了灵活性。

2.2.4.1.2 在两次工作组会议上，还讨论了爆炸物后续托运人和分销方充分了解分类信息的重要性，因为分类信息与所使用的包装类型密切相关。在第 2 部分 1.5.1.3 c) 的现有注释中增加了相关文字，强调托运人需要核实拟用于重新包装的爆炸物包装方式是否符合原始分类要求。

2.2.4.1.3 会议同意了相关修订。

2.2.5 UN 3552 和特殊规定 A48 (DGP/30-WP/37)

2.2.5.1 在《技术细则》2025-2026 年版中，特殊规定 A48（其中规定包装试验不被视为必要）被错划给 UN 3552 — 与设备包装在一起的钠离子电池。事实上，根据包装说明 977 第 I 节的规定，当 UN 3552 与设备包装在一起时，需要进行包装试验。会议同意作出一项修订以删除这一划拨。要求秘书处通过发布一项更正来纠正 2025-2026 版中的此项错误。

2.2.6 补救包装 (DGP/30-WP/38)

2.2.6.1.1 请专家组考虑修订《技术细则》第 5 部分 4.3，要求使用补救包装运输的危险物品须随附一份批准文件的副本。制定该修订的目的是便利检查并确保合规，这意味着运营人往往并不了解补救包装需要获得国家主管部门批准。尽管专家组理解该拟议修订的目标，但对这一修订的支持甚少。补救包装在航空运输中极少使用，它们通常存放于仓库内，以备原始包装损坏时的急用之需。虽有批准文件，但并非总是可追溯的，在紧急情况下查找这些批准文件会造成延误。专家组成员认为，现行要求及规定的标志已足够充分。因此，该提案被撤回。

2.2.7 使用容量超过国际民航组织《技术细则》规定限值的容器空运燃料 (DGP/30-IP/6)

2.2.7.1 2024 年第十四次空中航行会议 (AN-Conf/14) 上提出了关于使用超出《技术细则》允许规格的容器空运燃料所面临的挑战, 随后在 DGP-WG/24 会议上讨论了这些挑战。鉴于需要考虑的众多安全因素, 专家组成员不支持在《技术细则》中纳入关于此类容器的规定。尽管豁免程序提供了一条途径, 但缺乏明确的技术指导仍然带来了挑战。建议各国进行协作并制定标准化指导材料, 以应对安全、运营及人道主义需求。

2.2.7.2 自 DGP-WG/24 以来出现的进一步信息表明, 在偏远地区运输大量燃料在运行和社会经济层面具有必要性, 尤其是在航空燃料对于支持孤立地区人口以及保障航班安全返航至关重要的情况下。对使用较大容器给予豁免, 可能缓解后勤和人道主义方面的挑战, 但需保持与《技术细则》同等的标准, 并与《联合国规章范本》中适用的包装说明保持一致。

2.2.7.3 专家组可考虑制定清晰、标准化的指导方针, 以支持根据豁免程序安全、一致地运输燃料, 确保安全与运行需求之间的平衡。

2.2.7.4 在拥有共同经历的专家组成员中, 表现出强烈的合作意愿, 并愿意制定统一的指导材料。文件作者将在下一个两年期内与感兴趣的成员进行交流。

2.2.8 建议

2.2.8.1 根据上述讨论, 会议拟定了以下建议:

建议 2/1 — 为应对航空特有的安全风险和所查明的异常情况对《危险物品安全航空运输技术细则》(Doc 9284 号文件) 进行修订, 以便纳入 2027—2028 年版

将报告附录 A 中确定为“为了管理航空特有的风险和应对异常情况而进行修订”所涉及的修订纳入《技术细则》中。

- 议程项目 2: 管理航空特有的安全风险和查明异常情况 (编号: REC-A-DGS-2027)
- 2.3: 如有必要, 拟定对《危险物品安全航空运输技术细则补篇》(Doc 9284SU 号文件) 的修订提案, 以便纳入 2027—2028 年版

2.3.1 危险物品专家组补篇工作组 (DGP-WG/Supplement) 今后的工作 (DGP/30-WP/6)

2.3.1.1 请专家组对 DGP 补篇工作组 (DGP WG/Supplement) 的未来工作进行优先排序, 并商定这一工作的总体原则。DGP 补篇工作组在以往会议上就处理豁免和批准的现行指导材料拟定了修订 (见本报告第 2.3.2 段), 但相关工作随后暂停, 等待拟议的附件 18 修订工作结果以及 DGP 附件 18 工作组 (DGP-WG/Annex 18) 就辅助指导材料的结构提出的建议。

2.3.1.2 专家组一致认为, 补篇应继续涵盖危险物品一览表、包装说明以及与批准和豁免相关的流程。补篇中包含的其他指导内容, 包括培训大纲和运行手册的批准, 更适合纳入正在制定的用于支持附件 18 实施的一份新文件中 (参见本报告第 5.1.4 段)。

2.3.1.3 专家组同意 DGP 补篇工作组应侧重于:

- a) 对补篇进行重组, 同时注意有必要确保补篇的内容与用于支持附件 18 实施的新指导材料之间具有明确的区分; 和
- b) 制定一项机制, 确保补篇始终与《联合国规章范本》和《技术细则》保持一致。

2.3.2 对《技术细则》补篇中所载关于处理豁免和批准的指导的修订草案 (DGP/30-WP/7)

2.3.2.1 请专家组审议了对《技术细则补篇》第 S-1 部分第 1 章附篇 I 所载关于处理豁免和批准的指导方面的拟议修订, 该修订基于在 2022 年 DGP 工作组会议 (DGP-WG/22, 2022 年 11 月 21 日至 25 日, 蒙特利尔) 上首次提出的修订内容。对原始提案进行了修订, 以纳入 DGP-WG/22 会议期间及会后收到的反馈意见, 以及 DGP 补篇工作组提供的意见投入。

2.3.2.2 专家组认为，将该修订纳入补篇为时尚早，因为整个文件仍然存在不一致和矛盾之处，在专家组尚未就补篇究竟属于纯指导性文件，还是其中部分内容属于强制性规定的问题结束辩论之前，这些不一致和矛盾之处无法得到解决（见 DGP-WG/25 报告第 4.2.3.3 段）。专家组一致认为，这项工作十分紧迫，应在下一个两年期内完成。该工作将作为附件 18 实施指导材料制定工作的一部分，通过航委会工作卡 DGP.005 交付专家组完成（参见本报告第 5.1.4 段）。

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- 议程项目 2: 管理航空特有的安全风险和查明异常情况 (编号: REC-A-DGS-2027)
- 2.4: 如有必要, 拟定对《与危险物品有关的航空器事故征候应急响应指南》(Doc 9481 号文件) 的修订提案, 以便纳入 2027—2028 年版

2.4.1 对《应急响应指南》的修订草案 (DGP/30-WP/5)

2.4.1.1 请专家组审议了对《与危险物品有关的航空器事故征候应急响应指南》(Doc 9481 号文件) 的拟议修订, 其中包括对客舱机组人员危险物品事故征候程序所作修订的强化内容, 系根据国际民航组织客舱安全小组 (ICSG) 的建议和专业制定。DGP/29 次会议建议将这些修订纳入该文件 2025-2026 年版, 但需在会后通过信函方式进行小幅修改, 以处理所提出的问题 (参见 DGP/29 报告第 9.1 段)。然而, 在 DGP/29 会议后发现需要进行更实质性的修订, 而这些修订无法在既定的出版期限内完成。因此建议将 Doc 9481 号文件的修订工作推迟至 2027-2028 版。会议邀请感兴趣的 DGP 成员和顾问与飞行运行专家组货物安全运输专门工作组 (FLTOSP-SCGSWG) 成员一道完成这项工作, 航委会已责成该工作组制定程序, 以预防和应对由于机组人员、旅客和运营人携带锂电池而发生的事故征候, 并通过与客舱安全小组的协调开展相关工作。修订内容包括:

- a) 提醒相关程序作为给运营人的指导, 供其制定其自身的应急响应方案;
- b) 强化客舱机组人员处理电池 / 便携式电子设备 (PED) 火情的程序, 包括发生在行李架、座椅以及驾驶舱内的火情;
- c) 强调使用防护装备的重要性, 并删除先前因可能延误应急响应而不建议使用防护装备的文字;
- d) 有必要对消防装置的性能声明进行验证;
- e) 明确定义“消防手套”, 并在客舱和驾驶舱火情 (特别是涉及锂电池的火情) 处置中增加相关参引;
- f) 澄清“火情”一词的适用范围, 以涵盖烟雾、火焰或烟气, 与具体使用烟雾、火焰或烟气一词作出区分;
- g) 简化步骤并明确相关行动, 尤其针对锂电池火情和便携式电子设备的事故征候;
- h) 删除关于在将便携式电子设备放入容器之前需在原位放置一定时间的建议; 和
- i) 更新货舱分类和位置指南, 以与现行适航要求以及《飞机货舱安全运行指南》(Doc 10102 号文件) 保持一致。

2.4.1.2 这些修订获得广泛支持，会议也对其制定过程中的辛勤工作表示认可。会议强调了旅客处置培训的重要性，并指出近期事故征候中旅客行为可能影响了应急响应。飞行运行专家组客舱安全专门工作组（FLTOPSP-CSSWG）秘书指出，该工作组正是为应对此类风险而设立。会议也强调需持续维护相关指导材料，确保其与实际情境保持一致。这需要通过各专家组间的协作付诸实现。

2.4.1.3 专家组建议，在获得飞行运行专家组货物安全运输专门工作组（FLTOPSP-SCGSWG）和客舱安全专门工作组（FLTOPSP-CSSWG）核准的前提下，将拟议的修订纳入 Doc 9481 号文件 2027-2028 年版。

2.4.2 危险物品专家组工作组 2025 年会议（DGP-WG/25 会议）制定的对应急响应指南中操作方法代号的修订（DGP/30-WP/21 号文件）

2.4.2.1 会议审查了因 UNCOE 所作决定而对《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）中操作方法代号进行的修订。会议同意了相关修订。

2.4.3 货舱的类型和位置（DGP/30-WP/39）、《技术细则》中关于货舱类型和位置规定的参引修订（DGP/30-WP/40），以及《技术细则补篇》中关于货舱类型和位置规定的参引修订（DGP/30-WP/41）

2.4.3.1 会上提出了一项修订建议，纠正 Doc 9481 号文件与《飞机货舱安全运行指南》（Doc 10102 号文件）之间在货物分类与位置表述方面存在的不一致，方法是删除 Doc 9481 号文件中的过时规定，改为提及 Doc 10102 号文件中的最新规定。鉴于 Doc 9481 的相关规定已通过较大范围的修订予以更新（见第 2.4.1 段），因此专家组审议了哪种做法更为合适，即：在 Doc 9481 号文件和 Doc 10102 号文件中重复收录相关规定，或者仅在 Doc 10102 号文件中纳入这些规定，并在 Doc 9481 号文件或其他文件中提及 Doc 10102 号文件，从而避免再次出现不一致的情况。会议广泛支持后一种做法，但也理解这对于 Doc 9481 号文件用户带来的费用问题，因其可能需要另行购买 Doc 10102 号文件，以了解这些规定。有人建议将相关规定从两份文件中全部删除，改在国际民航组织公共网站予以发布。但这种做法也会带来维护方面的问题，且因缺乏明确的出版周期，可能更难确保规定及时得到更新。另一种做法是不在任何国际民航组织文件中发布这些规定，因其阐述内容均基于国家适航性要求，这些要求可通过其他渠道获取。但会上有人质疑是否存在任何机制，确保主要航空器制造国的国家要求保持一致。会议决定在获得更多信息之前暂不作出决定，并请 FLTOPSP-SCGSWG 研究哪种做法最为合适，因为该工作组也将审议对 Doc 9481 号文件的较大范围修订（见第 2.4.1 段）。

2.4.3.2 如果决定仅在 Doc 10102 号文件中保留相关规定，则需要对《技术细则》及其补篇中涉及 Doc 9481 号文件所载的货舱分类与位置规定的注释进行相应修订。这些修订也将提交给 FLTOPSP-SC GSWG 审议。

2.4.4 建议

2.4.4.1 根据上述讨论，会议拟定了以下建议：

建议 2/3 — 为应对航空特有的安全风险和所查明的异常情况对《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）进行修订，以便纳入 2027 — 2028 年版

应按报告附录 C 中所示，对《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）进行修订。

议程项目 3：促进危险物品的安全航空运输（编号：REC-A-DGS-2027）

3.1 危险物品专家组工作组 2024 年会议（DGP-WG/24）和危险物品专家组工作组 2025 年会议（DGP-WG/25）制定的对技术细则第 8 部分的修订（DGP/30-WP/18）

3.1.1 会议同意了 DGP-WG/25 制定的对《技术细则》第 8 部分的修订。该修订在第 8 部分 1.1.1 项下新增了一个注释，用以澄清“仅供个人使用”的意图。此举是为了解决一项关切，即如果要求旅客和机组成员可携带的危险物品仅限个人使用，可能会导致运营人不允许医务人员携带含有危险物品的急救设备。会上普遍同意，医疗专业人员应能携带相关设备，前提是其并非出于商业或销售目的而携带多台设备。相关注释正是基于这一原则制定的。

3.2 类别为“未另作规定的含有危险品的物品”使用的包装说明（DGP/30-WP/26）

3.2.1 会议讨论了一项提案，该提案旨在澄清对于表 3-1 中划入 UN 3537 到 3548、未另作规定的含有危险品的物品的各个条目，应适用哪个包装说明和批准条件。此类物品在正常情况下禁止运输，但部分物品可通过特定的特殊规定获得批准运输。多项特殊规定和包装说明可能适用于一件单一物品，从而造成困惑。会议指出，虽然应根据所分配的 UN 编号指定一项包装说明，但同时也必须满足所有其他适用包装说明的补充要求。

3.2.2 会上提出了多种选择方案，旨在明确应优先适用哪一项包装说明，并建议整合审批流程的相关规定。讨论过程中发现补篇中存在其他问题和不一致之处，这些问题并未通过拟议的解决方案得到解决。专家组一致认为，制定全面的解决方案需要更多时间，并要求 DGP 补篇工作组将此任务纳入其正在进行的补篇更新工作中。

3.3 适用于含放射性物质包装的压差要求（DGP/30-WP/31）

3.3.1 专家组同意在《技术细则》第 6 部分 7.2.3 条加一个注，并在国际民航组织公共网站上发布指导材料，以支持该条款的实施。第 6 部分 7.2.3 要求装有放射性物质的包装件必须能够承受产生不低于最大标称使用压力（MNOP）加 95 kPa 的压差的内部压力，而其内装物不会漏失或弥散。该要求可能难以实现，而且被认为对于低活度材料而言过于严苛，因为即使发生弥散，其风险也很低。

3.3.2 这一注释为装有固体放射性物质的包装件提供了一种遵守该条款的替代方法，符合国际原子能机构（IAEA）咨询材料中的规定。该提案虑及 DGP-WG/24 会议（见 DGP-WG/24 报告第 4.3.1 段）以及此前危险物品专家组会议上讨论该题目时提出的意见。

3.4 对特殊规定的修订 (DGP/30-WP/35)

3.4.1 大多数在满足某些条件下允许危险物品免于适用《技术细则》的特殊规定，均要求在发布航空货运单时，货运单上必须标明“不受限制”的字样和特殊规定号。为保持一致性，建议将此要求加到那些尚未包含这一内容的规定中。虽然一部分人支持该提案旨在实现一致性的初衷，但另一些人强调指出，此举将给供应链带来重大财务和运营负担，却无法提升安全或合规性。会议没有同意该修订。但会上认同未来可开展工作，审查每项特殊规定，以在个案基础上确定是否有合理依据来要求在航空货运单内纳入这一声明和特殊规定号。

3.5 关于 UN 1544 生物碱，固体，未另作规定的*、UN 1544 生物碱盐，固体，未另作规定的*、UN 3140 生物碱，液体，未另作规定的*、UN 3140 生物碱盐，液体，未另作规定的*新特殊规定 (DGP/30-WP/36)

3.5.1 《技术细则》规定了一项例外：当国家法律或国际公约禁止披露相关信息时，对于受管制物质，通用名称或未另作规定 (n.o.s.) 的正式运输名称无需补充技术名称或化学类别名称。请专家组考虑在第 3.2 部分中增加一项特殊规定，为便于收运人员理解而说明此例外，并将其划入以下条目：UN 1544 生物碱，固体，未另作规定的，UN 1544 生物碱盐，固体，未另作规定的，UN 3140 生物碱，液体，未另作规定的和 UN 3140 生物碱盐，液体，未另作规定的。拟议的特殊规定还要求在省略技术名称的情况下，应在危险物品运输文件中注明负责人的姓名和电话号码。专家组认为该要求属重复规定，因为危险物品运输文件中已包含此项要求。在删除该要求之后，会议同意了这一修订。

3.6 建议

3.6.1 根据上述讨论，会议拟定了以下建议：

**建议 3/1 — 为了运输便利化而对《危险物品安全航空运输技术细则》
(Doc 9284 号文件) 进行修订，以便纳入 2027 — 2028 年版**

将报告附录 A 中确定为“为了运输便利化而进行修订”所涉及的修订纳入《技术细则》中。

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议程项目 4：管理航空载运储能装置带来的安全风险（编号：工作卡 DGP.003.05）**4.1 低产量电池芯和电池：第 2;0.6.2 节与特殊规定 A88 的文本协调
(DGP/30-WP/10)**

4.1.1 提出的修订旨在解决特殊规定 A88（允许生产之前的原型及“低产量”电池芯和电池经国家批准在特定条件下进行运输）与《技术细则》第 2;0.6.2 部分(允许被归类为含危险物品的物品也可额外含有电池芯或电池)之间的不一致。2;0.6.2 条款虽援引特殊规定 A88，却未明确说明其中规定的 100 个电池芯或电池的生产限额应按年度计算—这项要求在特殊规定 A88 中已明确说明。该修订最初在 DGP-WG/25 上审议并原则上达成一致，但专家组成员希望有更多时间以确保在当前特殊规定中并非有意使用“低”产量这一用语（比《联合国规章范本》中的文本更为具体），后来同意删除该用语，并有理由保留“年度”一词，尽管《联合国规章范本》中未使用该词。DGP-WG/25 还明确有必要将包装说明中含有关于生产前原型与“低产量”电池芯的规定的用语保持一致。

4.1.2 研究未能立即发现任何有记载的理由在《技术细则》中对于产量使用“低”和“每年”这样的用语。2022 年危险物品专家组会议（DGP-WG/22，2022 年 11 月 21 日至 25 日，蒙特利尔）曾提议一项修订（见 DGP-WG/22 报告 4.1.2.3），删除“年度”一词以与《联合国规章范本》保持一致，但因担心意想不到的后果未同意。

4.1.3 专家组同意拟议的修订，但请秘书向联合国小组委员会提交一份文件，寻求其对特殊规定 310（关于产量不超过 100 个电池芯或电池）的解释，以及是否有意对特定托运人的托运数量做任何限制。

4.1.4 对第 2 部分引言章第 6.2 段、第 3;3 部分特殊规定 A88 及第 4 部分包装说明 220、378、950、951 和 952 的修订连同 DGP/30 建议的对《技术细则》的综合修订载于本报告附录 A。

4.2 国际民航组织危险物品专家组助行设备工作队的报告（DGP/30-WP/30）；蝴蝶结分析（DGP/30-IP/1）；系统理论程序分析（STPA）报告（DGP/30-IP/2）及大会第 42 届会议执行委员会关于议程项目 12 的报告摘录（关于国际民用航空无障碍通行）（DGP/30-IP/10）

4.2.1 查明安全风险和成立工作队

4.2.2 专家组审查了危险物品专家组在 DGP-WG/24 上成立的助行设备工作队的发现，成立该该工作队是为了处理有关锂电池驱动的助行设备的安全关切。锂离子电池能量的不断增加以及管理热事件能力有限被确定为重大风险。虽然运营人负责确保航空器及机上人员的安全，但平衡这一责任与旅客无障碍通行权是一大挑战。行动不便的旅客也面临挑战，因为他们受制于不同运营人的不同政策。

4.2.3 《技术细则》对从助行设备上拆下并携带入客舱的电池规定了 300 瓦时的瓦时额定量限制，但对安装在助行设备上受到保护且放置在货舱内的电池则没有限制。对后者没有限制旨在防止行动不便者行动受阻，并相信通过助行设备为电池提供的保护和运营人的风险管理活动可以降低风险。然而，电池技术迅速进步，使得助行设备可安装越来越高能的电池。能量的提升增加了热事件的潜在严重性。运营人寻求设定限制，以防止为带上航空器的助行设备供电的电池能量的指数增长，谅解是由于携带瓦时额定量超过 300 瓦时的情况比例很低，这对目前行动不便的旅客影响甚微。然而，若没有设定限制，则预计此数量会增加。危险物品专家组助行设备工作队的成立旨在评估携带助行设备的安全风险，制定应对这一问题的政策选项，并建议对《技术细则》的任何必要修订。

4.2.4 安全风险评估

4.2.5 工作队通过蝴蝶结分析和系统理论程序分析（STPA）评估了安全风险。蝴蝶结分析和系统理论程序分析报告分别收录于本议程项目报告的附录 A 和附录 B 中。系统理论程序分析由经秘书处安全管理科协调安排的一位系统安全专家牵头，得到来自广泛的监管和行业 30 多人的参与。该工作队与飞行运行专家组安全运载物品专门工作组协调工作，并认识到其任务是通过航委会工作卡 SCGSWG.003.01 制定程序，防止和应对机组、旅客及运营人机上携带锂电池造成的事故征候。

4.2.6 评估发现现有系统存在若干弱点，影响机上携带电池驱动的助行设备的安全，其中包括：

- a) **验收和检查程序。**这些程序提供了一定的保护，但通常是被动的，且在发现隐患方面能力有限。损坏或设计不良的电池很容易被漏检，使旅客和机组成员暴露于风险中。
- b) **宣传沟通和运营人检查的局限性。**旅客常常不了解其设备的状况或规格，导致在验收点关键信息缺失的情况。地面服务和值机人员缺乏检查助行设备隐藏损坏的专业知识，且往往时间紧迫。
- c) **助行设备的设计。**强有力的设计与检测标准是真正安全的基础，确保从一开始就降低风险，而非依赖临时干预。如果助行设备在设计制造时考虑到安全和与航空运输环境的相容性，事故征候发生的可能性将大大降低，但对于助行设备此类标准往往有限或未完全实施。
- d) **搬运和积载。**这些控制措施侧重于在运输、装载和积载过程中保护设备。然而，它们在防止接收和积载在装载前已经损坏或不安全的助行设备方面几乎没有什么作用。
- e) **火灾探测、灭火和防护的局限性。**航空器货舱内的火灾探测和灭火系统提供了一层防御，但对锂电池热事件的防护效果有限。集装箱有助于保护助行设备，但它们可能无法控制电池火灾或实现早期发现。防火容器和封闭隔离盖提供了增强的保护，但没有公认的性能标准来评估其效能，且未被广泛使用。

4.2.7 工作队的建议

4.2.8 工作组认定，贯穿整个产品生命周期的强有力的设计和测试标准是积极主动降低安全风险最有效的方式。工作队还明确，信息共享和实施程序帮助运营人评估助行设备的质量并发现损坏对于积极主动的风险缓解活动至关重要。被动措施，如标准化的封闭隔离解决方案，可以减轻热失控事件的严重程度。然而，这些措施均无法立即实施，导致航空公司运营人持续暴露在风险之中。涉及高能锂离子电池的热事件可能导致载有全员的机身灾难性的损失。工作队成员一致认为，作为第一步，需要在短期内采取措施降低热事件的风险，并在发生时将事件的严重程度降到最低。航空公司运营人最紧迫的担忧是缺乏对安装在助行设备中电池能量的限制，以及未能及时从旅客那里获得支持风险管理活动所需的信息。因此，工作队提出了对《技术细则》的拟议修订，以处理这些迫在眉睫的关切。

4.2.9 专家组的讨论

4.2.10 专家组支持系统理论程序分析的结果及工作队建议的通过分析处理弱点的做法。系统理论程序分析是一个有效的工具，帮助工作队系统性地查明系统中的脆弱性，使专家组能够专注于解决方案。关于拟议修订的讨论集中在平衡安全性、实用性和旅客无障碍通行权有关的关切。最终商定了经修订的版本，谅解是拟议的修订将由利益相关方进行合验，特别是行动不便人士和助行设备制造商的代表。修订载于本议程项目报告的附录 D。关于讨论的更详细的综述及对原始提案做出修订的理由，见本议程项目报告的附录 C。

4.2.11 专家组认可这些修订处理了眼前的关切，但未来两年还需做进一步工作，全面解决系统理论程序分析中发现的弱点。这只能通过与简化手续专家组（FALP）协调实现，因为附件 9 —《简化手续》包含与残疾人无障碍航空运输的标准和建议措施（SARP）。国际民航组织大会第 42 届会议上制定的 12/3 号大会决议：“国际民航无障碍通行”中进一步强调了这一必要性。该决议申明，尊严和不歧视是包括航空旅行的残疾人和行动不便者在内所有人的普遍权利。决议认识到残疾人和行动不便者持续面临障碍，包括自由出行的障碍。它认识到政府和业界共同努力以支持残疾人和行动不便者旅行需求的重要性。决议强调，所有改善残疾人和行动不便者无障碍通行的措施都必须在不有损安全的前提下实施，且法规应协调统一这两个目标。因此，秘书将与秘书处内的简化手续专家合作，确定危险物品专家组与简化手续专家组之间有效的协调机制，以及如何最好地将利益相关方汇聚起来，共同处理机上携带锂电池驱动的助行设备的安全风险以及残疾人和行动不便者的出行需求。专家组表示希望在近期利益相关者参与后，对《技术细则》进行修订，并通过增编纳入 2027-2028 年版《技术细则》。专家组强调，这只是第一步，预计未来两年还会有更多工作。

4.2.12 建议

4.2.12.1 根据上述讨论，会议制定了以下建议：

建议 4/1 — 管理机上携带锂电池驱动的助行设备的相关风险

国际民航组织：

- a) 在危险物品专家组（DGP）、飞行运行专家组安全运载物品专门工作组（FLTOPSP-SCGSWG）、飞行运营专家组客舱安全专门工作组（FLTOPSP-CSSWG）和简化手续专家组（FALP）之间成立跨专家组的工作组，以处理本报告第 4.2.3 段所述通过安全风险评估查明的脆弱性及行动不便旅客的需求；
- b) 建立措施，积极主动地让行动不便者、助行设备制造商、航空公司运营人及监管机构的代表参与，以便：
 - 1) 视需要审查和完善本议程项目报告附录 D 中提出的对《技术细则》的拟议修订，以期通过增编纳入 2027-2028 年版《技术细则》；和
 - 2) 处理本报告第 4.2.3 段所述通过安全风险评估查明的脆弱性，同时确保与旅客无障碍通行规定的协调一致。

4.3 旅客和机组成员携带充电宝和锂电池供电的电子装置（DGP/30-WP/34），向国际民航组织大会第 42 届会议提交的关于航空器客舱火灾风险的工作文件（DGP/30-IP/9）及 DGP-WG/17 有关充电宝的提案（DGP/30-IP/11）

4.3.1 对旅客、机组成员和运营人机上携带锂电池供电装置的规定提出了修订。这些修订是在 DGP-WG/25 会议和国际民航组织大会第 42 届会议上关于需要管理航空器客舱锂电池有关火灾风险日益增长的讨论后制定的（参见 DGP-WG/25 报告第 4.4.7 段和技术委员会给大会第 42 届会议的报告第 24.21 段）。这一需要由于涉及锂电池的客舱火灾数量不断增加愈发明显，特别是 2025 年 1 月发生的一起事故，很可能是由存放在头顶行李舱内的锂离子电池短路引发火灾，导致一架航空器被毁。该事故导致多个国家、组织和个别航空公司实施了额外的限制措施。专家组认可需要迅速采取行动以应对安全风险。然而，这些限制导致全球缺乏统一。制定拟议修订旨在降低安全风险，同时促进全球统一。

4.3.2 专家组重点关注《技术细则》中规定的充分性，这是专家组反复做的工作，即维护附件 18 的标准和建议措施和其他辅助规定（一揽子工作方案 REC-A-DGS-2027），同时知道该风险由飞行运行专家组安全运载物品专门工作组通过航委会工作卡 SCGSWG.003.01（防止和应对由于机组成员、旅客和运营人机上携带锂电池造成的事故征候的程序）进行更全面的处理。

4.3.3 提交给专家组的《技术细则》修订提案是基于对某些国家、组织及个别航空公司已实施措施的分析 and 评估制定的。专家组审查了分析结果，并对拟议修订进行了一些修订，以防止意想不到的后果。虽然数据显示便携电子装置比充电宝更常导致飞机客舱火灾，但充电宝仍是一个重大关切，因其使用率在增加以及存在缺陷或薄弱的低质产品普遍存在，更容易导致热事件。也没有为充电宝提供与便携电子装置中安装的电池相同的保护水平。因此，修订侧重于充电宝。

4.3.4 修订包括对第 8 部分旅客条款（禁止为充电宝充电）的修订，建议不使用充电宝为便携电子装置充电，并将携带数量限制为每人两个。2017 年的危险物品专家组工作组会议（DGP-WG/17，2017 年 4 月 24 日至 28 日，蒙特利尔）曾制定了对第 8 部分的类似修订，但后来被撤回，因意识到运营人危险物品之例外中提及旅客条款使得对例外的限制同样适用于旅客和机组成员。因此，这会影响运营人在飞行期间为必要装置充电的能力。DGP/30 制定的对于运营人危险物品规定之例外的修订确保尽管有第 8 部分的限制，机组成员仍可为充电宝充电。

4.3.5 主要讨论点的详细综述见附录 E，拟议修订载于本议程项目报告的附录 F。

4.3.6 最初提出的对《技术细则》的修订提案附带关于未来工作的建议，供其他相关专家组审议。这些建议以及在讨论中提出的超出该专家组工作方案范围的关切，见本报告附录 E。其中包括

- a) 驾驶舱事故征候；
- b) 机组培训；
- c) 旅客管理；
- d) 需要指导材料和有效的安全推广；和
- e) 监管空侧零售充电宝。

专家组要求秘书将本报告和专家组意见提交相关专家组注意，包括飞行运行专家组安全运载物品专门工作组和飞行运营专家组客舱安全专门工作组。

4.3.7 专家组建议将这些修订作为增编纳入 2025–2026 年版《技术细则》，以一致的方式在全球范围内应对紧急安全风险，并防止进一步出现不一致。专家组成员认可安全改进是渐进式的，且需要持续监测关于锂电池的规定。他们一致认为，随着获得更多数据和经验，未来可能还需要修订。

4.4 建议

4.4.1 根据上述讨论，会议制定了以下建议：

建议 4/2 — 管理旅客、机组成员和运营人携带充电宝相关的安全风险

决定：

- a) 本议程项目报告附录 F 中提出的对运营人危险物品的例外及旅客和机组成员携带充电宝的规定的修订，将通过增编纳入 2025-2026 年版《技术细则》；和
- b) 国际民航组织向各国通报本报告中所述的修订和专家组的关切，同时鼓励各国开展有效的安全推广活动，以提高对安全风险的认识。

建议 4/3 — 与相关专家组协调，管理与日俱增的航空器客舱锂电池相关的火灾风险

决定：

- a) 专家组关于机组培训、旅客管理和驾驶舱热事件的关切应酌情提交相关专家组注意，包括飞行运行专家组安全运载物品专门工作组（FLTOPSP-SCGSWG）和飞行运行专家组客舱安全专门工作组（FLTOPSP-CSSWG）；和
- b) 专家组基于新出现的数据和经验与相关专家组协调，继续监测旅客和机组成员携带锂电池规定的有效性。

4.5 欧洲航空安全局研究的最新进展 (DGP/30-IP/12)

4.5.1 会议听取了欧洲航空安全局 (EASA) 赞助的关于便携式电子装置 (PED) 航空器火灾和烟雾危害研究项目的最新进展。该研究的目的是：

- a) 确定便携式电子装置带来的主要危害的特性；
- b) 评估驾驶舱和客舱内烟雾和火灾的后果；
- c) 评估便携式电子装置的数量和能量含量的影响；
- d) 评估应急程序；
- e) 评估额外的缓解措施；和
- f) 查明监管漏洞。

4.5.2 所有测试和数据收集均已完成。结论和最终报告尚待公布。以下是研究结果概述：

- a) 气体和烟雾释放与电池能量成正比；
- b) 客舱烟雾在一到三分钟内消散，而驾驶舱可见度受损时间更长，需要迅速移除燃烧的便携式电子装置；
- c) 封闭隔离袋和灭火器测试显示现行标准不足，建议制定新标准；
- d) 机组培训和应急程序需要改进，包括明确界定角色划分、绘制象形图以及方便获取设备；和
- e) 风险评估发现，便携式电子装置数量或电池能量增加可将风险从“绿色”（可接受）提升为“红色”（危险）。

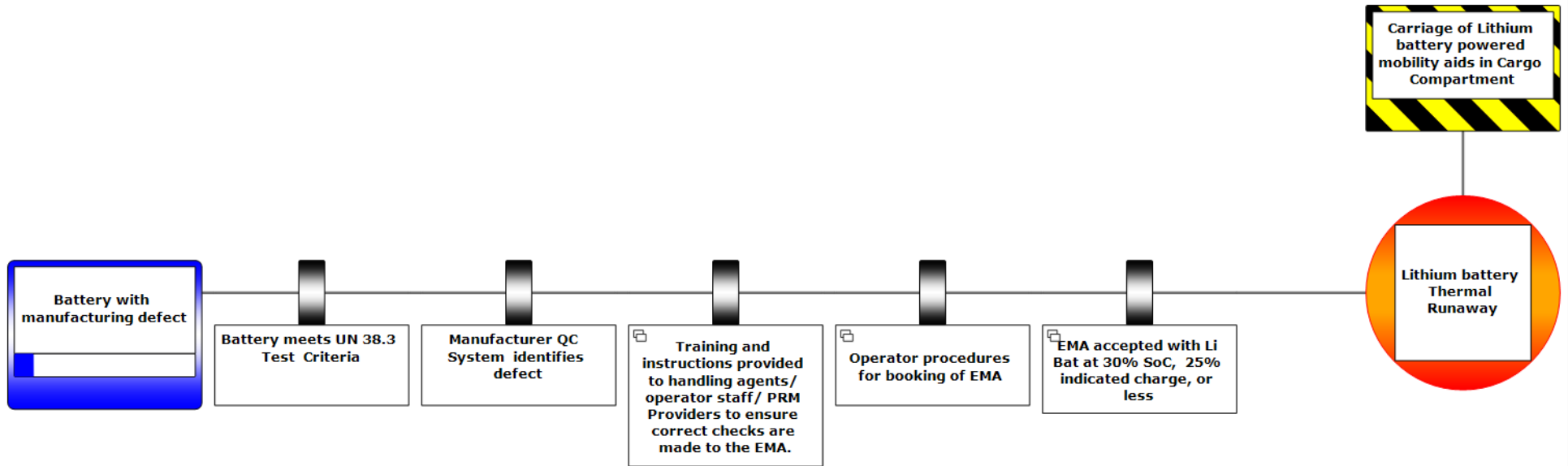
4.5.3 会议对这项研究及其提供的宝贵数据表示感谢。最终报告发布时将通报专家组。该信息将提供给飞行运行专家组安全运载物品专门工作组和飞行运行专家组客舱安全专门工作组。

APPENDIX A TO THE REPORT ON AGENDA ITEM 4

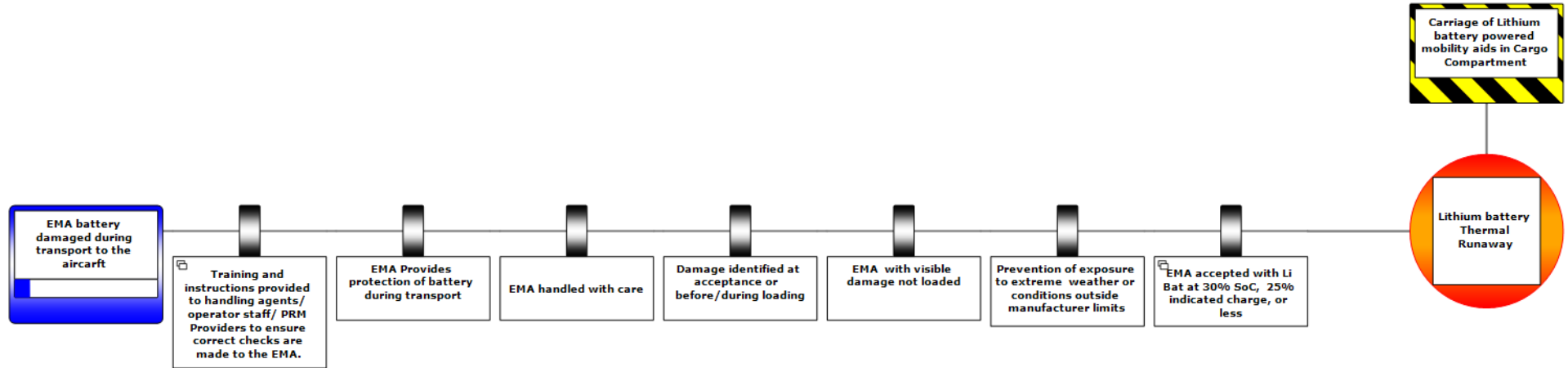
BOW TIE DIAGRAMS
(English only)

**CARRIAGE OF LITHIUM BATTERY POWERED MOBILITY AIDS IN
CARGO COMPARTMENT / LITHIUM BATTERY THERMAL
RUNAWAY**

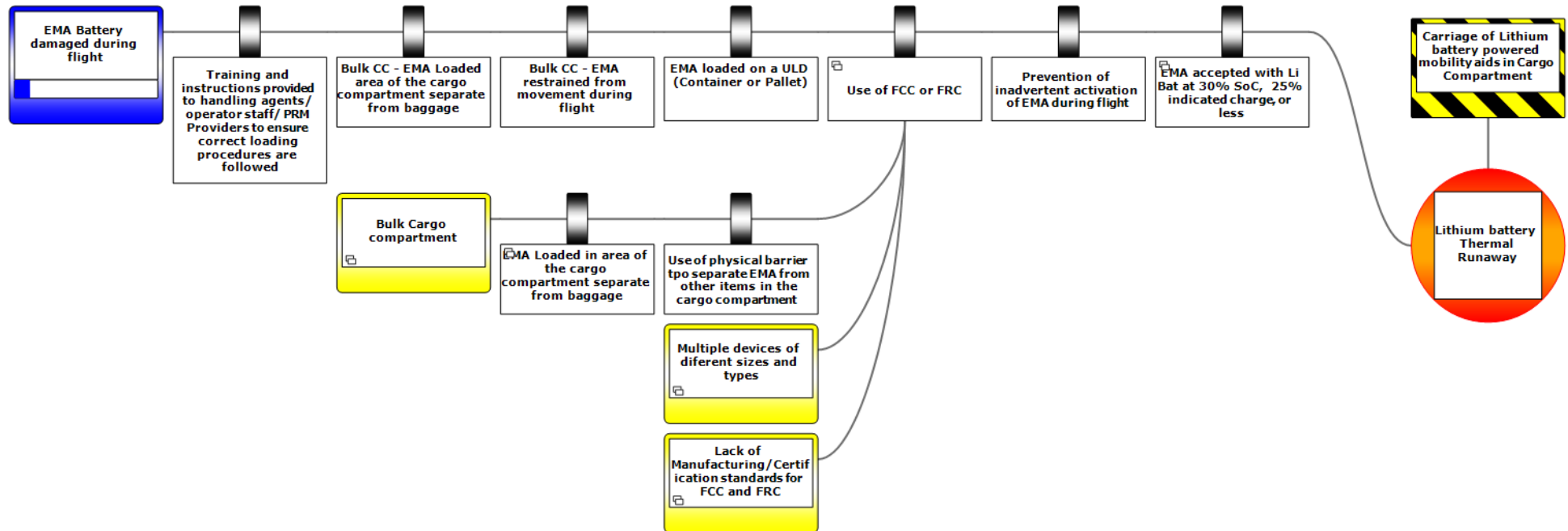
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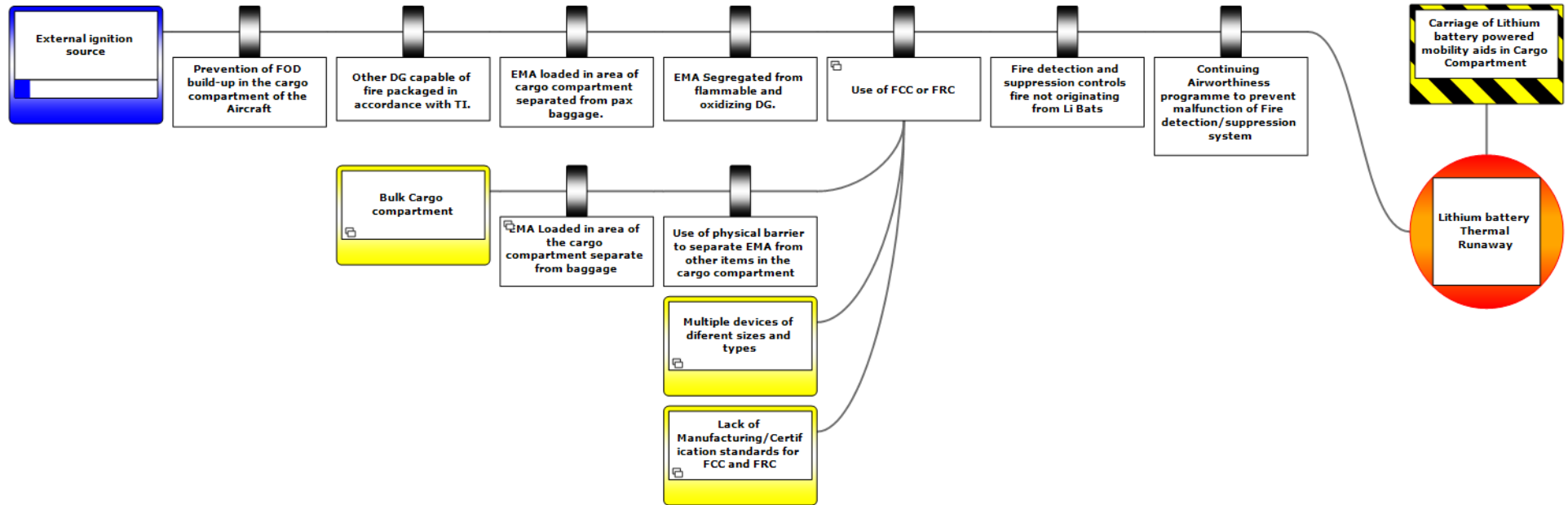
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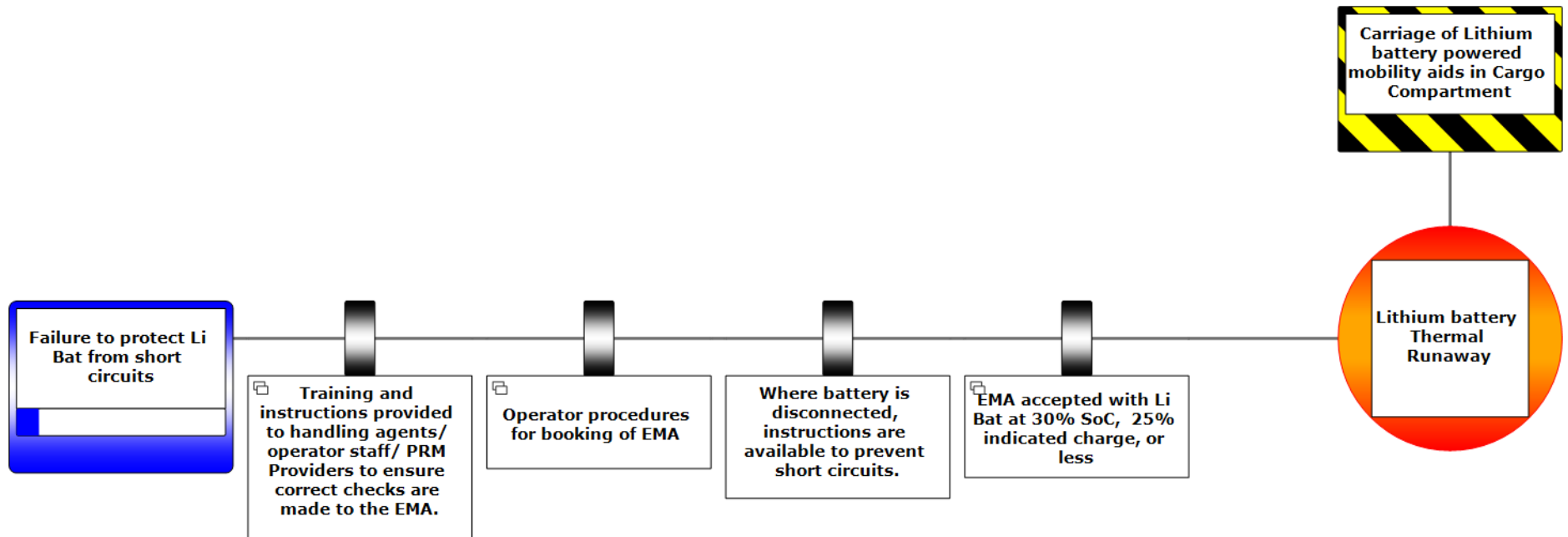
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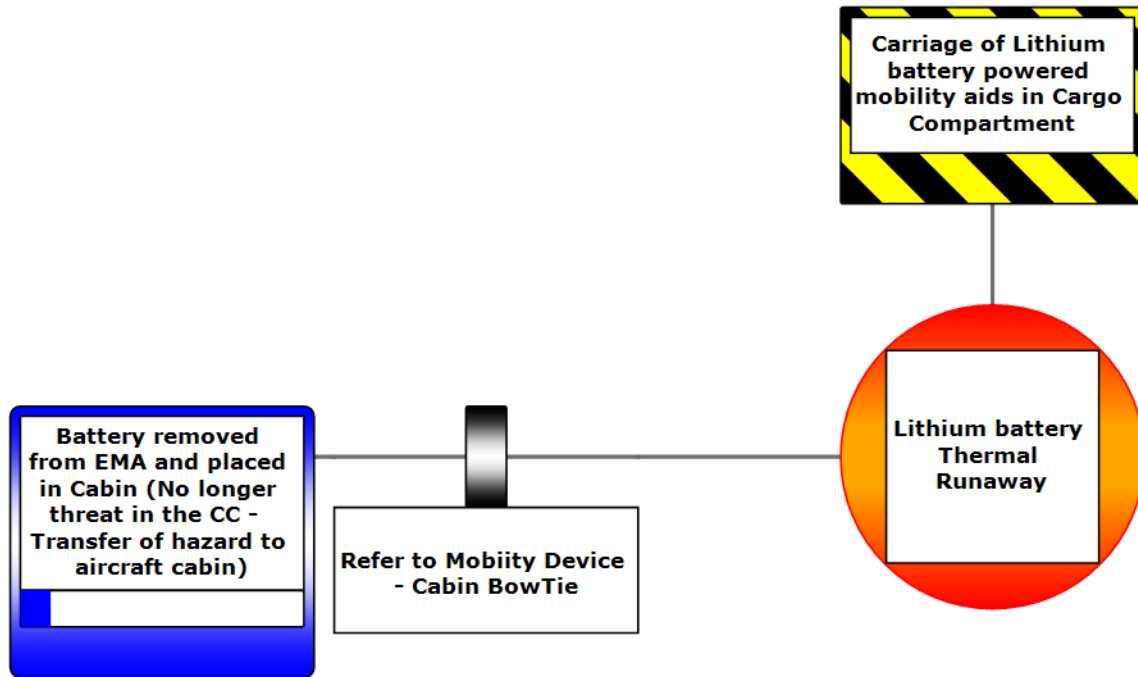
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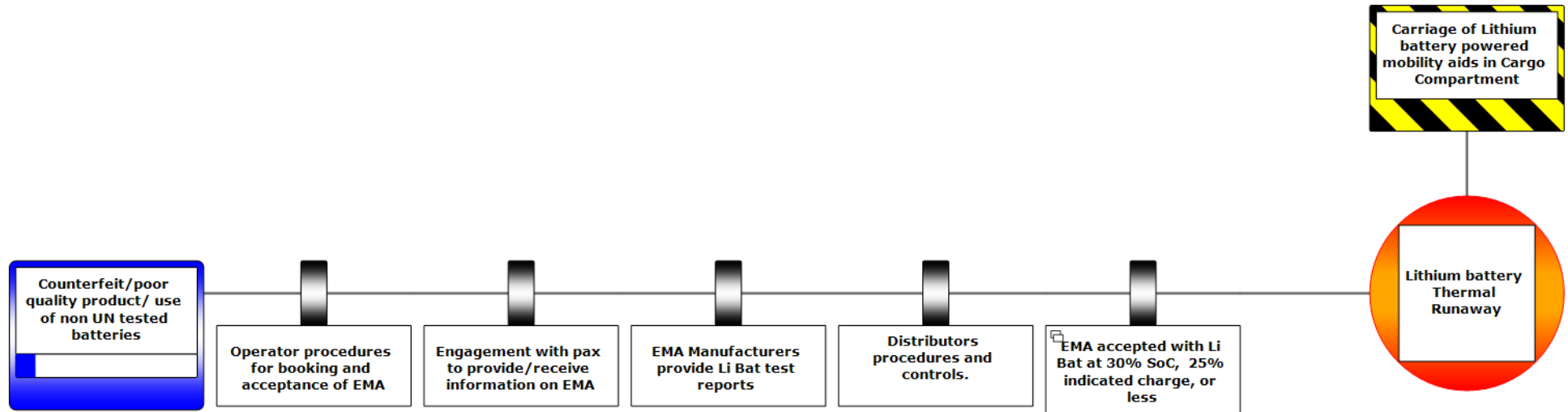
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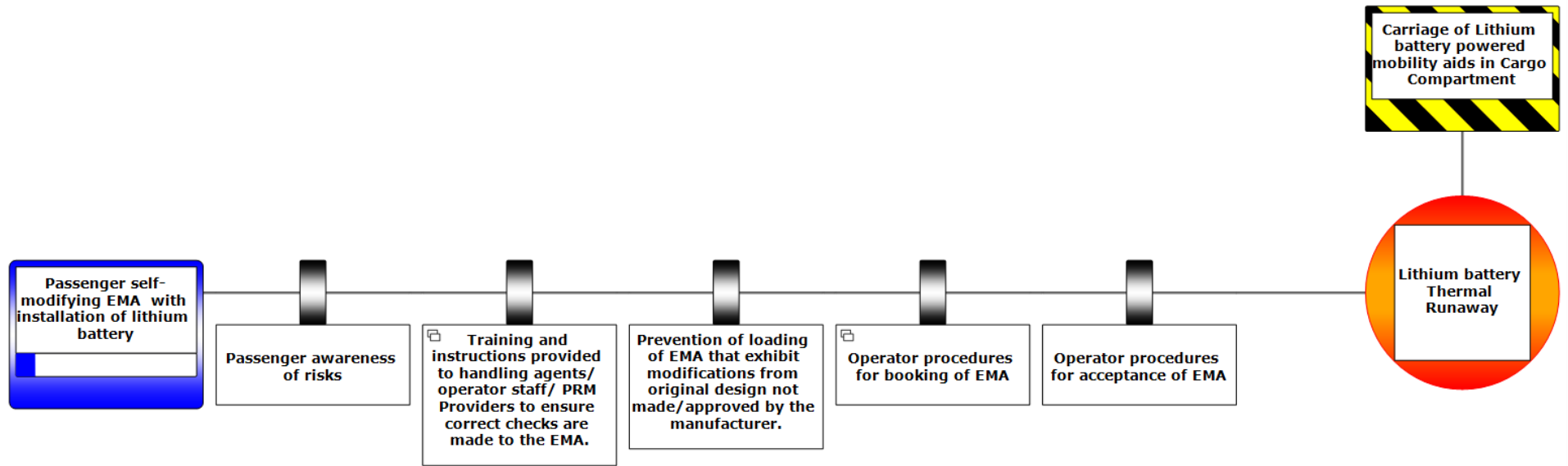
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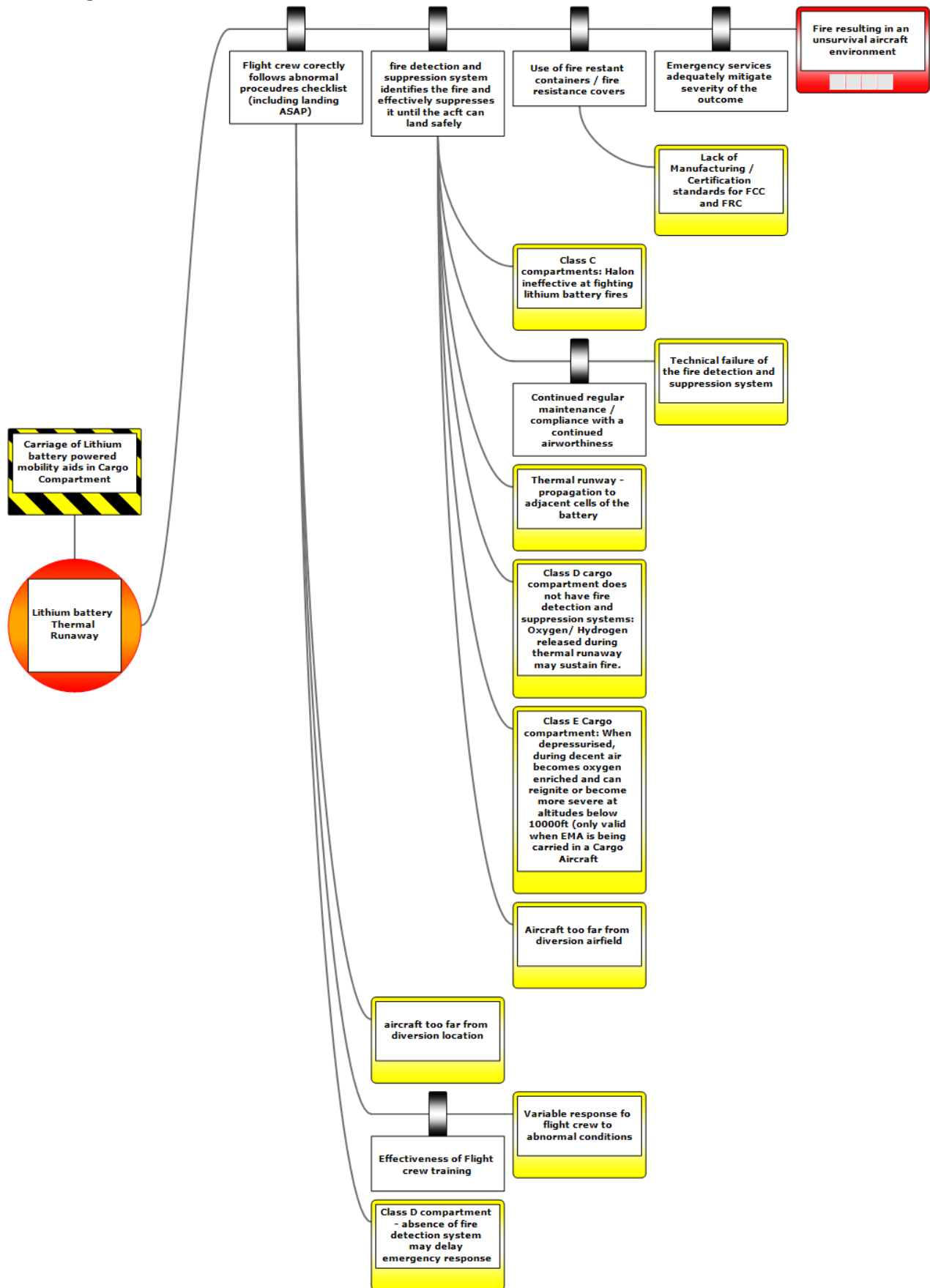
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THREAT 8

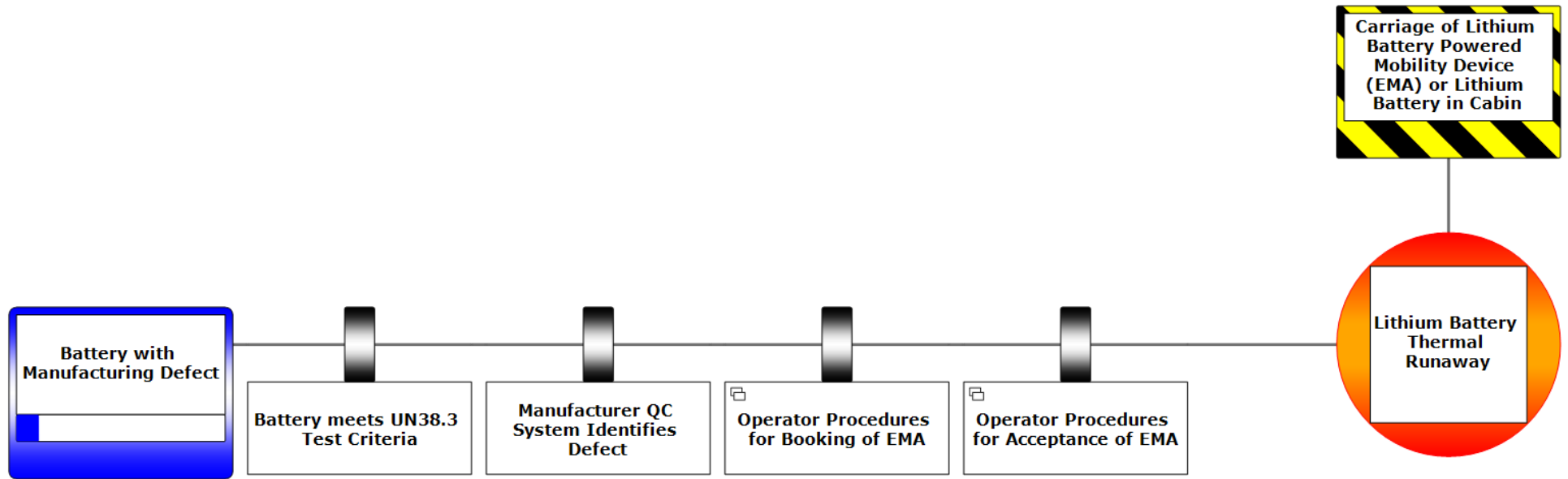


CONSEQUENCE

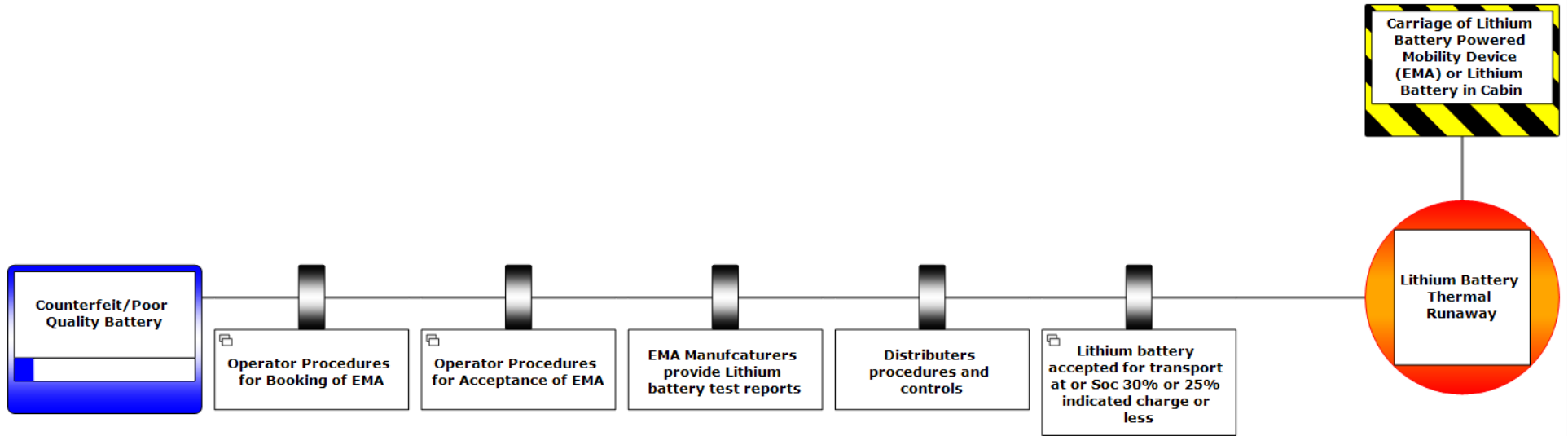


**CARRIAGE OF LITHIUM BATTERY FOR MOBILITY AID IN CABIN / LITHIUM BATTERY
THERMAL RUNAWAY**

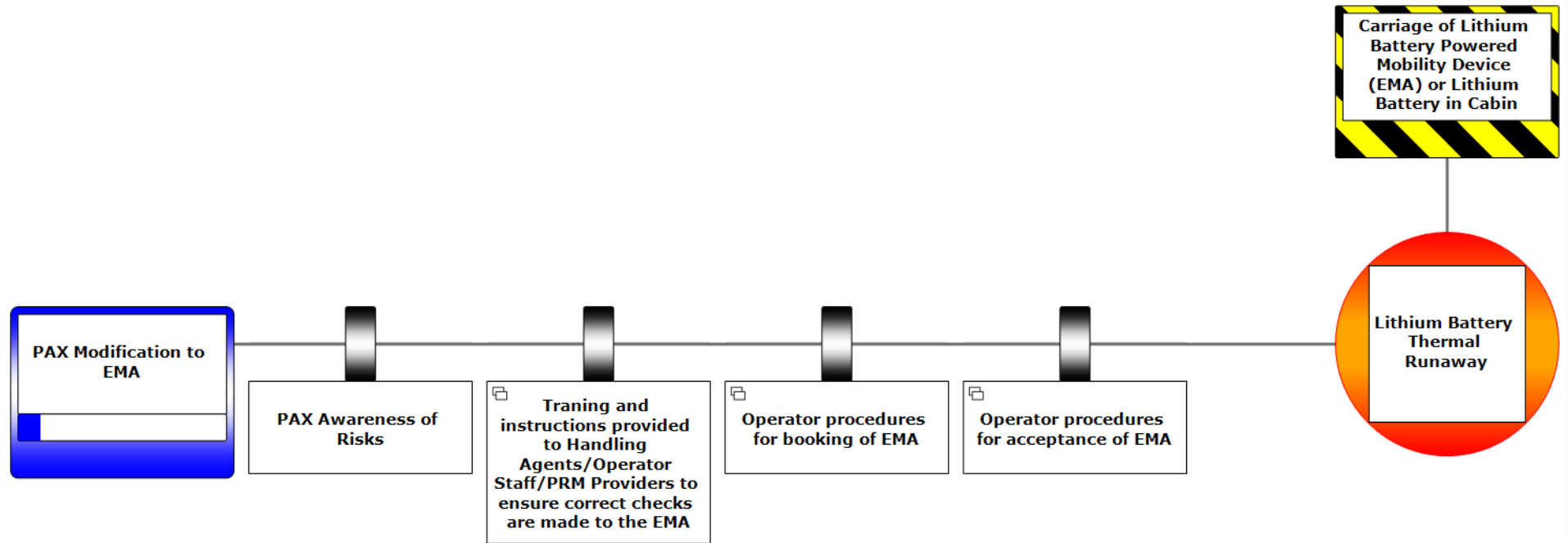
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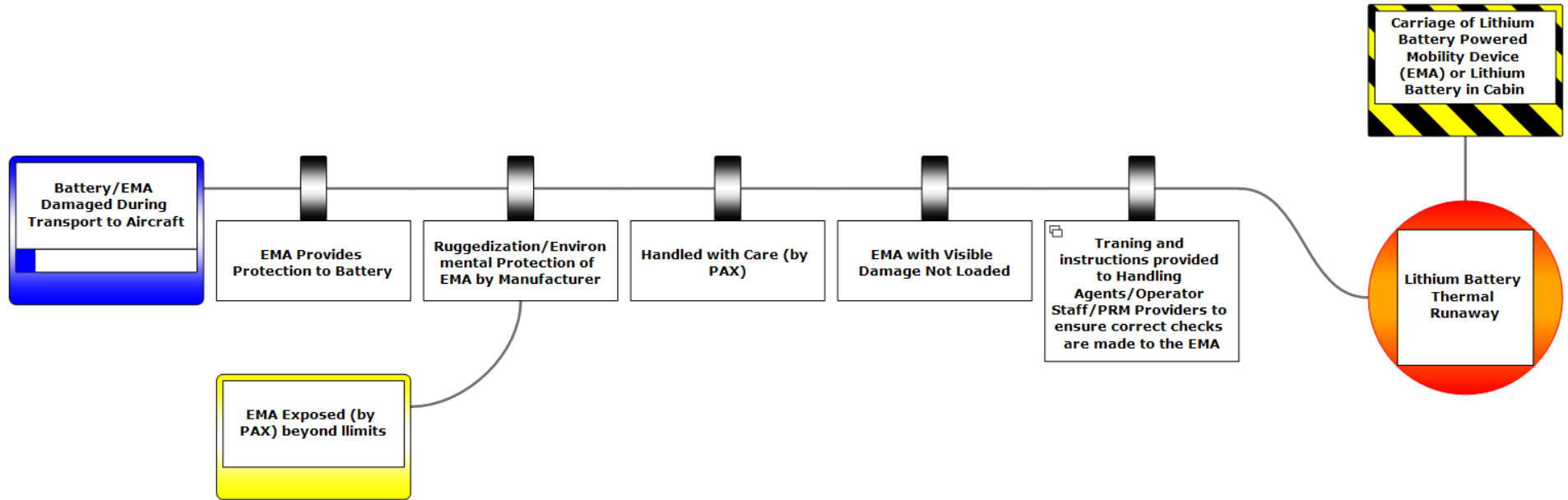
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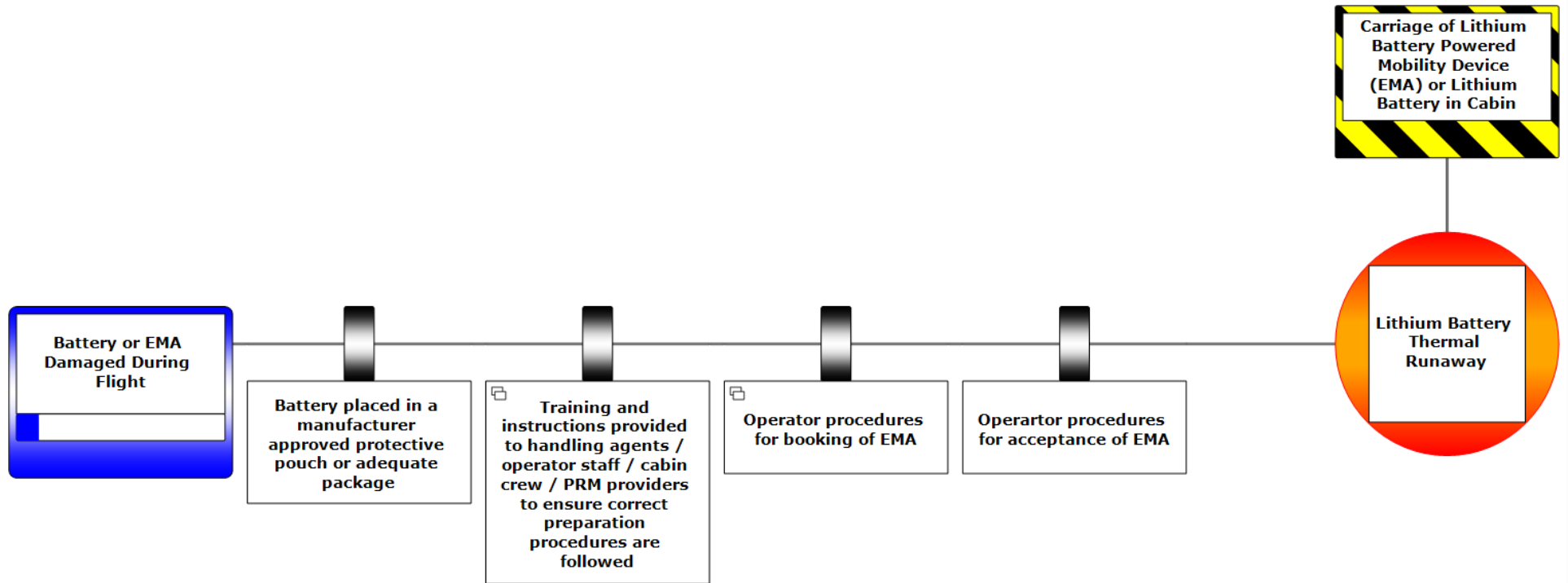
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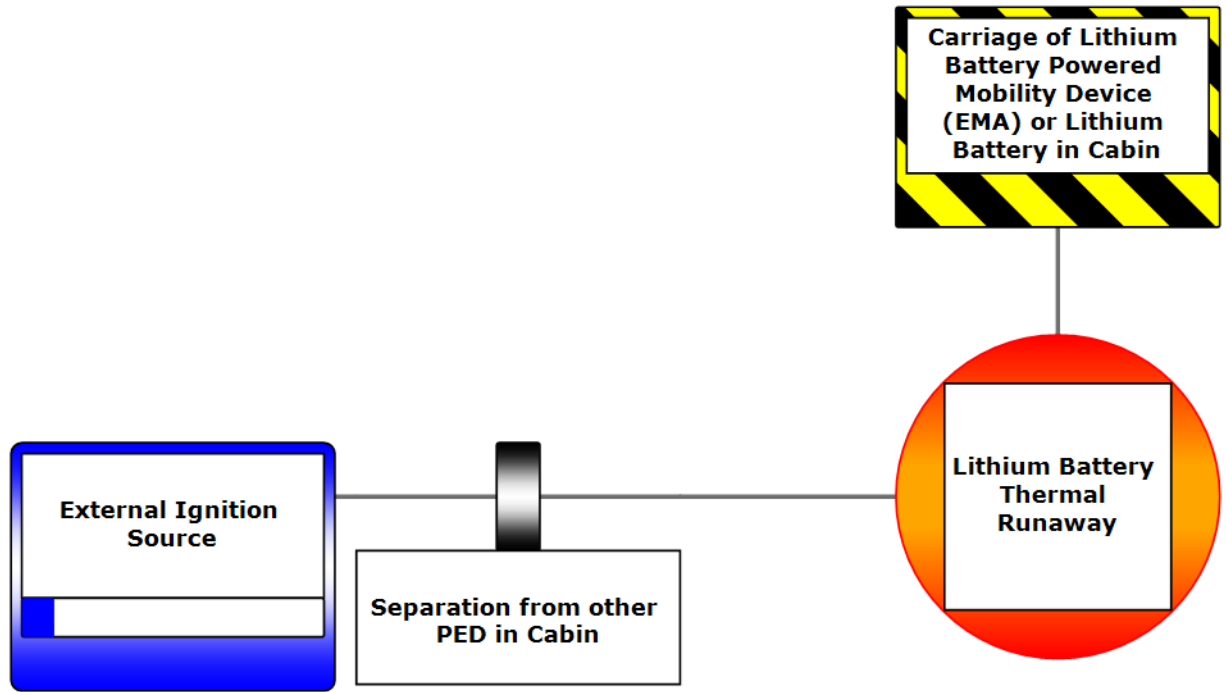
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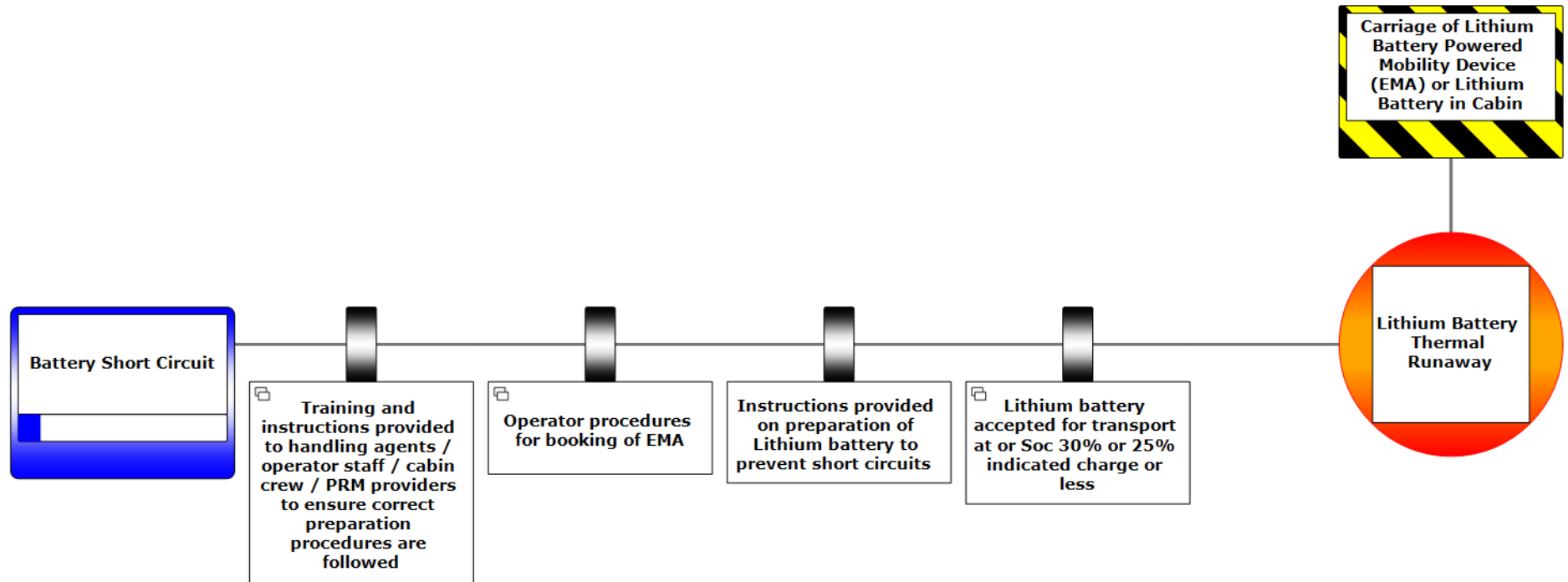
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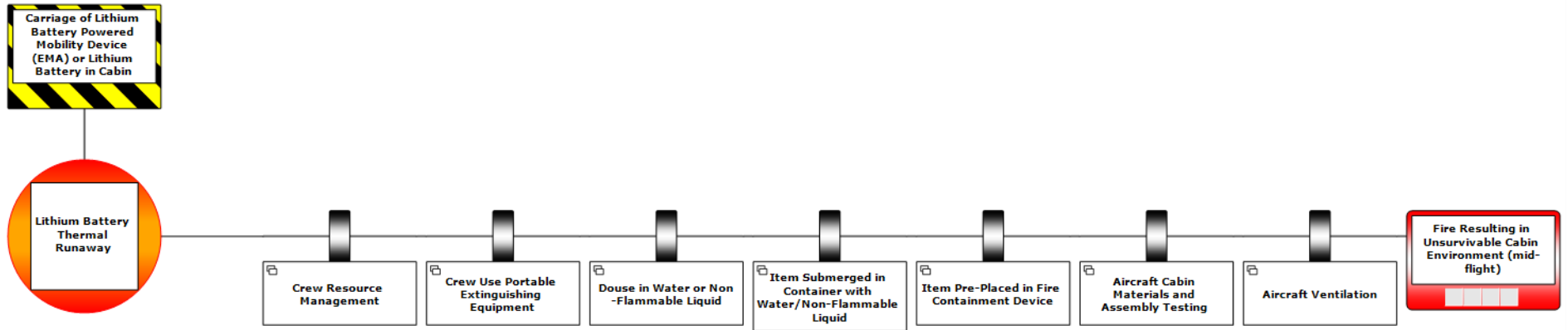
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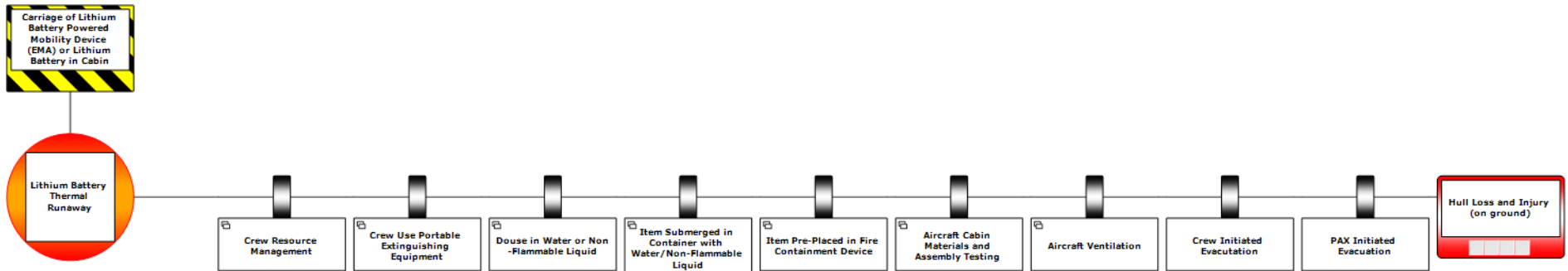
THREAT 7



CONSEQUENCE 1



CONSEQUENCE 2



APPENDIX B TO THE REPORT ON AGENDA ITEM 4**REPORT OF THE SYSTEMS THEORETIC PROCESS ANALYSIS OF
THE CARRIAGE OF BATTERY-POWERED MOBILITY AIDS
(English only)****1. INTRODUCTION**

1.1 The Dangerous Goods Panel (DGP) established a DGP Task Force on Mobility Aids (DGP-TF/MA) to conduct a safety risk assessment, identify possible mitigations, and develop policy options related to the carriage of lithium ion battery powered mobility aids on aircraft. The group undertook an analysis utilizing the Systems Theoretic Process Analysis (STPA) method. The STPA method is a structured approach that assumes accidents are caused by unsafe interactions among system components. Unsafe actions can arise from a lack of control and missing or inadequate feedback among system components. These unsafe actions can lead to hazards that, if left uncontrolled, lead to losses such as injuries and damage to aircraft.

1.2 The STPA method involves four basic steps. The process starts from a stakeholder prioritized list of system losses and identifying high level hazards (system states) that can lead to those losses. The second step involves modelling the system as a set of control and feedback loops to identify functional relationships and interactions. The third step analyses the control structure to identify control actions and examine how they could lead to one or more of the losses. The fourth step involves constructing scenarios that describe why unsafe control actions could occur.

1.3 The working group assembled subject matter experts from air operations, aircraft design and manufacturing, and dangerous goods. The facilitator was a systems safety specialist from the ICAO Secretariat. Subject matter experts participated in a series of focused workshop sessions where they were asked to identify relevant interactions and scenarios that lead to unsafe actions. These scenarios ultimately informed the development of requirements. These requirements represent controls that manage unsafe behaviours. These controls were then plotted onto a 5x5 matrix that identified the relative strength of the control and the severity of the impact if the requirement was not met.

2. FINDINGS

2.1 The assessment identified several factors that impact the safe transport of passenger owned mobility aids, including weak communication controls between the passenger and the air operator, a lack of strong device design controls, inadequate diagnostic feedback from the mobility aid that limits the ability of a mobility aid user or air operator to determine whether the battery has been damaged, or whether the mobility aid is otherwise unsafe for transport. Inspections completed by air operators are generally cursory in nature and rely on information provided by passengers and sensory feedback. Further, many of the requirements identified in the Technical Instructions rely on physical inspections that are largely ineffective at identifying damage to the mobility aid battery. Additional controls regarding the stowage and handling of mobility aids are aimed at preventing external damage to the mobility aid and its battery(ies) once loaded on board the aircraft but do little to prevent stowing a damaged mobility aid.

2.2 Notably operator acceptance personnel lack the ability to identify the safety condition of a mobility aid or the battery(ies). While operators request information from passengers regarding the type

of battery and the particulars of the mobility aid, workshop participants reported instances of missing information or passengers arriving at the airport without prior notification or approval by the operator.

2.3 Lithium ion battery powered mobility aids contain high energy batteries with relatively few controls governing product quality or compatibility in the air transport environment. The Technical Instructions require the lithium ion battery to meet certain requirements, however the airline passenger is often not able to obtain this information and the level of knowledge a passenger possesses about their mobility aid and its battery varies greatly. Workshop participants identified realistic scenarios in which a battery, while originally meeting the required tests and criteria, could have become damaged for example, from off nominal charging or operating the mobility aid outside of its designed parameters or replacing the battery with a different battery or one not originally intended for that device.

2.4 Operator acceptance procedures, while providing a potential opportunity to verify the safety of the battery or device, are largely inadequate to identify underlying damage since mobility aid designs often preclude a thorough physical examination of the battery. Passenger check-in staff and ground handling service personnel are often the last persons who see and handle a mobility aid, but they are not required or trained to inspect mobility aids for potential damage. Time pressures to load aircraft and facilitate passenger journeys were identified as factors that could lead to inadvertently accepting a damaged mobility aid / battery or a mobility aid with an unknown safety condition. Some workshop participants identified escalation procedures for visibly damaged mobility aids or mobility aids of an unknown condition, but specific training to identify and report damage is not typical.

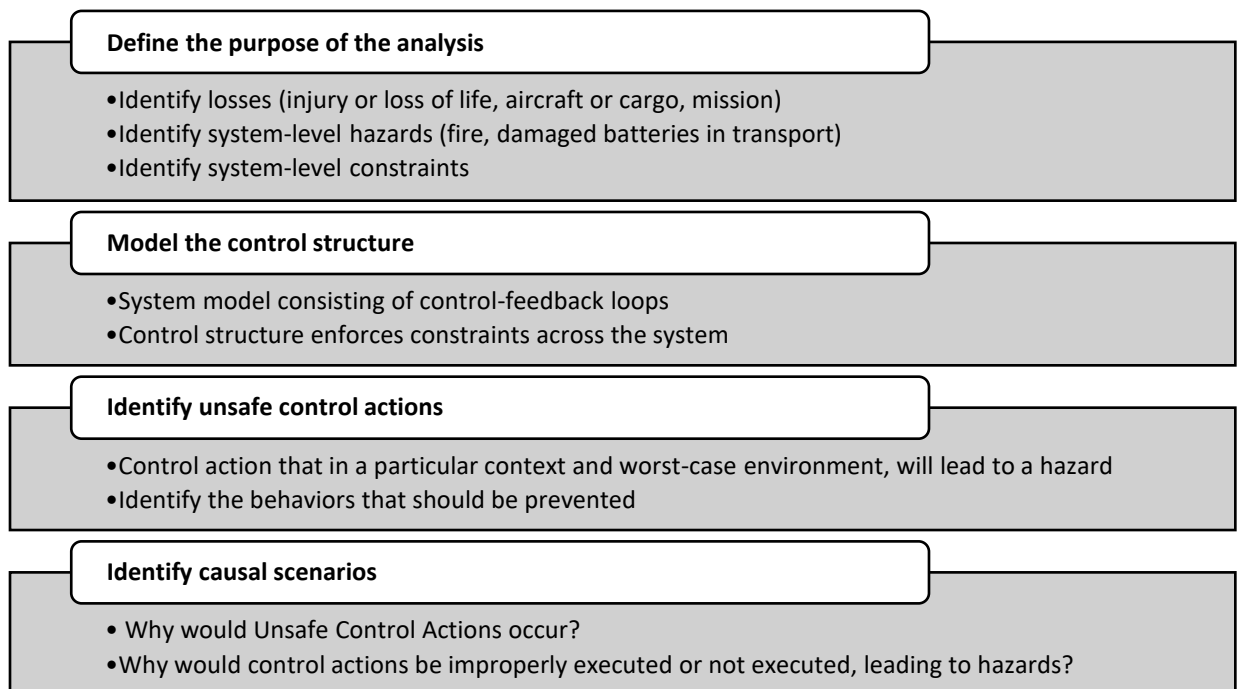
2.5 Aircraft cargo compartments are equipped with smoke detectors or fire detection systems that give warning to the pilot or flight engineer who activate fire suppression systems in the cargo compartment. These mitigations rely on detection of a smoke or fire, and fire suppression systems currently utilized in aircraft cargo compartments have limited effectiveness against thermal events involving lithium batteries. Aircraft unit load devices provide protection and ease of handling, reducing the likelihood that the mobility aid is damaged during handling, stowage and transit; however some may not be capable of containing a thermal event should one occur and could impair early smoke and fire detection. Fire resistant containers and fire containment covers offer protection well above the capability of a typical aircraft unit load device. Some containers are available on the market now; however, there is no recognized performance standard for evaluation, and industry use of such containment devices is currently limited. Flight crews have access to fire extinguishers and are trained to respond to smoke and fire events in the aircraft cabin. Some workshop participants indicated they also use containment devices in the cabin such as specially designed boxes or bags to enhance fire-fighting/containment capabilities. The effectiveness of the equipment available to cabin crew to respond to a thermal event involving a battery powered mobility aid is however unknown.

2.6 Many of the existing controls rely on mitigations including inspection and verification at the point of acceptance, but these can fail to detect a damaged or poorly designed product. Inevitably these types of mitigations will have limited effect at controlling hazards. Robust design and testing standards that create safety through design throughout the product life are most effective at mitigating hazards. Enhancing the ability to identify a poorly designed or damaged product and thereby prevent its acceptance in air transport can partially mitigate known hazards. Finally, robust fire response and containment capabilities would lessen the severity of fire hazards.

ATTACHMENT TO THE REPORT OF THE SYSTEMS THEORETIC PROCESS ANALYSIS OF THE CARRAIGE OF BATTERY-POWERED MOBILITY AIDS

1. STPA FRAMEWORK

Using the STPA framework the group analysed the air transport system of passenger owned battery powered mobility aids. The basic STPA method involves (4) four steps.



3. DEFINE THE PURPOSE OF THE ANALYSIS

3.1 Identifying losses

3.1.1 For the purposes of this analysis, a loss involves something of value to stakeholders. The table below identifies the losses considered in this analysis and include injury and loss of human life property damage, damage to the environment, a loss of mission, and loss of reputation.

Loss ID	Loss description
L1	Loss or damage to the aircraft
L2	Loss of human life or injury
L3	Loss of cargo/mobility aid

Loss ID	Loss description
L4	Damage to environment or objects outside of the aircraft
L5	Loss of transportation i.e. inability to start or complete a scheduled flight or transport a passenger
L6	Loss of customer loyalty/loss of confidence in air travel

3.2 System Hazards

3.2.1 Hazards are developed by linking losses to a set of conditions that combined with a worst-case environmental condition could lead to a loss. This does not necessarily guarantee that a hazard will always result in a loss. System level hazards here are restricted to those which can be controlled or managed by controllers within the system. The goal of the analysis is to eliminate or mitigate hazards that can lead to losses.

System hazard ID	Hazard description	Loss link
H1	Aircraft integrity is lost	L1-L6
H2	Aircraft environment unsuitable for persons	L1, L2, L3, L5, L6
H3	Aircraft cargo/baggage exposed to hazardous conditions (excessive heat, fire, smoke)	L3, L5, L6
H4	Aircraft improperly loaded i.e. unauthorized cargo, improper weight, or balance	L3, L5, L6
H5	Aircraft unable to accommodate passenger	L5, L6

4. MODELLING THE SYSTEM

4.1 An analysis of the whole air transport system inclusive of international organizations, national aviation authorities, air operators, airports, aircraft manufacturers, airline passengers, mobility aids (and the associated batteries) is needed for a comprehensive analysis. For the purposes of this analysis the air transport system for battery powered mobility aids was limited to the air operators (inclusive of management, pilots, ground handling agents, passenger handling staff, flight crew), airline passengers, mobility aids, and the aircraft itself.

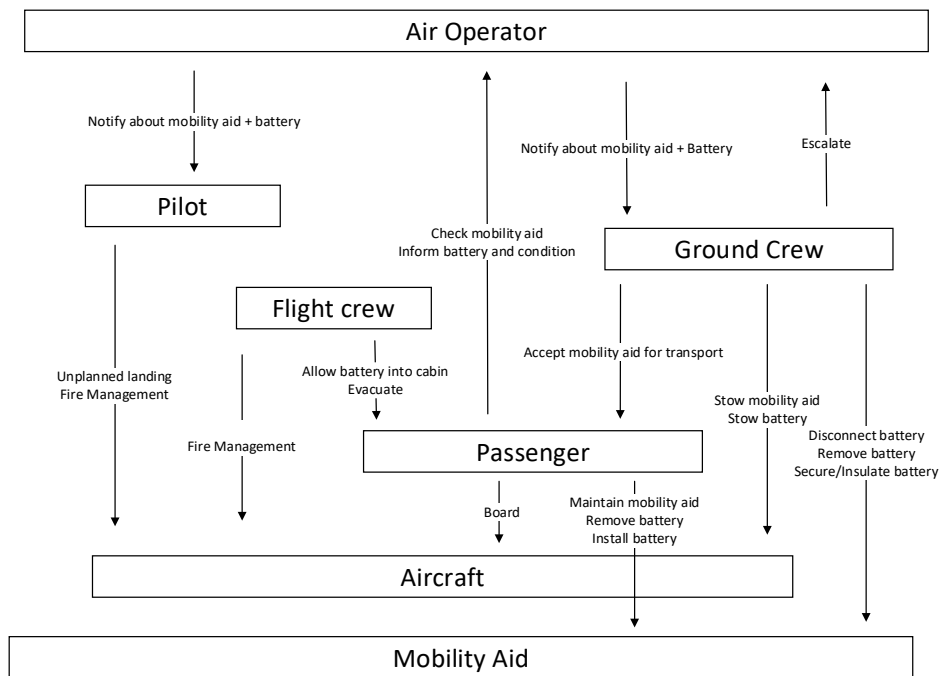
4.2 The group constructed several models to of the transport system composed of a control structure that identify control and feedback loops. Each control structure contains the following elements:

- a) controllers;
- b) control actions;
- c) feedback;
- d) other inputs to and outputs from components (neither control nor feedback); and

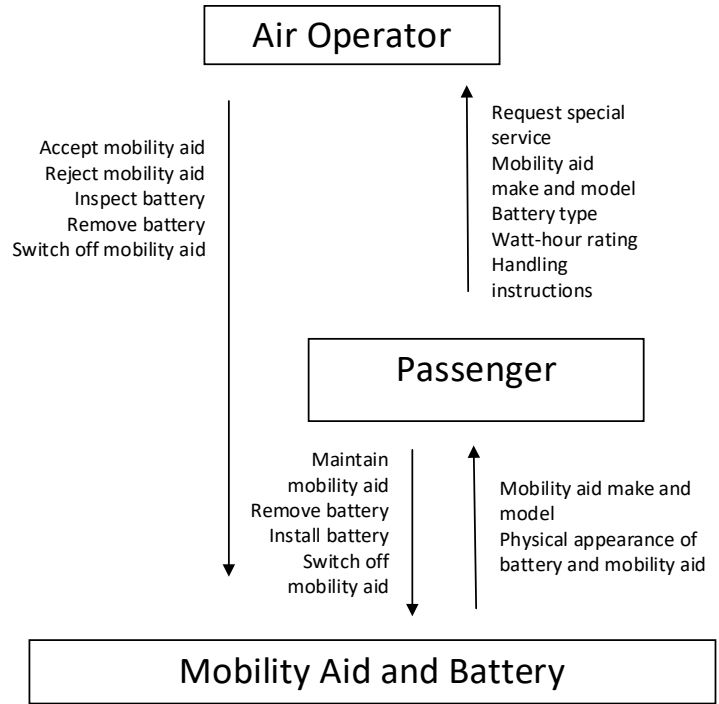
e) controlled processes.

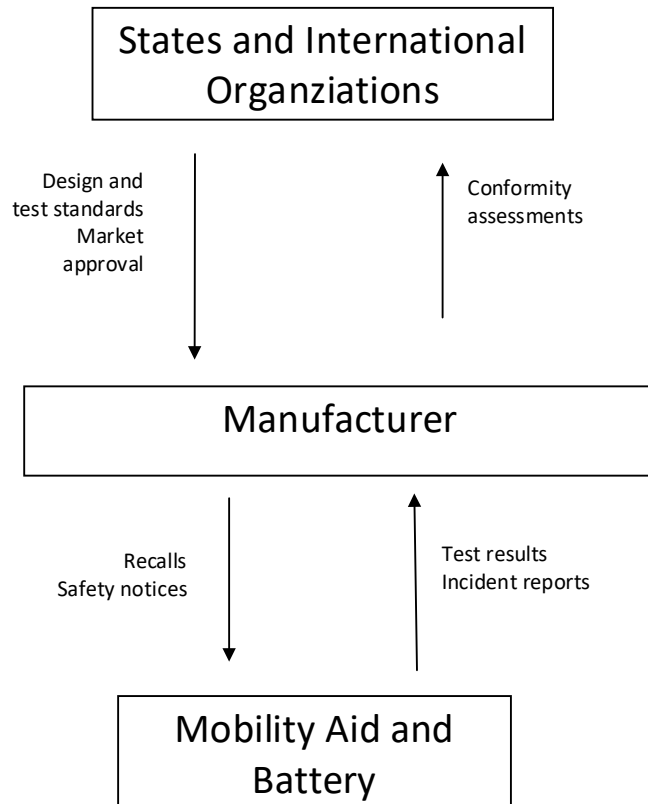
4.3 Each controller in the system has certain responsibilities depicted as downward facing arrows. These responsibilities enforce safety constraints to prevent system level hazards. Feedback from the system is depicted as upward facing arrows. Air operators, airline passengers and mobility aids are the primary system components. Operators have control over personnel including the handling and placement of mobility aids, baggage, cargo, and mail on the aircraft within the constraints of regulation and procedures. Airline passengers exert control over the mobility aid through use, handling, maintenance, and modification. Both airline passengers and the mobility aids provide feedback to the air operator to enable them to complete control actions. The following figures illustrate a high-level control structure, and the various interactions examined by working group participants.

Air Operators



Passenger and Air Operator Interactions



Manufacturing**5. IDENTIFYING UNSAFE CONTROL ACTIONS (UCA)**

5.1 Now that the actions and feedback through the control loops are defined, it is possible to identify potentially unsafe control actions. Unsafe control actions are linked to hazards. There are four ways a control action can be unsafe:

- not providing the control action leads to a hazard;
- f) providing the control action leads to a hazard;
- g) providing a potentially safe control action but too early, too late, or in the wrong order; and
- h) the control action lasts too long or is stopped too soon (for continuous control actions, not discrete ones).

It must be noted that an unsafe control action by itself does not always lead to a hazardous state. It may in fact require multiple unsafe control actions to occur to result in a hazardous state that in the worst case set of circumstances leads to a loss. The following table includes several examples of unsafe control actions reviewed by working group participants. The items in red were selected for addition review due to the safety critical nature of these unsafe control actions.

Control Action	Not providing causes a hazard	Providing causes a hazard	Too early, too late, out of order	Stopped too soon, applied too long
Accept Mobility Aid	GHSP/passenger handling staff does not accept mobility aid for transport (H6)	<p>GHSP/passenger handling staff accepts a mobility aid with a high-risk energy source with an unknown safety condition (H1-H6)</p> <p>GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source (H1-H6)</p> <p>GHSP/passenger handling staff accepts a mobility aid with an energy source different from the mobility aid identified during the booking (H4-H6)</p> <p>GHSP/passenger handling staff accepts a mobility aid energy source for carriage in the cabin that exceeds fire capabilities</p>	GHSP/passenger handling staff accepts a mobility aid too late after aircraft has departed (H6)	

Control Action	Not providing causes a hazard	Providing causes a hazard	Too early, too late, out of order	Stopped too soon, applied too long
Stow Mobility Aid	GHSP does not stow mobility aid when the mobility aid was accepted for transport (H5, H7)	<p>GHSP stows the mobility aid in a manner that violates aircraft weight and balance requirements (H1, H5, H6)</p> <p>GHSP stows the mobility aid with a high-risk energy source with an unknown safety condition (H1, H4, H6)</p> <p>GHSP stows the mobility aid with a high-risk energy source that exceeds (or is not compatible with) the capabilities of fire suppression systems (H1, H4, H6)</p> <p>GHSP stows the mobility aid in a manner that risks damage (H1, H2, H4)</p>		

Control Action	Not providing causes a hazard	Providing causes a hazard	Too early, too late, out of order	Stopped too soon, applied too long
Maintain mobility aid	Airline passenger does not properly maintain mobility aid creating an unknown safety condition (H1-H6)	<p>Airline passenger maintains the mobility aid with an energy source from a source other than the original equipment manufacturer i.e. OEM spec. (H1-H6)</p> <p>Airline passenger maintains the mobility aid in a manner that creates an unknown safety condition (H1-H6)</p> <p>Airline passenger maintains a mobility aid in a condition in which the battery is not suitable for transport (H1-H6)</p>		

6. IDENTIFYING CAUSAL SCENARIOS ASSOCIATED WITH UNSAFE CONTROL ACTIONS

6.1 The following table includes various contextualized scenarios that help explain why a particular controller provided or did not provide a control action. Generally, causal scenarios explain how incorrect or inadequate feedback, information exchange, and other factors create conditions that lead to hazardous states. The scenarios also explain how control actions when provided might not be received or improperly executed. Following development of causal scenarios, mitigation measures can be identified and discussed in view of whether measure(s) prevent, reduce, or mitigate unsafe control actions (UCAs) or the occurrence of unsafe causal scenarios that lead to system hazards. In this case the strength of mitigation measures could be ranked based on a hierarchy where controls that prevent the occurrence of an unsafe action through system design are especially powerful while those that rely on detection and warnings are less impactful.

Unsafe Control Action (UCA)	Causal Scenario Description	Potential Mitigation
GHSP/passenger handling staff accepts a	GHSP loads a mobility aid onto an aircraft that has visible damage but incorrectly interprets the visible evidence of damage.	Establish visual inspection procedures to identify and report damage.

Unsafe Control Action (UCA)	Causal Scenario Description	Potential Mitigation
mobility aid with a high-risk energy source with an unknown safety condition (H1-H6)	GHSP loads a mobility aid onto an aircraft that has visible damage due to previous benign experience loading a mobility aid with similar damage.	Train GHSP to identify and report suspected damage to a mobility aid.
	GHSP loads a mobility aid onto an aircraft that has visible damage due to the threat of financial consequences (fines, delays etc.)	Incentivize the identification and reporting of safety related damage or modifications to mobility aids by acceptance staff and ground handling service providers
	GHSP loads a mobility aid onto an aircraft that has visible damage because it was assumed the mobility aid was determined acceptable for transport by another entity	Incentivize the identification and reporting of safety related damage or modifications to mobility aids by acceptance staff and ground handling service providers
	GHSP loads a mobility aid onto an aircraft that has visible damage due to task overload or inattention.	Train GHSP to identify and report suspected damage to a mobility aid.
	GHSP loads a mobility aid onto an aircraft that has visible damage because the GHSP did not believe it was necessary to inspect the mobility aid for damage.	Train GHSP to identify and report suspected damage to a mobility aid.
	GHSP loads a mobility aid that has visible tampering because the GHSP assumed this was an acceptable modification	Incentivize the identification and reporting of safety related damage or modifications to mobility aids by acceptance staff and ground handling service providers
GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source	GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source because the damage to the energy source was only visible when the mobility aid is collapsed, and the battery is visible.	Establish visual inspection procedures to identify and report damage.
	GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source because the GHSP misinterprets the special service request information	
	GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source because the GHSP misinterprets the STOP code because there are multiple reasons for the STOP code	
	GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source because inputs indicating the mobility aid is unsafe are conflicting or not obvious to the acceptance staff.	

Unsafe Control Action (UCA)	Causal Scenario Description	Potential Mitigation
	GHSP/passenger handling staff accepts a mobility aid containing an unstable energy source because the booking agent did not request information on the mobility aid due to a lack of awareness, training, or procedure to request information about the mobility aid or energy source.	
GHSP stows the mobility aid in a manner that risks damage (H1, H2, H4)	GHSP uses baggage to secure the mobility aid.	
	GHSP secures the mobility aid before loading other baggage, cargo, and mail.	
	Mobility aid securing points were inaccessible after baggage was loaded.	
	Securement straps were overtightened.	
	Securement damages mobility aid controls.	
GHSP does not remove an unprotected battery (H1, H2, H4)	GHSP does not remove a battery because the GHSP does not know the battery needed to be removed (e.g. the mobility aid tag fell off)	
	The battery declared at ticketing and identified on the booking record is different than the mobility aid physically brought to the airport	
	Customer provided incomplete or misleading information at the time of booking due to a misunderstanding of the operator requirements	
	Booking agent misinterpreted information provided by passengers or incorrectly transmitted information to the passenger name record	
	Acceptance personnel received conflicting information on the mobility aid	
Passenger or GHSP does not switch off the mobility aid before the mobility aid is stowed	Passenger or GHSP does not switch off the mobility aid before the mobility aid is stowed because the passenger thought the aid was switched off	
	Passenger or GHSP does not switch off the mobility aid before the mobility aid is stowed because the passenger or GHSP misinterpreted or incorrectly performed the deactivation procedure.	

Unsafe Control Action (UCA)	Causal Scenario Description	Potential Mitigation
GHSP/passenger handling staff accepts a mobility aid energy source for carriage in the cabin that exceeds fire suppression capabilities	GHSP/passenger handling staff accepts a mobility aid energy source for carriage in the cabin that exceeds the response capabilities due to stowage adjacent to other lithium batteries	
	GHSP/passenger handling staff accepts a mobility aid energy source for carriage in the cabin that exceeds the response capabilities due to an alteration of the fire suppression capabilities or response equipment	
	GHSP/passenger handling staff accepts a mobility aid energy source for carriage in the cabin that exceeds the response capabilities because the fire suppression capabilities in the cabin were believed to be superior.	
	Airline passenger installed a battery with a non-OEM replacement.	Manufacturers take steps to minimize the likelihood that users will replace batteries with unapproved batteries or use chargers not designed for use with the device
Airline passenger does not properly maintain mobility aid creating an unknown safety condition (H1-H6)	Airline passenger does not remove a battery that was supposed to be removed.	
	Airline passenger is not the original owner of the mobility aid and does not have the knowledge of the energy source or maintenance history.	Manufacturers take steps to minimize the likelihood of that users will use chargers not designed for use with the device.
	Airline passenger overcharges a battery from an incompatible energy source.	
	Airline Passenger does not receive, ignores, or misinterprets error, maintenance, or diagnostic messages.	Manufacturers design devices to provide diagnostic information to users.
	The battery powered mobility aid fire was not detected.	Fires involving battery powered mobility aids must be detected, and measures taken to extinguish until the aircraft can safely land
Flight crew does not suppress a fire involving battery powered mobility aid	The flight crew does not have the necessary resources to extinguish a fire involving a battery powered mobility aid.	Fires involving battery powered mobility aids must be detected, and measures taken to extinguish until the aircraft can safely land
	The fire occurs in a location not accessible to the flight crew.	

7. STRENGTH OF CONTROLS AND SEVERITY OF IMPACT IF UNSAFE BEHAVIOR IS NOT CONTROLLED

7.1 Select unsafe control actions identified in paragraph 5 were translated into requirements. These requirements were further plotted against the matrix shown below that identifies both the strength of the control i.e. how effective the control mitigates unsafe actions, and the severity of the impact if the unsafe behaviour is not controlled.

		Severity of Impact if Uncontrolled				
		1 Very Low	2 Low	3 Moderate	4 High	5 Critical
Strength of control	Weak or non-existent 5	Very Low	Low	Moderate	High	Critical
	Marginally Adequate Warning signs/detection 4	Very Low	Low	Moderate	High	Critical
	Adequate Engineered features or devices 3	Very Low	Very Low	Low	Moderate	High
	Reasonably strong Reduces risk through design alteration 2	Very Low	Very Low	Low	Moderate	Moderate
	Strong Eliminates Risk through design 1	Very Low	Very Low	Low	Low	Moderate

UCA: Air Operator accepts for transport a battery powered mobility aid with a battery that is thermally or electrically unstable (H1-H5)

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
The operator must validate the acceptability of a battery powered mobility aid.	4	5	Critical	Partial - Operators obtain information of the mobility aid make, model and battery type during ticketing process and may validate that information at passenger check-in. Working group participants indicated that this validation step is not always taken.
The operator must validate the acceptability of spare batteries for a battery powered mobility aid.	4	5	Critical	Partial - Technical Instructions 7;2.13.3 require the operator to verify that spare batteries are carried in the cabin and protected from damage and short circuit. However, there is no requirement to inspect batteries for damage.
The operator must have a means to collect mobility aid information from the passenger.	4	5	Critical	Partial - Passengers are encouraged to make advanced arrangements with each operator and provide information on the type of battery installed and on the handling of the mobility aid. Technical Instructions 8-1, Regulation (EC) No 1107/2006/14 CFR 382.27.
The operator must have the capability to assess and validate information on the battery powered mobility aid provided by airline passengers.	4	4	High	Partial - Technical Instructions require the operator to verify that terminals are protected from short circuits and the battery is either protected from damage by the design of the mobility aid and securely attached to the mobility aid or the battery is removed from the mobility aid following the manufacturer's instructions.

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
If the operator accepts for transport a battery powered mobility aid containing an energy source with an unknown safety condition that mobility aid must not be stowed onto the aircraft.	4	5	Critical	Partial - After acceptance the mobility aid may become damaged, or an inspection may not have been completed prior to acceptance. However, if damage is identified there are rules in the Technical Instructions 7;2.5 requiring the operator to remove from the aircraft.

UCA: GHSP stowed a mobility aid containing a damaged or unstable energy source. (H1-H5)

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
The service provider must have processes and procedures in place to recognize a mobility aid with a damaged or unstable energy source and prevent them from being stowed when they are discovered.	4	5	Critical	Partial - No requirements to inspect a mobility aid for damage. However, if damage is identified there are rules in the Technical Instructions 7;2.5 requiring the operator to remove from the aircraft.
All personnel involved in the handling of battery powered mobility aids must examine and identify potential damage to battery powered mobility aids during each change of custody.	4	5	Critical	Partial - While the Technical Instructions require the operator verify the battery terminals are protected against short circuit and the battery is protected against damage. The battery may become damaged after initial inspection but prior to loading. Damage must be identified.
All personnel involved in the handling of battery powered mobility aids must examine and report damage to the battery.	4	5	Critical	Partial - If damage is identified there are rules in the Technical Instructions 7;2.5 requiring the operator to remove from the aircraft.

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
<p>If ground handling service provider stowed a battery powered mobility aid containing a damaged or unstable energy source there must be a means to detect and suppress a thermal event.</p>	4	5	Critical	<p>Partial - Halon fire suppression systems have limited effectiveness against lithium ion battery fires. Detection of a fire may be delayed due to stowage conditions e.g. placement inside of a unit load device.</p> <ol style="list-style-type: none"> 1) Aircraft cargo compartments are equipped with an approved smoke detector or fire detector system to give warning at the pilot or flight engineer station. 2) There is an approved built-in fire-extinguishing system controllable from the pilot or flight engineer stations. 3) There are means to exclude hazardous quantities of smoke, flames, or extinguishing agent, from any compartment occupied by the crew or passengers. 4) There are means to control ventilation and drafts within the compartment so that the extinguishing agent used can control any fire that may start within the compartment.

UCA: GHSP stows the mobility aid in a manner that risks damage (H1-H4)

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
Battery powered mobility aids must be stowed in a manner that prevents damage to the energy source.	3	5	High	Full - ICAO Technical Instructions 7; 2.13.3.1
Baggage, cargo, and mail must not damage the battery powered mobility aid energy source.	3	5	High	Full - ICAO Technical Instructions 7; 2.13.3.1
Battery powered mobility aids must be stowed in a manner to prevent inadvertent activation.	3	4	Moderate	None - The Technical Instructions do not require mobility aids to be stowed in a manner that prevents inadvertent activation.
Battery powered mobility aids must be stowed in a manner to prevent excessive movement.	3	4	Moderate	Partial - Technical Instructions 7;2.4.2 have a general requirement to secure dangerous goods in the aircraft in a manner that will prevent any movement. Technical Instructions 7; 2.13.3.1 requires the operator to secure the mobility aid.
Batteries removed from a mobility aid must be protected from damage and short circuit and stowed in the cabin.	4	4	High	Full - Technical Instructions 7;2.13.3.3.
Spare batteries must be protected from damage and short circuit and stowed in the cabin	4	4	High	Full - Technical Instructions 7;2.13.3.3.
Battery powered mobility aids must be switched off prior to stowage.	3	4	Moderate	None - The Technical Instructions do not require mobility aids to be switched off prior to stowage.

UCA: GHSP/passenger handling staff accepts a mobility aid energy source for carriage that exceeds aircraft fire suppression capabilities. (H1-H4)

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
<p>Aircraft cargo compartment fire suppression systems must suppress a fire event involving a battery powered mobility aid. Four configurations:</p> <p>a) Battery powered mobility aid stowed directly into the cargo compartment.</p> <p>b) Battery powered mobility aid loaded into a conventional aircraft unit load device.</p> <p>c) Battery powered mobility aid loaded into a fire-resistant container unit load device.</p> <p>d) Battery powered mobility aid enclosed by a fire containment cover.</p>	4	5	Critical	<p>Partial –</p> <p>a), b) Halon fire suppression systems have limited effectiveness against lithium ion battery fires. Detection of a fire may be delayed due to stowage conditions e.g. placement inside of a unit load device.</p> <p>c) Fire resistant containers offer superior ability to contain a thermal event relative to conventional unit load devices. Currently there is no recognized performance standard for evaluation. Effectiveness may be substantially reduced if the container is improperly closed.</p> <p>d) Fire containment covers utilized for palletized cargo may offer protection but their application to mobility aids is currently unknown.</p>
Cabin crew must suppress fires involving battery powered mobility aid energy sources.	4	5	Critical	<p>Partial - Fire suppression systems have limited effectiveness against a lithium ion battery fire. The larger batteries used in mobility aids may exceed fire suppression capabilities.</p>

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
If a mobility aid with an energy source that exceeds the aircraft fire suppression capabilities is accepted the flight crew must know the location of battery powered mobility aids.	4	3	Moderate	Full - The operator must inform the pilot in command of the location of any mobility aids with installed lithium ion batteries, removed batteries, and spare batteries.

UCA: Airline passenger does not properly maintain a battery powered mobility aid creating an unknown safety condition (H1-H5)

Requirement	Strength of control	Severity of impact if uncontrolled	Category	Coverage (Full, Partial, None, Uncertain)
Airline passengers must maintain battery powered mobility aids in accordance with manufacturer instructions.	4	3	Moderate	Partial - Outside of the scope of the Technical Instructions. If damage is identified there are rules in the Technical Instructions 7;2.5 requiring the operator to remove from the aircraft.
Battery powered mobility aids must only contain an energy source designed for the device.	3	4	Moderate	Partial - Technical Instructions 8-1 requires the battery to be of a type which meets UN Manual of Tests and Criteria Part III, Section 38.3.
Battery powered mobility aids must provide diagnostic information to ensure acceptability for transport.	4	4	High	None - Outside of the scope of the Technical Instructions.

APPENDIX C TO THE REPORT ON AGENDA ITEM 4**DEVELOPMENT OF AMENDMENTS AIMED AT MITIGATING RISKS ASSOCIATED WITH BATTERY-POWERED MOBILITY AIDS IN PART 7 AND 8 OF THE TECHNICAL INSTRUCTIONS
(English only)****1. PROPOSED AMENDMENT**

1.1 DGP-Task Force/Mobility Aids developed proposed amendments to Part 7 and 8 of the Technical Instructions for the consideration of DGP/30.

1.2 The proposed amendments to Part 7 included requirements for:

- a) the operator to base approvals for transporting dangerous goods on criteria supported by a safety risk assessment;
- b) the operator's criteria and associated procedures for granting the approvals to ensure that a fire involving the dangerous goods can be detected and effectively suppressed or contained until the aircraft landed safely; and
- c) the operator to establish requirements for passengers seeking approval within the operator's conditions of carriage and a recommendation for the approval process to be made publicly accessible.

1.3 The proposed amendments to Part 8 included:

- a) a revision to the provision in Part 8;1.1 stipulating when passengers and crew could carry dangerous goods to include:
 - 1) an approval from the operator in cases where Table 8-1 required an approval;
 - 2) a new note specifying that the process for assessing and granting the approval is to be based on considerations related to safety.
- b) requirements for passengers to make advance arrangements with the operator and to provide detailed information about their mobility aid;
- c) Two options to address concerns about battery energy capacity for the consideration of the panel:
 - 1) allow batteries with a Watt-hour rating above 300 Wh if the charge did not exceed 25%, unless the operator approved a higher charge; or
 - 2) limit carriage to one battery not exceeding 300 Wh, or two batteries not exceeding 160 Wh each.

2. DGP/30 DELIBERATIONS

2.1 Amendments to Part 7

2.2 The panel unanimously supported the amendments to Part 7, with a minor change to replace references to “aeroplane” with “aircraft”. One query was raised about why the new requirement for operator procedures focused specifically on the detection and suppression of fires involving dangerous goods and not the consequences of other types of hazardous events. Members noted this aligned with *Guidance for Safe Operations Involving Aeroplane Cargo Compartments* (Doc 10102), which recognized that consequences of all hazards must be considered, but special focus was given to a fire due to its immediate impact on airworthiness.

2.3 Amendments to Part 8

2.4 The panel supported the amendments in Part 8 in principle, but developed revisions to the original amendments to Table 8-1 after extensive discussion on:

- a) upgrading the recommendation for passengers to make advance arrangements with the operator to a requirement; and
- b) establishing a Watt-hour rating limit.

Advance arrangements with the operator

2.5 Some members felt making advance arrangements mandatory would impose unrealistic burdens on passengers that could impede travel, while others stressed the need for timely operator access to information. All agreed that the operator needed the information. The requirement was amended to focus on the need for the operator to have the information and to provide flexibility on how this was achieved.

Watt-hour rating limit

2.6 The majority favoured a 300 Watt-hour rating limit for the batteries over the alternative option, considering it clearer, easier to implement and easier to enforce. Some opposed any limit due to lack of safety data to justify a given limit and potential impact on passengers with reduced mobility. Others acknowledged that the 300 Watt-hour rating limit for batteries removed from the mobility aid and carried in the cabin was established based on expressed needs at the time and not on safety data. They agreed the 300 Watt-hour rating limit was consistent with existing requirements and unlikely to affect most mobility aids, as only a small amount exceeded this rating (data from one State indicated approximately 3 per cent). The aim of the limit was to prevent an increase in the growth of energy capacity of the batteries powering the mobility aids being carried. All panel members recognized the importance of engaging with stakeholders, especially representatives of persons with reduced mobility, before committing to any amendment. What was proposed by the panel was intended as a basis for discussion with these stakeholders. With this in mind, the panel proposed a 300 Watt-hour rating limit, with exceptions for higher capacity if authorized by the operator under the conditions of its approval. The exception did not change the existing requirements for batteries removed from the mobility aid and carried in the cabin or to spare batteries, i.e. there was no exception from the combined 300 Watt-hour rating limit for these batteries.

议程项目 4 报告附录 D

对《技术细则》有关旅客和机组成员携带 锂电池驱动的助行设备相关条款的修订 供利益相关方参与期间审议

第 7 部分

运营人的责任

第 5 章

有关旅客和机组成员的规定

5.1 根据运营人批准许可的危险物品

5.1.1 运营人必须制定标准和相关运行程序，用于批准旅客或机组成员安全携带仅在获得运营人批准方许可携带的《技术细则》第 8 部分所列的危险物品。这些标准和相关运行程序必须有合理的确定性确保在发生危险物品引起的火灾时，能够及时发现并有效扑灭或控制火势，直至航空器安全着陆。必须通过按照安全管理体系进行的安全风险评估来证明这些程序的充分性。

注：作为托运行李携带上航空器的危险物品须按照附件 6 第 I 部分第 15 章的规定进行货舱物品运输特定安全风险评估。

5.1.2 向旅客通报的信息

5.2.1 如果根据表 8-1 在运营人运输条件内有此要求，运营人必须制定旅客申请批准运输危险物品的有关要求。

~~5.1.2~~ 5.2.2 运营人必须告知旅客关于禁止航空器运输的危险物品。其操作手册和/或其他适当手册必须对通知系统予以描述。如果一名旅客可以在无需他人参与的情况下完成购票和/或登机牌的发放，通知系统必须包含一项该旅客对已经收到该信息的确认。必须按照下列向旅客提供信息：

- a) 在购票点，或如果不可行，在发放登机牌之前以另一种方式向旅客提供；和
- b) 发放登机牌时，或在不发放登机牌时在登机前。

注：按照运营人手册中描述，可以以文字或图片形式通过电子或口头方式提供信息。

~~5.1.2~~ 5.2.3 运营人或运营人的服务代理人以及机场运营人必须保证有效地传达给旅客哪些类型的危险物品是禁止空运的信息。必须在机场每一售票处、发放登机牌处、旅客卸下行李处、登机区以及向旅客发放登机牌和/或托运行李被接受的任何其他地方提供这些信息。此类信息必须包括禁止用航空器运输的危险物品的直观示例。

~~5.1.3~~ 5.2.4 在发放登机牌手续前，客机运营人应该在其网站或其他信息来源提供关于旅客按照 8;1.1.2 可以携带的危险物品的信息和如果表 8-1 有此要求，向运营人申请批准携带的相关程序的信息。

第 8 部分

有关旅客和机组成员的规定

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第 1 章

旅客和机组成员携带危险物品的规定

本章部分内容受国家差异条款 BR 10、MO 3、US 15、VE 9、VE 10 的影响，见表 A-1

1.1 旅客和机组成员携带的危险物品

1.1.1 旅客和机组成员禁止携带危险物品，不论该危险物品是作为随身行李还是放在随身行李中，也不论是作为交运行李还是放在交运行李中，或者随身携带，除非该危险物品：

- a) 根据表 8-1 允许携带；和
- b) 仅供个人使用—；和
- c) 获得运营人批准该旅客或机组成员携带，如果表 8-1 要求此批准。

注：运营人评估和授予批准的程序须基于与飞行安全相关的考量。

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1.1.2 除了 7.5.1 要求的授予运营人批准的标准；7.2.13 的装载要求；7.4.2 要求的须向员工提供的信息；和 7.4.4 和 7.4.5 的报告规定外，本细则的规定不适用于表 8-1 中允许的符合以下情况的危险物品：

- a) 由旅客或机组成员携带，仅供个人使用；
- b) 放在转运过程中已与物主分离的行李（如丢失行李或错运行李等处理不当的行李）中；或
- c) 放在 1.1.5.1 h) 允许作为货物运输的超重行李中。

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表 8-1. 关于旅客和机组成员携带的危险物品的规定

危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
电池				
4) 由以下电池驱动的助行设备（如轮椅）： — 非防漏型电池； — 防漏型湿电池； — 干电池； — 镍金属氢化物电池；或 — 锂离子电池	是	(见 e))	是	<p>a) 供由于身患残疾、健康或年龄问题或暂时性的行动困难（如腿断了）而行动不便的旅客使用；</p> <p>b) 旅客应当提前与每一运营人做好安排，并提供所安装电池的型号信息和助行设备的操作信息（包括如何使电池绝缘的指示）— 根据 7:5.2 必须向运营人提供信息；</p> <p>c) 如果是干电池或镍金属氢化物电池，每个电池必须分别符合特殊规定 A123 或 A199。</p> <p>d) 如果是防漏型湿电池： i) 每一电池必须符合特殊规定 A67；和 ii) 每位旅客最多可以携带一个备用电池。</p> <p>e) 如果是锂离子电池： i) 每一电池类型必须符合联合国《试验和标准手册》第 III 部分第 38.3 小节规定的每项试验的要求； <u>ii) 当助行设备能够为电池提供足够的保护且电池保持安装状态，每台助行设备的电池瓦时额定值不得超过 300 瓦时，除非运营人根据 7:5.2 的批准条件准许更高的瓦时额定值；</u> iii) 当助行设备未对电池提供充分保护时： — 必须遵循制造商的指示将电池卸下； — 电池瓦时额定值不得超过 <u>每台助行设备</u> 300 Wh； — 必须保护电池两极以防止短路（使电极绝缘，例如在暴露的电极上贴胶带）； — 必须保护电池免受损坏（例如将每个电池放入一个保护袋中）；和 — 电池必须在客舱中携带； <u>和</u> iii iv) 最多可携带总瓦时额定值一个不超过 300Wh 的一套备用电池，或两个各不超过 160Wh 的备用电池。备用电池必须在客舱中携带。</p> <p>注：当锂电池（一个或多个）仍安装在助行设备内时，无瓦时限制。</p>

APPENDIX E TO THE REPORT ON AGENDA ITEM 4**DISCUSSIONS ON AMENDING THE PROVISIONS IN THE
TECHNICAL INSTRUCTIONS FOR PASSENGRS, CREW AND THE
OPERATOR TO CARRY POWER BANKS ON AIRCRAFT
(English only)****1. PROPOSED AMENDMENT**

1.1 DGP/30 developed amendments to the provisions in Table 8-1 of the Technical Instructions for passengers and crew to carry power banks on the aircraft and to Part 1;2 of the Technical Instructions for exceptions for dangerous goods of the operator.

1.2 Amendment to passenger and crew provisions in Table 8-1

1.3 DGP/30 developed the following restrictions to the provisions for passengers and crew to carry power banks on the aircraft (Table 8-1 of the Technical Instructions):

- a) they must not be charged and should not be used to recharge a portable electronic device while onboard the aircraft; and
- b) no more than two power banks may be carried per person.

These were in addition to existing restrictions requiring that they be carried as carry-on baggage, individually protected to prevent short circuit and within established energy capacity limits. The panel emphasized that the additional restrictions were not intended to increase the number of power banks or spare batteries permitted under the current provisions.

1.4 The amendments were unanimously agreed after extensive discussion. Major discussion points included defining the term “power bank”, where they should be stowed on board the aircraft, whether there should be charging or recharging requirements, and whether the number of power banks a passenger could carry should be limited.

1.5 Amendment to operator exceptions

1.5.1 Electronic devices such as electronic flight bags, personal entertainment devices and credit card readers containing lithium batteries and spare batteries for the devices were not subject to the Technical Instructions provided they met the provisions for lithium batteries carried by passengers and crew contained in Table 8-1 of the Technical Instructions. The new restrictions proposed for inclusion in Table 8-1 would inadvertently prohibit the operator from recharging powerbanks during flight. The amendment therefore replaced the reference to Table 8-1 in Part 1;2.2.1 e) with the actual provisions from Table 8-1 that applied. For the sake of consistency, a similar amendment was proposed for 1;2.2.1 b), which made portable electronic devices containing lithium batteries carried aboard the aircraft by the operator for use or sale during the flight not subject to the Technical Instructions.

2. MAJOR DISCUSSION POINTS

2.1 Defining power bank

2.1.1 The panel sought to define “power bank” in a way that would be universally understood and accepted, ensuring that any restrictions applied to power banks would be unambiguous and easy to interpret. Much of the discussion focused on defining the term so that language could be used to except devices such as earbud charging cases and hearing aids from the restrictions, given that they posed little risk. While it agreed that the primary function of a power bank was to charge external devices, some members expressed discomfort with rigid definitions, noting that technology evolved rapidly and definitions might quickly become outdated. The panel ultimately concluded that devices such as earbud charging cases and hearing aids should be classified as batteries contained in or packed with equipment, making an exception from the power bank restrictions unnecessary. Members noted the UN Sub-Committee had concluded that such devices were batteries contained in or packed with equipment and were not considered power banks. Industry guidance had made the same interpretation. The panel ultimately decided that potential ambiguity should be addressed through guidance material instead of risking the unintended consequences that could result from a regulatory definition.

2.1.2 Another area of discussion was whether there should be a distinction in the Technical Instructions between batteries and power banks. A power bank was considered a battery in the Technical Instructions and had been subject to the same restrictions in Table 8-1. However, power banks often lacked the quality assurance found in batteries from the original equipment manufacturer. The panel agreed that power banks should be regulated separately from spare batteries, with specific restrictions applied to them.

2.2 Stowage

2.2.1 To enhance visibility and enable rapid response in case of a thermal event, the original amendment proposed to the panel recommended that power banks should not be stored in overhead bins. Timely detection and response was critical to avoid the risk of rapid escalation. Instead, they should be placed in baggage under the seat, in the seat back pocket, or in another operator-designated location outside the overhead bin, where they remained visible and accessible to both passengers and crew. This aligned with restrictions some States and several airlines had implemented.

2.2.2 Some panel members cautioned against making such regulatory requirements, because overhead compartments could offer containment benefits in the event of a fire. They could also help reduce the likelihood of items being crushed or damaged by passenger movement. Cabin crew had demonstrated the ability to pour liquid into an overhead locker to suppress a fire, which could be more difficult if the device was under a seat or in a seat pocket. Conversely, stowing a power bank in a pocket or under a seat could increase the risk of physical damage. The device might be crushed, bent, or punctured by movement, seat adjustments, or other objects. Power banks stored in pockets or under seats were more likely to be forgotten by passengers. Forgotten devices could be damaged during cleaning or seat movement or might go unnoticed if they began to overheat or emit smoke. Pockets and seat areas often contained flammable items such as tissues, papers, and clothing. If a power bank overheated or caught fire in a pocket, it could ignite these materials, increasing the severity of the incident. While keeping a power bank on the person or in a seat pocket could allow for rapid detection of thermal events, it also meant that any incident occurred close to the passenger, increasing the risk of injury before crew could respond.

2.2.3 There was agreement that no single stowage location was perfect for all aircraft types and operational scenarios. Flexibility for operators to make decisions based on aircraft configuration, operational capabilities and overall risk was seen as important. The panel therefore did not include any requirements or recommendations on where to stow the power banks in the cabin.

2.3 Charging and recharging restrictions

2.3.1 The panel agreed that power banks must not be recharged while on board the aircraft. This aligned with restrictions some States and several airlines had implemented. It was considered a key safety measure to prevent thermal events during flight. Charging was a stress on cells, and a thermal event could occur if charging was too fast or uncontrolled. Overcharging or using incompatible cables or adapters increased the risk significantly. Editorial changes were made to the original proposal to provide clarity so that both passengers and crew understood that charging power banks during the flight was not allowed.

2.3.2 The panel considered whether using power banks to recharge portable electronic devices while on board the aircraft should be prohibited, ultimately agreeing to make this a recommendation. Panel members distinguished charging other devices with a power bank, which would result in the power bank having a lower state of charge and potentially lowering risk, from charging the power bank itself, which would result in the power bank having a higher state of charge and potentially increasing the risk. The panel recognized the reality of passenger needs and the practical challenges of enforcing such a requirement. Sufficiently charged devices were a necessity in many cases, some of them critical for medical reasons or other essential functions at the destination. There were concerns that determined passengers might attempt to recharge devices discreetly, risking a delay in awareness of an event should it occur. Excessive monitoring of passengers to ensure they were not using power banks to recharge other devices could also distract cabin crew from other critical safety duties and reduce their ability to respond to other emergencies or routine operations. The panel concluded that allowing operators flexibility to manage the risks was important.

2.4 Number of power banks a passenger could carry

2.4.1 The panel discussed limiting the number of power banks each passenger could carry to reduce the likelihood of a thermal event on board the aircraft. While banning them would eliminate risk (provided there was full compliance), the panel feared this might lead passengers to place power banks in checked baggage, posing additional safety risks. The panel agreed on a limit of two power banks per passenger. It considered this to be a practical limit that balanced safety with need.

3. ADDITIONAL CONCERNS RAISED DURING DISCUSSION

3.1 Incidents on the flight deck

3.1.1 While the amendment focused on managing risks in the cabin, members noted that managing risks associated with thermal events in the flight deck, including from e-cigarettes, was also critical with suggestions they were insufficiently addressed. The Secretary noted that the ANC had tasked FLTOPSP-SCGSWG with developing procedures handle lithium battery incidents from devices such as EFBs, PEDs and power banks carried on board by the flight crew through job card SCGSWG.003. The concerns raised by DGP/30 would be forwarded to that group.

3.2 Crew responsibilities

3.2.1 The panel recognized the importance of effective crew training to respond to lithium battery incidents. It also recognized the importance of considering passenger behaviour during emergencies and its impact on crew effectiveness during an emergency. It was noted that crew response was delayed during the Air Busan incident because passengers panicked and blocked the aisle, which hindered access to the fire. The Secretary of the newly established Cabin Safety Specific Working Group of FLTOPSP (FLTOPSP-CSSWG) noted that that group had been established to address risks such as this. The concerns raised by DGP/30 would be forwarded to that group.

3.2.2 While the safety measures it was proposing were important, care was needed to ensure cabin crew were not burdened with excessive monitoring and enforcement responsibilities. The panel stressed the need to balance safety with practicality, ensuring that cabin crew could focus on their core duties without being overwhelmed by additional tasks. It was important for regulators and industry to implement effective safety outreach activities to ensure passengers were aware of all restrictions before boarding the aircraft so that cabin crew did not have to worry about non compliance.

4. FUTURE WORK: COLLABORATION WITH EXPERT GROUPS

4.1.1 The following were identified as additional efforts needed to manage safety risks associated with the carriage of lithium batteries by passengers and crew. The Secretary would bring them to the attention of FLTOPSP- SCGSWG in the event it was not already considering these issues.

4.2 Guidance material

4.2.1 The panel noted that the issues raised during the discussions should be included in guidance material to assist operators in assessing and managing risks associated with the carriage of power banks and portable electronic devices by passengers and crew.

4.3 Safety promotion

4.3.1 The need for effective safety promotion aimed at ensuring passengers were aware of what constituted dangerous goods and the risks they posed when carried on aircraft was emphasized. Standardized safety material developed by ICAO for use by States would help ensure consistent messaging aimed at improving passenger awareness and improving compliance.

4.4 Airside sales of power banks

4.4.1 Airside retail outlets were found to be selling power banks with power ratings from 100Wh to 160Wh, which required operator approval and even those exceeding 160Wh, which were prohibited for carriage by passengers or crew. A need for stronger oversight to eliminate this practice was identified.

议程项目 4 报告的附录 F

对《技术细则》有关 旅客、机组成员和运营人 携带锂电池相关条款的拟议修订

第 1 部分

概论

.....

第 2 章

对航空器上危险物品的限制

.....

2.2 运营人的危险物品例外条款

2.2.1 本细则的规定不适用于如下情况：

- a) 已分类为危险物品，但按照有关适航要求、操作规定或运营人所属国家规定应遵守的特殊要求而装载于航空器内的物品或物质；
- b) 运营人带上飞机供一次或一系列飞行期间在机上使用或出售的气溶胶、酒精饮料、香水、花露水、液化气打火机和内含锂金属或锂离子电池芯或电池的便携式电子装置，但电池它们必须符合表 8-1 项目 4) 2.2.2 的规定，但不包括一次性气体打火机和减压条件下易漏气的打火机；
- c) 在航空器上，用于冷冻食品和饮料的干冰；
- d) 运营人在航空器上载运的供一次或一系列飞行期间为旅客和机组的卫生之目的而在航空器上使用的含酒精的消毒搓手液和含酒精的清洁产品；
- e) 运营人带上飞机供一次或一系列飞行期间在机上使用的电子装置，例如电子飞行包、个人娱乐装置、信用卡读卡器，内含锂金属或锂离子电池芯或电池及其备用锂电池或充电宝，但电池它们必须符合表 8-1 条目 1) 2.2.2 的规定。~~备用锂电池必须单个做好保护，防止在未使用时发生短路现象。~~运行手册和/或其他有关手册必须列明关于这些电子装置的运载和使用条件，以及备用电池和充电宝的运载条件，以便于飞行机组、客舱机组和其他员工履行其负责的职能。

2.2.2 对于 2.2.1 b) 和 e) 中提及的锂电池芯或电池及其驱动的装置，必须满足以下条件：

- a) 备用锂电池和充电宝必须单个做好保护，以防止在不使用时发生短路；
- b) 必须采取措施防止便携式电子装置意外启动；和
- c) 电池必须：
 - 1) 所属类型必须符合联合国《试验和标准手册》第 III 部分第 38.3 小节规定的每项试验的要求；和
 - 2) 锂金属电池的锂含量不得超过 2 克，锂离子电池的瓦时额定值不得超过 100 瓦时。

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后续段落重新编号

第 8 部分

有关旅客和机组成员的规定

第 1 章

旅客和机组成员携带危险物品的规定

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表 8-1. 关于旅客和机组成员携带的危险物品的规定

危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
电池				
1) 锂电池（包括 充电宝 和便携式电子装置）	是 (g)和 h) 除外)	是	(见 c)和 d))	<p>a) 每一电池所属类型必须符合联合国《试验和标准手册》第 III 部分第 38.3 小节规定的每项试验的要求；</p> <p>b) 每一电池不得超过以下限制： — 对于锂金属电池，锂含量不超过 2 克；或 — 对于锂离子电池，瓦时额定值不得超过 100Wh；</p> <p>c) 经运营人批准，每一锂离子电池的瓦时额定值可超过 100Wh 但不超过 160Wh；</p> <p>d) 经运营人批准，便携式医疗电子装置每一锂金属电池的锂含量可超过 2 克但不超过 8 克；</p> <p>e) 每人最多可携带两块符合 c) 或 d) 要求的备用电池；</p> <p>e f) 装有电池的便携式电子装置： — 必须采取措施防止意外启动并保护装置不受损坏； — 装置应作为随身行李携带；但是，如果作为托运行李交运，装置必须完全关闭（不在睡眠或休眠模式），倘若电池超过： — 对于锂金属电池，每个装置锂含量 0.3 克；或 — 对于锂离子电池，每个装置瓦时额定值 2.7 Wh；</p>

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危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
				<p>f g) 在能够产生极高热量的便携式电子装置 <u>(如启动可能会引起火灾)</u> 中的 一 电池和加热元件，必须 <u>通过拆卸该加热元件、电池或其他部件进行隔离</u>，一 电子装置如因取出加热元件、电池或其他部件而启动，可能会引起火灾；</p> <p>g h) 备用电池 <u>(包括充电宝)</u>：</p> <ul style="list-style-type: none"> — 必须作为随身行李携带；和 — 必须单个做好保护以防短路（放入原零售包装或以其他方式将电极绝缘，如在暴露的电极上贴胶带，或将每个电池放入单独的塑料袋或保护盒当中）； <p>i) 充电宝：</p> <ul style="list-style-type: none"> — 必须作为随身行李携带； — 不得在机上对其充电； — 不应在机上用于给便携式电子装置充电； — 每人最多可携带两个充电宝； <p>h j) 行李中配备的锂电池若超过：</p> <ul style="list-style-type: none"> — 对于锂金属电池，锂含量0.3克；或 — 对于锂离子电池，瓦时额定值2.7 Wh <p>则必须作为手提行李载运，除非将电池从行李上拆卸下来，该情况下拆卸的电池必须按照 gh) 段的要求载运；</p> <p>i) 每人不得携带两个以上符合 e) 或 d) 的要求的备用电池。</p> <p>注： a) 中的限制以及 b)、c)、d) 或 e) 中的适用限制适用于此物品的所有电池，即便便携式电子装置中所含的电池、备用电池、充电宝和配备锂电池的行李中所含的电池。</p>

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议程项目 5：在附件 18 中明确国家监督责任（编号：工作卡 DGP.005.05）**5.1 为明确各国在危险物品安全航空运输方面的责任而对附件 18 所做的拟议修订（DGP/30-WP/4），以及自 DGP-WG/25 会议以来对附件 18 拟议修订所做的修改（DGP/30-IP/8）****5.1.1 背景**

5.1.1.1 会议审查了由危险物品专家组附件 18 工作组（DGP-WG/Annex 18）拟定的附件 18 修订案。该修订案明确并强化了国家在管理危险物品安全航空运输方面的责任。它还确保与附件 6 的运行要求及附件 19 规定的国家安全方案（SSP）责任保持一致。该修订案是历时数年广泛协作的结果，涉及多次面对面会议并吸纳了各个专家组和工作组的意见。

5.1.1.2 该修订案的早期版本由 DGP/29 提出，并约定将根据与相关专家小组正式协调所获得的反馈意见进行完善（参见 DGP/29 报告第 5.1 段）。随后根据航空安保专家组第三十五次会议（2024 年 4 月 22 日至 26 日，蒙特利尔）（AVSECP/35）、安全管理专家组第七次会议（2024 年 12 月 4 日至 5 日（虚拟）和 12 月 10 日至 13 日（蒙特利尔））（SMP/7）以及飞行运行专家组第十一届会议（2025 年 1 月 20 日至 24 日，蒙特利尔）（FLTOSP/11）的反馈意见，进行了比预期更实质性的改进。各专家小组认为该修订案尚未成熟到可提交各国及国际组织征询意见的程度。空中航行委员会（ANC）在其第 228 届会议第十二次会议上审查了该修订案，并认同上述结论。秘书处向 DGP 附件 18 工作组传达了各专家小组和航委会的意见。提交给 DGP/30 的修订案已考虑了航委会和各专家小组的反馈意见。

5.1.2 根据各专家小组的反馈所做的修改

5.1.2.1 根据安全管理专家组第七次会议（SMP/7）和空中航行委员会（ANC）的反馈意见，对拟议第 4 章（安全管理责任）和第 10 章（危险物品安全情报）的修订进行了精简：删除了附件 19 已涵盖的标准和建议措施（SARPs），对指导材料的提及已整合到了一个注释中，并与附件 19 的最新修订（第 2 次修订）保持一致。

5.1.2.2 通过 DGP/FLTOSP 跨专家组工作组，对现载于第 6 章的运营人责任进行了重大修订，并相应修订了附件 6（见本报告第 8.1 段）。修改内容旨在明确运营人的责任，避免与附件 6 重复，并确保各项要求切实可行且符合当前运行实况。新增了标准和建议措施，以确保《技术细则》中的每项运营人责任均与附件中的高层标准相对应，使各国更清晰地了解相关要求。该章重新划分为两大主要部分，以明确区分持有货物运输特定批准与未获批准的运营人。每一节的结构均根据以下类别做了责任区分：作为货物运输的危险物品、邮件中的危险物品以及由乘客和机组人员携带的危险物品。新增了针对直升机的规定，基于《技术细则》现有条款制定，并涵盖遥控驾驶航空器系统。

5.1.2.3 根据 AVSECP/35 会议的反馈意见，DGP/29 提案中第 11 章关于安检人员危险物品培训要求及关于豁免数据的物理与网络安全措施的各项标准已被删除。航空安保专家组认为，强制性危险物品培训可能导致安检人员分心，无法专注于其核心任务 — 检测爆炸物等违禁品。尽管部分 DGP 成员基于该标准的益处及《技术细则》和《航空安保手册》的现有要求，主张保留这一培训标准，但多数成员同意删除该标准。他们认为应由各国根据自身风险管理活动决定是否安排安检人员参与危险物品检测工作。若确需参与此项工作，则将自动根据附件 18 的要求开展培训。专家组同时删除了网络安全标准，因该议题正由其他专家组处理且不仅仅涉及豁免问题。该议题可在今后适时与相关专家组重新审议。专家组确认，需与航空安保专家组密切协作，制定指导材料以支持实施拟议的新的标准和建议措施（SARPs），这些 SARPs 旨在防止那些禁止在货物、行李或邮件中进行航空运输的危险物品被装载至航空器，相关内容载于新增的关于国家安全管理责任的第 4 章。

5.1.3 核准

5.1.3.1 部分成员担心，在关于安全情报的新章节中，针对不实申报危险物品的经修改后的报告要求存在歧义，将给实施和执行带来困难。当前规定要求所有不实申报的危险物品均须向运营人国和出事所在国报告。修订案新增规定：仅当此类物品在接收检查之外的时间段被发现，或在接收检查期间被发现属于若未被察觉将危及飞机或机上人员安全的类型时，才需向上述国家报告。成员指出，运营人需主观判断航空器或机上人员是否会面临危险，这可能难以立法规范并导致报告不一致。多数成员支持修改后的要求，因其旨在避免大量轻微事件报告使主管当局不堪重负 — 此类事件本应由运营人自身的报告系统涵盖。尽管修订案确实引入了一些主观性，但各方予以接受，以确保仅将危险物品不实申报的重大事件上报国家，使国家能聚焦更重大的安全问题。该理由获得全员认同，但各方理解需制定强有力的指导材料，以确保清晰一致地实施报告要求。

5.1.3.2 专家组对附件 18 的拟议修订达成共识，但需做轻微的编辑性调整。修订内容载于本议程项目报告的附录中。

5.1.4 指导材料

5.1.4.1 专家组强调了全面指导材料对支持实施的重要性。这些材料将收录于拟议修订案中提及的一个新手册《危险物品安全航空运输监督和管理手册》（Doc xxxxxx 号文件，即将发布）。关于将危险物品纳入国家安全方案（SSP）的指导材料尤为重要。原始修订案中在关于国家安全管理职责的章节下，SSP 的每个要素均有一节论述，其中含有标准和建议措施（SARPs）或提及相关指导材料的注释。此种结构旨在强调危险物品纳入国家安全方案的必要性。自 DGP/29 以来，已根据 SMP/7 和 ANC 的反馈意见对该章进行了精简，删除了附件 19 已涵盖的 SARPs。专家组成员虽认可精简的合理性，但担忧其明确表示危险物品需要纳入国家安全方案的这一意图可能无法体现。这一担忧将通过强有力的指导材料予以解决。

5.1.4.2 指导材料完成后将提交给危险物品专家组第三十一次会议核准。

5.1.5 技术细则

5.1.5.1 若该修订案获得通过，则有必要对《技术细则》及其《补篇》进行继发性修订，以与附件 18 保持一致。专家组将在下一个两年期内着手制定这些修订内容。目标是在 2029-2030 版《技术细则》及其补篇中纳入修订内容，前提是接受 2030 年 11 月作为适用日期。

5.1.6 审查规程问题

5.1.6.1 专家组讨论了审查普遍安全监督审计计划（USOAP）规程问题的必要性，以确保其充分涵盖各国在危险物品管理方面的责任。专家组指出，尽管某些国家可能被评估为拥有成熟的国家安全方案（SSP），但这并不必然意味着其在具体危险物品管理责任方面同样成熟。因此，制定专门针对危险物品的 SSP 规程问题十分重要。

5.1.7 适用日期

5.1.7.1 该修订案的适用日期最初建议为 2028 年 11 月。但在航委会审议期间，有意见认为 2028 年对各国实施如此重大的修订案可能不切实际。专家组同意这一评估意见。将适用日期推迟至 2030 年 11 月，既能为各国提供更多时间审查并实施修订内容，亦可使国际民航组织及专家组有时间制定完善的实施计划，其中包括网络研讨会、讲习班及指导材料的散发。

5.2 对附件 18 修订草案和《技术细则》中关于报告要求的各项标准的拟议修订（DGP/30-WP/33），以及对附件 18 修订草案和《技术细则》中关于报告要求的各项标准的拟议修订（DGP/30-IP/4）

5.2.1 有人提议做出修订，要求将发现货物或邮件中有未申报或不实申报的危险物品以及发现乘客或机组人员在行李中携带或随身携带违禁危险物品的情况，向更多国家当局报告。有些成员认为现行要求已足够，增加条款不会带来任何额外的安全效益。附件 19 已经规定，各国应将其认为对其他国家有价值的信息予以转发。该修订案未获同意，但与会者支持通过指导材料解决修订案希望解决的问题。

5.3 建议

5.3.1 根据上述讨论，会议拟定了以下建议：

RSPP	建议 5/1 — 修订附件 18 以明确国家在危险物品安全航空运输方面的责任
	根据本议程项目报告附录所示对附件 18 进行修订，适用日期为 2030 年 11 月。

**APPENDIX TO REPORT ON AGENDA ITEM 5
(English only)**

PROPOSED AMENDMENT TO ANNEX 18

**PROPOSED AMENDMENT TO
INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES**

ANNEX 18

TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

- | | | |
|---|-----------------------------------|--|
| 1. Text to be deleted is shown with a blue line through it. | text to be deleted | |
| 2. <u>New text to be inserted is highlighted with grey shading.</u> | new text to be inserted | |
| 3. Text to be deleted is shown with a line through it followed by the replacement text which is highlighted with grey shading. | new text to replace existing text | |

PROPOSED AMENDMENT TO**ANNEX 18*****THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR*****FOREWORD****Historical background**

Annex 18 governs the international transport of dangerous goods by air. The material in ~~this the~~ Annex was developed by the Air Navigation Commission in response to a need expressed by ~~Contracting~~ States for an internationally agreed set of provisions governing the safe transport of dangerous goods by air. ~~In order to assist in achieving compatibility with the regulations covering the transport of dangerous goods by other modes of transport, the provisions of this Annex are based on the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods and the Regulations for the Safe Transport of Radioactive Materials of the International Atomic Energy Agency.~~ The Annex was originally adopted by Council on 26 June 1981 and became applicable on 1 January 1984.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Justification: The objective of Annex 18 is currently provided under the heading for “Relationship with the <i>Technical Instructions for the Safe Transport of Dangerous Goods by Air</i>”. It is proposed to move the objective as a general statement at the beginning of the Foreword under the heading for “Historical background” to make it immediately clear.</p> <p>The current text under “Historical background” about the provisions of the Annex being based on the Recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods and the Regulations for the Safe Transport of Radioactive Materials of the International Atomic Energy Agency is inaccurate. It is not the Annex that is based on these recommendations and regulations, but rather the Technical Instructions. It is proposed to explain the relationship with these bodies in the “Relationship with the Technical Instructions” section. It is also proposed to delete the reference to the IAEA regulations as it is considered unnecessary. The relevant material from these regulations are included in the United Nations recommendations upon which the Technical Instructions are based. The input from the IAEA is explained in the Foreword of the Technical Instructions.</p> <p>The original adoption and applicability dates of the Annex are proposed for inclusion in the Annex for the sake of consistency with other Annexes.</p>

**Relationship with the *Technical Instructions*
for the *Safe Transport of Dangerous Goods by Air*
(Doc 9284)**

~~The provisions of Annex 18 govern the international transport of dangerous goods by air.~~ The broad provisions of this Annex are amplified by the detailed specifications of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) (Technical Instructions). The provisions of the Technical Instructions are based on recommendations on the transport of dangerous goods developed for all modes of transport by the United Nations Economic and Social Council’s Committee of Experts on the Transport of Dangerous Goods. The intent of using this common base by all modes of transport is to allow cargo to be transferred safely and smoothly between air, sea, rail, and road modes. Modifications from these recommendations are made in the Technical Instructions to address specific aviation safety needs while keeping in mind the need to ensure compatibility with other modes of transport.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Justification: The objective of Annex 18 is moved to the beginning of the foreword under “Historical background” (see justification under that paragraph). The new text is moved from this same paragraph (“Historical background”) and modified to more clearly explain the relationship between the Technical Instructions and the United Nations recommendations (see justification under “Historical background”).

Status of the Technical Instructions

The detailed specifications of the Technical Instructions are considered binding on a State by virtue of 2.3.1 of this Annex unless it has notified a difference to this provision under Article 38 of the Convention.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Justification: The inside cover of Annex 18 explains the status of the Technical Instructions. The status was agreed by States in recognition of the critical need for compliance with the Technical Instructions to ensure safety. It is proposed to make this explanation more visible by including it in the Foreword.

Amendments to Annex 18 and the Technical Instructions

Annex 18 is intended to contain stable material requiring only minor amendments using the normal Annex amendment process. The Technical Instructions require more substantial and frequent amendments to keep up with day-to-day operational use.

The Air Navigation Commission established the Dangerous Goods Panel (DGP) and tasked it with maintaining the Technical Instructions. The DGP meets periodically to review comments received from States and interested international organizations, to consider any changed recommendations of the United Nations Committee, to address safety and facilitation issues specific to air transport and to prepare revised editions of the Technical Instructions. Amendments recommended by the DGP are published in panel meeting reports and made publicly available on www.icao.int/dangerous-goods.

Amendments recommended by the DGP are reviewed by the Air Navigation Commission and approved and published by decision of the Council of ICAO. Action taken by the Air Navigation Commission or the Council on the recommendations is published in the Supplement to DGP meeting reports and made available on www.icao.int/dangerous-goods.

A new edition of the Technical Instructions is published every two years. Amendments to the Technical Instructions during the specific period of applicability of an edition of the document may also be published if deemed necessary. Amendments during the specific period of applicability are made available on www.icao.int/dangerous-goods.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Justification: The status and amendment process for the Technical Instructions is unlike that for any other ICAO provisions. It is therefore considered necessary to make the process and the ability for States to see amendments being proposed visible.

Guidance

Guidance to States on the implementation of Annex 18 is contained in *Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual (Doc.xxxxx, forthcoming)*.

The Technical Instructions are supported by the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284SU)*. The Supplement contains guidance to assist States when considering authorizations to transport dangerous goods by air that the Technical Instructions forbid under normal circumstances through approvals or exemptions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Justification: A new section containing references to available guidance is proposed to support States.

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INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

CHAPTER 1. DEFINITIONS

When the following terms are used in this Annex, they have the following meanings:

Appropriate national authority. Any authority designated, or otherwise recognized, by a State to perform specific functions related to provisions contained in these Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	“Appropriate national authority” is referenced throughout Annex 18. The term is defined in the Technical Instructions. It is proposed to replicate the definition in Annex 18 to ensure consistent application of the term.

Approval. An authorization granted by an appropriate national authority for:

- a) the transport of dangerous goods forbidden on passenger and/or cargo aircraft where the Technical Instructions state that such goods may be carried with an approval; or
- b) other purposes as provided for in the Technical Instructions.

Note.— In the absence of a specific reference in the Technical Instructions allowing the granting of an approval, an exemption may be sought.

Baggage. Personal property of passengers or crew carried on an aircraft by agreement with the operator.

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	The amendment to Annex 18 introduces references to baggage. Baggage is defined in Annex 9 and the Technical Instructions. It is proposed to replicate the definition in Annex 18 to ensure consistent application of the term.

Cargo. Any property carried on an aircraft other than mail and accompanied or mishandled baggage.

Note.— This definition differs from the definition of “cargo” given in Annex 9 — Facilitation whereby Annex 9 excludes stores (supplies) from cargo, but Annex 18 does not.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The definition for cargo is currently not in Annex 18, but it is in the Technical Instructions. The panel is proposing the definition in the Technical Instructions be added to the Annex given the need to understand the distinction between cargo, baggage and mail established through the proposed revised structure of the Annex. The definition in Annex 9 – <i>Facilitation</i> excludes stores (supplies), but the one in the Technical Instructions does not. This misalignment was purposely introduced into the 2011-2012 Edition of the Technical Instructions to ensure operator stores classified as dangerous goods being shipped for replacement or repair comply with the Technical Instructions. Aligning with the definition in Annex 9 would create significant gaps and have safety implications with respect to the transport of dangerous goods.

~~**Cargo aircraft.** Any aircraft, other than a passenger aircraft, which is carrying goods or property.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	The definition for cargo aircraft and passenger aircraft (see below) are proposed for deletion because they are considered unnecessary in the Annex. They have been wrongly used by States to determine who can be on an aircraft, when that determination is governed by Annex 6. Deleting it will help avoid such misinterpretations. The definitions are maintained in the Technical Instructions.

Civil aviation authority (CAA). The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport).

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	The term is referred to in Annex 18 and a definition for it is contained in <i>Safety Oversight Manual</i> (Doc 9734). It is proposed to include the definition in Annex 18 to ensure consistent interpretation of what is meant when CAA is referred to.

Consignee. Any person, organization or government which is entitled to take delivery of a consignment.

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	“Consignee” is referenced in the definition for consignment and is defined in the Technical Instructions. The definition in the Technical Instructions aligns with the definition in the UN Model Regulations. It is proposed to replicate the definition in Annex 18 to ensure consistent application of the term.

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Crew member. A person assigned by an operator to duty on an aircraft during a flight duty period.

Dangerous goods. Articles or substances which are capable of posing a ~~risk~~ **hazard** to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/26 AN Min. 207-5 AN Min. 209-2	Justification: The need was identified during work on harmonizing provisions of the Technical Instructions with the UN Recommendations on the Transport of Dangerous Goods for incorporation in the 2019-2020 Edition. The amendment corrected inaccurate use of the term “risk”. The definition in the Technical Instructions already aligns with the UN Model Regulations. The ANC conducted a final review of the amendment following State consultation. It was pointed out, and recognized by the Commission, that the amendment proposal was administrative in nature and, as such, should be consolidated with other Annex 18 amendment proposals which could imply a later applicability date than the currently indicated 7 November 2019. (AN Min 209-2).

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in fatal or serious injury to a person or major property or environmental damage.

Note.— A dangerous goods accident may also constitute an aircraft accident as defined in Annex 13— Aircraft Accident and Incident Investigation.

<i>Origin:</i>	<i>Rationale:</i>
DGP/26 and DGP/29	Clarification that a dangerous goods accident is not restricted to an accident associated with the operation of an aircraft. The wording aligns with text in the definition for dangerous goods incident. It is important to capture accidents not associated with the operation of an aircraft because they could indicate a safety deficiency that might have resulted in an aircraft accident if the dangerous goods had been loaded on the aircraft.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to where:

- a) a person; is injured;
- b) there is property or environmental damage;
- c) there is fire, breakage, spillage, leakage of fluid contents or radiation or there is other evidence that the integrity of the packaging has not been maintained. ~~Any; or~~
- d) ~~occurrence relating to the transport of dangerous goods which seriously jeopardizes the safety of the aircraft or its occupants is also deemed to constitute a dangerous goods incident is jeopardized.~~

Note.— A dangerous goods incident may also constitute an aircraft incident as defined in Annex 13 — Aircraft Accident and Incident Investigation.

<i>Origin:</i>	<i>Rationale:</i>
DGP/26 and DGP/29	— Editorial amendments to improve readability (see DGP/26 Report and DGP/26-IP/6). — “fluid” is replaced with “contents” to include solids. — Note added to establish relationship between a dangerous goods incident and an aircraft incident under Annex 13. It is similar to the one added under “Dangerous goods accident”.

Designated postal operator. Any governmental or non-governmental entity officially designated by a Universal Postal Union (UPU) member country to operate postal services and to fulfil the related obligations arising from the acts of the UPU Convention on its territory.

~~**Exception.** A provision in this Annex which excludes a specific item of dangerous goods from the requirements normally applicable to that item.~~

Origin:	Rationale:
DGP/30	The term is not referred to in Annex 18, so it is unnecessary for it to be defined. “Excepted” is referred to in Annex 18, but the dictionary definition is sufficient.

Exemption. An authorization, other than an approval, granted by an appropriate national authority providing relief from the provisions of the Technical Instructions.

~~**Flight crew member.** A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.~~

Origin:	Rationale:
DGP/30	“Flight crew member is not referred to in Annex 18, it is therefore unnecessary to define it.

~~**Misdeclared dangerous goods.** Dangerous goods offered for transport by air with incorrect documentation, marks, or labels.~~

Origin:	Rationale:
DGP/29 and DGP/30	“Misdeclared dangerous goods” is referred to in proposed Standards and Recommended Practices (SARPs) aimed at mitigating risks associated with dangerous goods being shipped that do not comply with the Technical Instructions and in revised SARPs for dangerous goods safety intelligence. The term is currently referred to in Annex 18, Chapter 12, <i>Dangerous goods accident and incident reporting</i> and there has been on-going queries from States and industry on what is meant by it.

~~**Mail.** Dispatches of correspondence and other items tendered by, and intended for delivery to, postal services in accordance with the rules of the Universal Postal Union (UPU).~~

Origin:	Rationale:
DGP/29	Mail is referred to in Annex 18. It is defined in Annex 9 and the Technical Instructions. It is proposed to replicate the definition from these documents in Annex 18 to ensure consistent interpretation of the term.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Note.— A unit load device is not included in this definition.

Package. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

Packaging. ~~Receptacles~~ One or more receptacles and any other components or materials necessary for the ~~receptacle~~ receptacles to perform ~~its~~ their containment ~~function~~ and other safety functions.

Note.— For radioactive material, see Part 2, paragraph 7.2.1.3 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/27 AN Min. 213-3	Recommended by DGP/27 (Recommendation 1/1). Harmonizes the definition with the one contained in the UN Recommendations on the Transport of Dangerous Goods and corrects an out-of-date reference in the note. The definition is also contained in the Technical Instructions and already aligns with the UN Model Regulations. The Air Navigation Commission made a preliminary review of Recommendation 1/1 and, noting the amendment was editorial in nature, agreed that it should be referred for comments to States and appropriate international organizations, together with the Commission's own comments and proposals thereon, only as part of a more substantive amendment to Annex 18. (AN Min. 213-3)

~~**Passenger aircraft.** An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or a person accompanying a consignment or other cargo.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	The definition for cargo aircraft and passenger aircraft (see above) are proposed for deletion because they are considered unnecessary in the Annex. They have been wrongly used by States to determine who can be on an aircraft, when that determination is governed by Annex 6. Deleting it will help avoid such misinterpretations. The definitions are maintained in the Technical Instructions.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Remote pilot-in-command. The remote pilot designated by the operator as being in command and charged with the safe conduct of a flight.

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	Remote pilot-in-command is now referred to in Annex 18. It is proposed to replicate the definition from Annex 6 to ensure consistent interpretation of the term.

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, ~~accountabilities~~ accountability, responsibilities, policies and procedures.

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	The existing definition for SMS aligns with the definition in the first edition of Annex 19. The amendment is proposed to align it with the definition in the latest edition of Annex 19 (second edition).

Serious injury. An injury which is sustained by a person in an accident and which:

- a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
- c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or
- d) involves injury to any internal organ; or
- e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or
- f) involves verified exposure to infectious substances or injurious radiation.

State of Destination. The State in the territory of which the consignment is finally to be unloaded from an aircraft.

State of Occurrence. The State in the territory of which an accident or incident occurs.

Origin:	Rationale:
DGP/30	State of occurrence is referred to in revised provisions requiring information to be provided to specific entities in the event of an aircraft accident or incident. The term is defined in Annex 13. It is proposed to replicate the definition from Annex 13 to ensure consistent interpretation of the term.

State of Origin. The State in the territory of which the consignment is first to be loaded on an aircraft.

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Technical Instructions. The *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.

~~**UN number.** The four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals to identify an article or substance or a particular group of articles or substances.~~

Origin:	Rationale:
DGP/30	"UN number" is not referred to in Annex 18, so it is unnecessary for it to be defined.

Undeclared dangerous goods. Dangerous goods offered for transport by air which are not identified as dangerous goods in accordance with the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29 and DGP/30	“Undeclared dangerous goods” is referred to in proposed Standards and Recommended Practices (SARPs) aimed at mitigating risks associated with dangerous goods being shipped that do not comply with the Technical Instructions and in revised SARPs for dangerous goods safety intelligence. The term is currently referred to in Annex 18, Chapter 12, <i>Dangerous goods accident and incident reporting</i> and there has been on-going queries from States and industry on what is meant by it.

Unit load device. ~~Any type of freight container,~~ **(ULD). A device for grouping and restraining cargo, mail and baggage for air transport. It is either an aircraft container, or a combination of an aircraft pallet with a net, or an aircraft pallet with a net over an igloo net. A ULD is designed to be directly restrained by the aircraft cargo loading system.**

Note 1.— *An overpack is not included in this definition.*

Note 2.— *A freight container for radioactive material is not included in this definition (see Part 2, paragraph 7.1.3 of the Technical Instructions).*

<i>Origin:</i>	<i>Rationale:</i>
DGP/29 and DGP- WG/23	The definition has been in the Annex since its first edition. It is also contained in the Technical Instructions. The wording refers to older terminology and to articles that are no longer used. The amendment modernizes the terminology. The addition of Note 2 is made for the sake of alignment with the definition in the Technical Instructions. It was added to the Technical Instructions to differentiate a freight container for radioactive material from a ULD, because the former has specific characteristics that do not necessarily apply to a ULD. The amendment will ensure this concept is clear and ensure alignment between the two documents.

CHAPTER 2. APPLICABILITY GENERAL

2.1 Objective

Each State shall promote the safety of the aircraft, its occupants, ground personnel, the general public and the environment as a primary objective in all matters related to the safe transport of dangerous goods by air.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The safe transport of dangerous goods by air is dependent on the diligence of entities both within and outside the aviation system. The primary objective when using aviation to transport or carry dangerous goods for those outside the aviation system is not typically the safety of the aircraft and its occupants. It is therefore important to make it clear to all entities that safety is the primary objective when it comes to the safe transport of dangerous goods by air. This SARP is based on 2.1.1 of Annex 17 — <i>Security</i> , another Annex that deals with entities outside the aviation system.

2.1.2 and 2.1.3 of current Annex 18 are moved to 2.4.2.1 and 2.4.2.2:

~~2.1.2 Where specifically provided for in the Technical Instructions, the States concerned may grant an approval provided that in such instances an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions is achieved.~~

~~2.1.3 In instances:~~

~~a) of extreme urgency; or~~

~~b) when other forms of transport are inappropriate; or~~

~~c) when full compliance with the prescribed requirements is contrary to the public interest,~~

~~the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	It is proposed to move the approval and exemption provisions from the applicability section to the limitation on the transport of dangerous goods by air section because they are more associated with the latter than with applicability. Approvals and exemptions are already mentioned in that section, so keeping all the relevant SARPs together makes them more comprehensive.

~~2.1.4 For the State of Overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.~~

Note 1 of current Annex 18 is moved to under 2.4.2.1 and Notes 2 and 3 of current Annex 18 are moved to under 2.4.2.2:

~~———— Note 1. — For the purpose of approvals, “States concerned” are the States of Origin and the Operator, unless otherwise specified in the Technical Instructions.~~

~~———— Note 2. — For the purpose of exemptions, “States concerned” are the States of Origin, Operator, Transit, Overflight and Destination.~~

~~———— Note 3. — Guidance for the processing of exemptions, including examples of extreme urgency, may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 1, 1.2 and 1.3).~~

Origin:	Rationale:
DGP/29	Note 1 is specific to approvals and Notes 2 and 3 are specific to the exemptions. It is proposed to move Note 1 under the provision for approvals (now 2.4.2.1) and Notes 2 and 3 under the provision for exemptions (now 2.4.2.2) to improve clarity.

~~———— Note 4. — Refer to 4.3 for dangerous goods forbidden for transport by air under any circumstances.~~

Origin:	Rationale:
DGP/29	Note 4 is necessary in the current Annex because the provisions for approvals and exemptions and the provisions for dangerous goods forbidden under any circumstance are in different sections of this chapter. This is no longer necessary, since all these provisions are proposed for inclusion in the same location, i.e. the limitation on the transport of dangerous goods section.

~~———— Note 5. — It is not intended that this Annex be interpreted as requiring an operator to transport a particular article or substance or as preventing an operator from adopting special requirements on the transport of a particular article or substance.~~

Origin:	Rationale:
DGP/29	Note 5 is moved to Chapter 6: Operator responsibilities. The note is currently under the provisions for approvals and exemptions, but its application goes beyond these. Moving the note to Chapter 6 makes the provisions for operators more comprehensive.

~~2.1.2.2~~ **General applicability** **Applicability**

~~2.1.2.2.1~~ The Standards and Recommended Practices of this Annex shall be applicable to ~~all~~ international ~~operations of civil aircraft~~ **aviation**.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) “General” is removed for the sake of consistency with other Annexes.</p> <p>b) Applying the Annex to aviation rather than to the operation of the aircraft is intended to ensure that entities other than the operator that contribute to the safe transport of dangerous goods are covered by this Annex.</p>

The following is moved from 2.3 of current Annex 18:

~~2.3—Domestic civil aircraft operations~~

~~**2.2.2 Recommendation.**— *In the interests of safety and of minimizing interruptions to the international transport of dangerous goods, Contracting States should also take the necessary measures to achieve compliance with the Annex and the Technical Instructions for* *Each State should apply the Standards and Recommended Practices contained in this Annex to* ~~*domestic civil aircraft operations aviation.*~~~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) The provision relates to the applicability of the Annex and the Technical Instructions to domestic civil aircraft operations. There is a current recommendation to take the necessary measures to achieve compliance with the Annex and the Technical Instructions to domestic transport, but it is currently located outside of the applicability section of Chapter 2 (2.3). It is therefore proposed to move the recommended practice under the international applicability SARP.</p> <p>b) “Contracting State” is replaced with “Each State” for the sake of consistency.</p> <p>c) The current recommendation refers to the Annex and the Technical Instruction. Removing the reference to the Technical Instructions is proposed as it is considered redundant, given that Annex 18 makes the document binding on a State.</p> <p>d) It is proposed to replace “to achieve compliance” with “apply” for the sake of clarity and consistency.</p> <p>e) Text referring to “the interests of safety and minimizing interruptions to the international transport of dangerous goods” is considered more appropriate as guidance material. It is therefore proposed to remove it from the recommended practice and to elaborate on the concept in a new guidance document to support the implementation of Annex 18 (<i>Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual (Doc xxxxx, forthcoming)</i>).</p> <p>f) “to domestic aircraft operations” is replaced with “to domestic civil aviation” to align with the revision to the previous SARP for the same reason, i.e. to ensure that entities other than the operator that contribute to the safe transport of dangerous goods are covered.</p>

The following is moved from 2.4 of current Annex 18:

~~2.4—Exceptions~~

~~**2.4.2.2.3**~~ ~~Articles and substances which would otherwise be ~~classified~~ classified as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations, or for those specialized purposes identified in the Technical Instructions, shall be excepted from the provisions of this Annex.~~

~~2.4.2.2.4~~ Where articles and substances intended as replacements for those described in ~~2.4.1.2.3~~ or which have been removed for replacement are carried on an aircraft, they shall be transported in accordance with the provisions of this Annex except as permitted in the Technical Instructions.

~~2.4.3~~ Specific articles and substances carried by passengers or crew members shall be excepted from the provisions of this Annex to the extent specified in the Technical Instructions.

Origin:	Rationale:
DGP/29	<p>The provisions in current 2.4 relate to the applicability of the Annex and the Technical Instructions, but they are located outside of the applicability section of Chapter 2. It is therefore proposed to move the Standards to this section, i.e. the applicability section.</p> <p>The provision in current 2.4.3 is proposed for deletion because it is not considered valid. Specific articles and substances carried by passengers and crew are subject to Annex 18 and Part 8 of the Technical Instructions. This is clarified through the proposed new SARP in 2.4.1.2.</p>

The following is moved from 2.2 of current Annex 18:

2.2.3 Dangerous Goods Compliance with the Technical Instructions

~~2.2.1.2.3.1~~ Each ~~Contracting~~ State shall take ~~the necessary~~ measures to ensure that any entity that offers, handles, transports or causes to achieve be offered, handled or transported dangerous goods in cargo or mail achieves compliance with the detailed provisions contained in the Technical Instructions.

~~2.2.2~~ **Recommendation.** ~~Each Contracting State should inform ICAO of difficulties encountered in the application of the Technical Instructions and of any amendments which it would be desirable to make to them.~~

2.3.2 Each State shall implement measures to ensure that passengers and crew members achieve compliance with the detailed provisions contained in Part 8 of the Technical Instructions.

2.3.3 Each ~~Contracting~~ State shall ~~also take the necessary~~ measures to ensure that the entities referred to in 2.3.1 and 2.3.2 achieve compliance with any amendment to the Technical Instructions which may be published during the specified period of applicability of an edition of the Technical Instructions.

The following is moved to 3.3 in proposed new Chapter 3:

~~2.2.2~~ **Recommendation.** ~~Each Contracting State should inform ICAO of difficulties encountered in the application of the Technical Instructions and of any amendments which it would be desirable to make to them.~~

The following is moved from 2.2.3 of current Annex 18:

~~2.2.3~~2.3.4 **Recommendation.** ~~Although an amendment to the Technical Instructions with an immediate applicability for reasons of safety may not yet have been implemented in a Contracting State, such State should, nevertheless, facilitate the movement of dangerous goods in its territory which are consigned from another Contracting State in accordance with that amendment, providing the goods comply in total with the revised requirements.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) 2.3: The revision to the heading is proposed to better describe the intent of the section.</p> <p>b) 2.3.1: Which entities are subject to the Technical Instructions has been the subject of extensive discussions on the Dangerous Goods Panel, specifically with respect to whether entities handling cargo but not intending to handle dangerous goods can be subject to them. Entities such as freight forwarders play an important role in preventing undeclared dangerous goods from being introduced into the air cargo system, so there has been a desire by members of the DGP to require training on how to identify and reject dangerous goods for all such entities, even if they do not intend to handle them. Some States do not have authority to enforce dangerous goods regulations on entities not performing functions described in the Technical Instruction. However, they do have authority over a person or organization once they have performed a dangerous goods function, such as offering cargo for transport that includes dangerous goods, regardless of whether the person or organization knowingly or unknowingly performed the function. The wording “or <i>causes</i> to be offered, handled or transported” is intended to capture this concept.</p> <p>c) 2.3.1 and 2.3.2: Current 2.2.1 could incorrectly be interpreted to imply that the <i>State</i> needs to comply with the detailed provisions contained in the Technical Instructions. It is the entities performing functions related to the transport of dangerous goods by air and also passengers and crew carrying dangerous goods that need to achieve compliance. The proposed amendment clarifies who needs to comply with the Technical Instructions. It separates the provision into two distinct areas, one to address those dealing with dangerous goods in cargo or mail (2.3.1) and the other to address passengers and crew carrying dangerous goods (2.3.2).</p> <p>d) 2.3.3: Current 2.2.1 contains two Standards. An editorial amendment is proposed to create a separate Standard for compliance with any amendment to the Technical Instructions (2.3.3).</p> <p>e) 2.3.4: Current 2.2.2 is moved to proposed new 3.3 in Chapter 3: Provision of information to ICAO which consolidates all SARPs related to providing ICAO with information in one place.</p>

The following is moved from 2.6 of current Annex 18:

~~2.6~~ **Surface transport**

2.3.5 Recommendation.— ~~States~~*Each State* should ~~make provisions~~*take measures* to enable dangerous goods intended for air transport and prepared in accordance with the ~~ICAO~~-Technical Instructions to be accepted for ~~surface~~*transport by other modes of* transport to or from aerodromes.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) The amendment to the heading is proposed because multimodal transport is a common term in the dangerous goods world and makes the intent of the provision easier to understand.</p> <p>b) Editorial revisions are proposed for the sake of clarity and consistency.</p> <p>c) The references to “ICAO” is unnecessary as there is now a definition for “Technical Instructions”.</p> <p>d) It is proposed to move the recommendation from its current location to this location so that all provisions related to the Technical Instructions are in one place.</p>

The following is moved to new Chapter 3, 3.2:

~~2.5—Notification of variations from the Technical Instructions~~

~~2.5.1—Where a Contracting State adopts different provisions from those specified in the Technical Instructions, it shall notify ICAO promptly of such State variations for publication in the Technical Instructions.~~

~~Note.—Contracting States are expected to notify a difference to the provisions of 2.2.1 under Article 38 of the Convention only if they are unable to accept the binding nature of the Technical Instructions. Where States have adopted different provisions from those specified in the Technical Instructions, they are expected to be reported only under the provisions of 2.5.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The requirement for States to inform ICAO of State variations is proposed to be moved to a new Chapter 3: Provision of information to ICAO. The new chapter is proposed so that all SARPs related to providing ICAO with information is in one place.

~~2.5.2—Recommendation.—The State of the Operator should take the necessary measures to ensure that when an operator adopts more restrictive requirements than those specified in the Technical Instructions, the notification of such operator variations is made to ICAO for publication in the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Few operator variations are reported to ICAO, and updates to already reported variations are not always provided. Users of the Technical Instructions cannot depend on these variations. Operator variations are more reliably reported to industry and included in industry regulations. It is therefore proposed that the recommendation be deleted.

The following is moved to 2.3.5:

~~2.6—Surface transport~~

~~Recommendation.—States should make provisions to enable dangerous goods intended for air transport and prepared in accordance with the ICAO Technical Instructions to be accepted for surface transport to or from aerodromes.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Current 2.6 is moved to the 2.3.5 in the section on Compliance with the Technical Instructions so that all provisions related to the Technical Instructions are in one place.

The following is moved to new Chapter 3, 3.1:

~~2.7~~ **National authority**

~~Each Contracting State shall designate and specify to ICAO an appropriate authority within its administration to be responsible for ensuring compliance with this Annex.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The requirement for States to designate and specify to ICAO an appropriate authority within its administration to be responsible for ensuring compliance with this Annex is proposed to be moved to a new Chapter 3: Provision of information to ICAO. The new chapter is proposed so that all SARPs related to providing ICAO with information is in one place.

The following is moved from Chapter 4:

~~CHAPTER 4.~~ **2.4 Limitation on the transport of dangerous goods by air**

~~4.1~~**2.4.1 Dangerous goods permitted for transport by air**

~~2.4.1.1 Each State shall permit **the** transport of dangerous goods **as cargo or mail** by air ~~shall be forbidden except as established in~~ **solely in accordance with** this Annex and the detailed ~~specifications and procedures provided in~~ **specifications of** the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<ul style="list-style-type: none"> a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place. b) Editorial revisions to the Standard are proposed to improve clarity by aligning the wording with the header. c) “Each State” is added to reflect the fact that the SARP is directed at the State. d) The addition of a reference to cargo or mail is proposed to differentiate from passenger baggage in the next SARP (2.4.1.2). e) “specifications and procedures” is replaced with “provisions” for the sake of consistency with other parts of the Annex.

~~2.4.1.2 Each State shall permit the carriage of dangerous goods by passengers or crew members solely when specifically permitted in accordance with Part 8 of the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) New Standard which replaces the exception from the Annex of specific articles and substances carried by passengers or crew members currently contained in 2.4.3 because dangerous goods carried by passengers and crew are not excepted from the Annex. They are forbidden unless specifically permitted in the Technical Instructions, and there are criteria for allowing them there.</p> <p>b) Having the provision here clarifies the distinction between dangerous goods carried as cargo and dangerous good carried by passengers and crew and the fact that they are both covered by the Annex</p>

2.4.2 Dangerous goods forbidden for transport by air unless approved or exempted

~~The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the States concerned under the provisions of 2.1 or Each State shall not permit the transport of dangerous goods identified in the Technical Instructions as being forbidden for transport by air under normal circumstances unless the provisions of the Technical Instructions indicate they may be transported under an approval granted by the State of Origin. States concerned in accordance with 2.4.2.1 or an exemption granted by the States concerned in accordance with 2.4.2.2.~~

- ~~— a) dangerous goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and~~
- ~~— b) infected live animals.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place.</p> <p>b) The addition of “approved” in the heading is proposed because the SARP refers to both approvals and exemptions.</p> <p>c) “Each State shall not permit ...” added to reflect the fact that the SARP is directed at the State.</p> <p>d) Editorial amendments to clarify intent.</p> <p>e) The references to exemption and approval provisions have changed because it is proposed to move these provisions from the general applicability section to this section.</p> <p>f) Reference to only State of Origin for an approval is inconsistent with what is currently in the general applicability section, which includes the State of the Operator as part of the approval process. “States concerned” is explained under the specific provisions for approvals (2.4.2.1) and exemptions (2.4.2.2) below.</p> <p>g) Deleted “infected live animals” because this is covered by the Technical Instructions.</p>

The following is moved from 2.1.2 of current Annex 18:

~~— 2.1.2~~ 2.4.2.1 Approvals

Where specifically provided for in the Technical Instructions, the States concerned may grant an approval provided that in such instances an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions is achieved.

The following is moved from under 2.1.4 of current Annex 18:

~~Note 1.~~— For the purpose of approvals, “States concerned” are the States of Origin and the Operator, unless otherwise specified in the Technical Instructions.

~~2.1.3~~ 2.4.2.2 Exemptions

In instances:

- a) of extreme urgency; or
- b) when other forms of transport are inappropriate; or
- c) when full compliance with the prescribed requirements is contrary to the public interest,

the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided for in the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<ul style="list-style-type: none"> a) Moved from the current general applicability section in 2.1.3 as it relates more to the limitation provisions than to applicability provisions. b) Addition of heading for the sake of clarity.

~~2.1.4~~ For the State of Overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The Standard in 2.1.4 is proposed for deletion as it is considered more appropriate to address its intent, which is not clear by the wording, in guidance material. The intent of the SARP is to address challenges faced by the State of Overflight when considering whether to grant an exemption when the criteria for granting it are not applicable to that State. The challenges faced by the State of overflight are transferred to applicants, who are often unable to acquire an exemption. Addressing the issue through guidance will allow for more comprehensive assistance to States on the subject.

Current Note 1 is moved to under 2.4.2.1:

~~Note 1.~~— For the purpose of approvals, “States concerned” are the States of Origin and the Operator, unless otherwise specified in the Technical Instructions.

Note 2.1.— For the purpose of exemptions, “States concerned” are the States of Origin, Operator, Transit, Overflight and Destination.

Note-3.2.— Guidance for the processing of exemptions, including examples of extreme urgency, may be found in the ~~Supplement to the Technical Instructions (Part S-1, Chapter 1, 1.2 and 1.3)~~. Oversight and Management of the Safe Transport of Dangerous Goods by Air Manual (Doc xxxxx, forthcoming), Chapter yy.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The guidance for processing of exemptions is currently contained in the Supplement to the Technical Instructions, but it is proposed to move all guidance specific to States from the Supplement to a new manual so that all guidance is consolidated in one place. The note is updated accordingly.

~~— Note 1. — Refer to 1.3 for dangerous goods forbidden for transport by air under any circumstances.~~

~~— Note 5. — It is not intended that this Annex be interpreted as requiring an operator to transport a particular article or substance or as preventing an operator from adopting special requirements on the transport of a particular article or substance.~~

2.4.3 Dangerous goods forbidden for transport by air under any circumstances

2.4.3.1 Each State shall forbid any article or substance to be transported by air under any circumstance if, as presented for transport, it is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under conditions normally encountered in transport.

2.4.3.2 The Aarticles and substances referred to in 2.4.3.1 shall include those that are specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport by air under any circumstances ~~shall not be carried~~ on any aircraft.

2.4.3.23 Each State shall not grant approvals or exemptions for articles and substances identified in 2.4.3.1.

Note.— Guidance on dangerous goods forbidden for transport under any circumstance is provided in Doc xxxx (forthcoming), Chapter yy.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<ul style="list-style-type: none"> a) Moved from Chapter 4 (Limitation on the transport of dangerous goods by air) to keep the general regulatory framework for transport of dangerous goods by air in one place. b) The current SARP in 4.3 refers to articles or substances specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport under and circumstance. The Technical Instructions make it clear that it is not possible to list all dangerous goods that should be forbidden under any circumstance. It is therefore proposed to include an explanation of what cannot be safely transported on an aircraft in the SARP and to include guidance for determining this in the new document referred to in the note. c) States should not grant approvals or exemptions to transport such articles or substances. New 2.4.3.2 makes this clear.

CHAPTER 3. ~~CLASSIFICATION~~ PROVISION OF INFORMATION TO ICAO

~~The classification of an article or substance shall be in accordance with the provisions of the Technical Instructions.~~

~~——— Note. — The detailed definitions of the classes of dangerous goods are contained in the Technical Instructions. These classes identify the potential risks associated with the transport of dangerous goods by air and are those recommended by the United Nations Committee of Experts on the Transport of Dangerous Goods.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The intent of this Standard is to ensure anyone preparing a package containing dangerous goods for transport classifies the hazards associated with the dangerous goods in accordance with the Technical Instructions. However, the Standard does not make this clear nor does it make the obligation that the Standard places on a State clear. A new Chapter 5 on the safety of the supply chain is proposed which captures the intent and State obligation of this SARP and similar SARPs in current Chapters 5 (Packing), 6 (Labelling and marking) and 7 (Shipper's responsibilities).

The following is moved from current 2.7:

2.73.1 Appropriate national authority

Each ~~Contracting~~ State shall designate and specify to ICAO an appropriate national authority within its administration to be responsible for ensuring compliance with this Annex.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place.

The following is moved from current 2.5:

2.53.2 Notification of variations from the Technical Instructions

~~——— 2.5.1 —~~ Where a ~~Contracting~~ State adopts different provisions from those specified in the Technical Instructions, it shall notify ICAO promptly of such State variations for publication in the Technical Instructions.

Note.— ~~Contracting~~ Each States are is expected to notify a difference to the provisions of ~~2.2.1 2.3.1 and 2.3.2~~ under Article 38 of the Convention only if they are unable to accept the binding nature of the Technical Instructions. Where States have adopted different provisions from those specified in the Technical Instructions, they are expected to be reported only under the provisions of ~~2.5~~ 3.2.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place.

The following is moved from current 2.2.2:

3.3 Difficulties encountered in the application of the Technical Instructions

~~2.2.2~~—**Recommendation.**— *Each ~~Contracting~~ State should inform ICAO of difficulties encountered in the application of the Technical Instructions and of any amendments which it would be desirable to make to them.*

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<ul style="list-style-type: none"> a) Heading added to differentiate between other sections of this chapter b) Proposed to be moved from Chapter 2 to this chapter so that all SARPs related to providing information to ICAO are in one place.

CHAPTER 4. ~~LIMITATION ON THE TRANSPORT OF DANGEROUS GOODS BY AIR~~ STATE SAFETY MANAGEMENT RESPONSIBILITIES

~~4.1—Dangerous goods permitted for transport by air~~

~~The transport of dangerous goods by air shall be forbidden except as established in this Annex and the detailed specifications and procedures provided in the Technical Instructions.~~

~~4.2—Dangerous goods forbidden for transport by air unless exempted~~

~~The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the States concerned under the provisions of 2.1 or unless the provisions of the Technical Instructions indicate they may be transported under an approval granted by the State of Origin:~~

- ~~— a) dangerous goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and~~
- ~~— b) infected live animals.~~

~~4.3—Dangerous goods forbidden for transport by air under any circumstances~~

~~Articles and substances that are specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport by air under any circumstances shall not be carried on any aircraft.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>The SARPs currently in Chapter 4 for the limitation on the transport of dangerous goods are moved to Chapter 2 to keep the general regulatory framework for transport of dangerous goods by air in one place.</p> <p>It is proposed that Chapter 4 contain safety management provisions specific to dangerous goods with the aim of ensuring all entities involved with the safe transport of dangerous goods are working towards the level of safety expected in aviation.</p>

Note 1.— Provisions for a State Safety Programme (SSP) are contained in Chapter 3 to Annex 19. Guidance on an SSP is contained in the Safety Management Manual (SMM) (Doc 9859).

Note 2.— This chapter contains specific State safety management responsibilities relevant to the safe transport of dangerous goods by air. Guidance on the integration of the safe transport of dangerous goods by air into the SSP is contained in Doc xxxx (forthcoming).

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Authorities involved with the safe transport of dangerous goods by air may not all be part of the aviation sector in some States. The notes are intended to ensure all are aware of the requirements for a State safety programme and the fact that the transport of dangerous goods by air is an integral part of it by pointing to guidance.

4.1 Approval and exemption obligations

Each State shall implement documented processes and procedures to ensure that individuals and organizations performing an activity related to the transport of dangerous goods by air meet the established requirements before they are allowed to exercise the privileges of an approval or exemption to conduct the relevant dangerous goods activity.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29 DGP/27	This Standard is aimed at ensuring States meet their responsibilities with respect to the granting of exemptions and approvals related to the transport of dangerous goods by air. The DGP has identified a need for additional guidance on the issuance of approvals and exemptions, particularly with respect to which entities the approval or exemption should be issued to and the relationship between the shipper, the operator and the State authorities processing them. Ensuring each State has documented process and procedures and providing guidance to assist them in developing them will help ensure States meet their exemption and approval obligations.

4.2 Dangerous goods safety investigations

4.2.1 Each State shall establish a process to investigate dangerous goods accidents and dangerous goods incidents reported in accordance with Chapter 10 in support of the management of safety in the State.

4.2.2 Each State shall implement a risk-based process for the analysis and investigation of:

- a) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail;
- b) occasions when dangerous goods not permitted in passenger or crew baggage are discovered; and
- c) other safety issues

which are reported in accordance with Chapter 10 in support of the management of safety in the State.

<i>Origin:</i> DGP/29	<i>Rationale:</i> This new Standard replaces the SARPs currently in 12.1 and 12.2 that require each State to establish procedures for investigating and compiling information concerning dangerous goods accidents and incidents which occur in its territory and involve the transport of dangerous goods originating or destined for another State and to report in accordance with the Technical Instructions and recommends the same when not originating or destined for another State. While accidents and incidents defined in accordance with Annex 13 apply to the operation of an aircraft, dangerous goods accidents and incidents defined in accordance with Annex 18 do not necessarily occur on board an aircraft. This SARP is intended to ensure that dangerous goods accidents or incidents that do not meet the criteria for accidents or incidents defined in Annex 13 are investigated. The investigation of an accident or incident that did not occur on board an aircraft is valuable because it may reveal safety deficiencies that need to be resolved to prevent another accident or incident and to prevent an incident from leading to an accident. The wording of the Standard is revised to: a) align with the wording in Annex 19; b) require the establishment of a process to conduct safety investigations for all accidents and incidents involving the transport of dangerous goods that are reported to the State regardless of where they occurred; c) remove the reference to compiling information because this is covered in new Chapter 10 which is proposed to contain provisions related to safety intelligence.
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4.2.3 Each State shall participate in cooperative efforts with other States conducting dangerous goods safety investigations, as appropriate, with the aim of resolving safety issues and eliminating violations of dangerous goods regulations.

<i>Origin:</i> DGP/29	<i>Rationale:</i> This new Standard replaces the recommendation currently in 11.2. The cooperation of States when conducting safety investigations of an international nature is critical for the resolution of dangerous goods safety issues. The recommendation is therefore upgraded to a SARP. Supporting guidance is included in the current recommendation. It is proposed to delete it and to incorporate it in the new guidance document to support implementation of Annex 18.
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4.3 Management of safety risks

4.3.1 Dangerous goods transported as cargo or mail

4.3.1.1 Each State shall address safety risks associated with dangerous goods offered, handled or transported or caused to be offered, handled or transported as cargo or mail by air.

4.3.1.2 Each State shall implement measures to prevent dangerous goods not in compliance with the Technical Instructions from being transported in cargo or mail by air.

4.3.1.3 Each State shall implement measures to ensure that any person that offers, handles or transports or causes to be offered, handled or transported dangerous goods in cargo or mail has processes and procedures in place to identify dangerous goods in cargo or mail that are not in compliance with the Technical Instructions and to prevent them from being offered for transport by air or loaded on an aircraft.

4.3.2 Dangerous goods carried by passengers and crew

4.3.2.1 Each State shall address safety risks associated with dangerous goods carried by passengers or crew.

4.3.2.2 Each State shall implement measures to prevent passengers or crew from carrying dangerous goods on board an aircraft which they are not permitted to carry.

4.3.2.3 Each State shall implement measures to ensure that entities handling baggage have processes and procedures in place to recognize dangerous goods that are not permitted to be carried by passengers or crew and to prevent them from being carried on an aircraft when they are discovered.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Section 4.3 addresses risk posed by hazards introduced throughout the supply chain and carried by passengers and crew, particularly when not in compliance with regulations, which may pose significant safety risks to aviation. Annex 6 obligates the operator to consider the supply chain in its safety risk management activities. Supply chains impact multiple operators. It is therefore important for the State to assess system-wide hazards and manage system-wide safety risks to improve system-wide safety. These SARPs will be supported by robust guidance material.

4.4 State safety promotion

4.4.1 Dangerous goods transported as cargo or mail

4.4.1.1 Each State shall include activities to prevent the transport of dangerous goods in cargo and mail by air which are not in compliance with the provisions of this Annex and the Technical Instructions in the State safety promotion activities through its SSP.

4.4.1.2 Each State shall promote dangerous goods safety and a positive safety culture throughout the supply chain.

4.4.2 Dangerous goods carried by passengers or crew

4.4.2.1 Each State shall include activities to increase passenger and crew awareness of dangerous goods which they are forbidden to carry on an aircraft in the State safety promotion activities through its SSP.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	State safety promotion specific to dangerous goods is needed for the same reasons it is needed in other aviation sectors. The new SARPs are needed because State safety promotion needs to extend beyond the aviation system. This is essential to the management of safety risks associated with the transport of dangerous goods, particularly the risk of non-compliance with dangerous goods regulations.

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CHAPTER 5. **PACKING SAFETY OF THE SUPPLY CHAIN**

5.1—General requirements

~~Dangerous goods shall be packed in accordance with the provisions of this chapter and as provided for in the Technical Instructions.~~

5.2—Packagings

~~5.2.1 Packagings used for the transport of dangerous goods by air shall be of good quality and shall be constructed and securely closed so as to prevent leakage which might be caused in normal conditions of transport, by changes in temperature, humidity or pressure, or by vibration.~~

~~5.2.2 Packagings shall be suitable for the contents. Packagings in direct contact with dangerous goods shall be resistant to any chemical or other action of such goods.~~

~~5.2.3 Packagings shall meet the material and construction specifications in the Technical Instructions.~~

~~5.2.4 Packagings shall be tested in accordance with the provisions of the Technical Instructions.~~

~~5.2.5 Packagings for which retention of a liquid is a basic function, shall be capable of withstanding, without leaking, the pressure stated in the Technical Instructions.~~

~~5.2.6 Inner packagings shall be so packed, secured or cushioned as to prevent their breakage or leakage and to control their movement within the outer packaging(s) during normal conditions of air transport. Cushioning and absorbent materials shall not react dangerously with the contents of the packagings.~~

~~5.2.7 No packaging shall be reused until it has been inspected and found free from corrosion or other damage. Where a packaging is reused, all necessary measures shall be taken to prevent contamination of subsequent contents.~~

~~5.2.8 If, because of the nature of their former contents, uncleaned empty packagings may present a hazard, they shall be tightly closed and treated according to the hazard they constitute.~~

~~5.2.9 No harmful quantity of a dangerous substance shall adhere to the outside of packages.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The provisions in this chapter are details contained in the Technical Instructions. The SARPs are therefore redundant. Packing requirements are now covered more generally by the SARP proposed in new Chapter 5, 5.2.1 b) 3).

<i>Origin:</i> DGP/29	<i>Rationale:</i> A new chapter on the safety of the supply chain is proposed to more clearly outline the expectations of States. The current edition of Annex 18 has three separate chapters that address the responsibilities of entities involved with preparing and offering dangerous goods for transport by air. These are: Chapter 3: Classification; Chapter 5: Packing; Chapter 6: Labelling and marking; Chapter 7: Shipper's responsibilities. All these provisions point to the provisions of the Technical Instructions, with some provisions from the Technical Instructions repeated in the Annex. They do not directly state what is required of the State, and there does not appear to be any rationale for determining what should be repeated and what should simply be referenced. This new chapter clearly defines what is expected of the State, which is to adopt regulations directed at entities in the supply chain preparing, offering and transporting dangerous goods for transport by air. The new chapter lists the functions for which regulations are needed and refers to the applicable parts of the Technical Instructions where the detailed Instructions are found. Listing the functions provides the added benefit of an overview of how the Technical Instructions mitigate risk.
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5.1 Primary aviation legislation

Each State shall promulgate laws that enable the oversight and safety management of entities that offer, handle, transport or cause to be offered, handled or transported dangerous goods by air, the resolution of safety issues and the enforcement of regulations through the relevant authorities established for that purpose.

<i>Origin:</i> DGP/29	<i>Rationale:</i> This, along with proactive/risk-based SARPs in new Chapter 4, replace what is the current Standard in 11.1. The current Standard requires inspection, surveillance and enforcement procedures for all entities performing any dangerous goods function prescribed in a State's regulations. Requiring surveillance activities for all these entities is impossible to implement given the vast numbers performing dangerous goods functions and the fact that licence, certification, authorization or approval obligations do not apply to entities other than operators and designated postal operators. Inspection and enforcement procedures are covered by the SARPs for State safety risk management. It will be supplemented by guidance material.
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5.2 Specific operating regulations

Note.— The term "person" in this section includes individuals and organizations.

Each State shall establish specific operating regulations to require, at a minimum, that:

- a) a person does not offer or cause to be offered for transport:
 - 1) articles or substances which are forbidden for transport in accordance with 2.4.2 unless permitted by the States concerned through an approval or exemption;
 - 2) articles or substances which are forbidden for transport in accordance with 2.4.3;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	5.2.1 a) and b) replace part of current 7.1.

b) a person does not offer or cause to be offered dangerous goods for transport unless:

1) associated hazards are identified in accordance with the classification criteria of Part 2 of the Technical Instructions;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	5.2.1 b) 1) replaces current Chapter 3

2) risks associated with the identified hazards are mitigated at the package level through quantity limitations, packing and packaging requirements in accordance with Parts 3, 4 and 6 of the Technical Instructions;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	5.2.1 b) 2 Replaces part of current 7.1 (Shippers' responsibilities — general requirements) and Chapter 5 (Packing).

3) hazard and handling information are communicated to entities in the supply chain in accordance with the marking, labelling and documentation requirements of Parts 3, 4 and 5 of the Technical Instructions;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	4.1.2 b) 3) replaces Chapter 6 (Labelling and Marking) and 7.2 (Dangerous goods transport document).

c) documentation is retained in accordance with the Technical Instructions;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The need for documentation to be retained is required by the detailed provisions of the Technical Instructions. The documentation is evidence of compliance and provides important information for safety investigations.

d) in the case of radioactive material, a radiation protection programme is established in accordance with Part 1:6 of the Technical Instructions;

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The Technical Instructions contain provisions for a radiation protection programme by entities involved with the transport of radioactive material. There was never any reference to this in Annex.

e) operators accept, handle and transport dangerous goods in accordance with Chapter 6;

f) dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods are discovered are reported in accordance with Chapter 10;

g) dangerous goods training and assessment is conducted in accordance with Chapter 9;

h) dangerous goods are not offered, caused to be offered or accepted for transport by mail unless specifically permitted in accordance with Chapter 8; and

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	5.2.1 e), f), g) and h) establish the need for the State to establish regulations aimed at the operator, reporting, training and assessment and the mail. They refer to the associated SARPs in the Annex.

i) entities other than operators involved in the transport of dangerous goods by air provide such information to their personnel as will enable them to carry out their responsibilities regarding the transport of dangerous goods including instructions as to the action to be taken in the event of emergency involving dangerous goods.

Note.— The operator's responsibility to establish dangerous goods procedures, instructions and guidance in its operations manual is contained in Annex 6, Part I, Chapter 14; Part III, Chapter 12; and Part IV, Chapter 14.

<i>Origin:</i>	<i>Rationale:</i>
	5.2.1 i) is moved from 9.4. The text in 9.4 is modified to make it applicable to entities other than the operator, given that the operator is required to provide the information and instructions in the Operators Manual in accordance with Annex 6 and is now proposed to be covered to be SARPs in Chapter 6. This is reflected through the note under g).

~~CHAPTER 6. LABELLING AND MARKING~~

~~6.1—Labels~~

~~Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be labelled with the appropriate labels and in accordance with the provisions set forth in those Instructions.~~

~~6.2—Markings~~

~~6.2.1—Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be marked with the proper shipping name of its contents and, when assigned, the UN number and such other markings as may be specified in those Instructions.~~

~~6.2.2—*Specification markings on packagings.* Unless otherwise provided for in the Technical Instructions, each packaging manufactured to a specification contained in those Instructions shall be so marked in accordance with the appropriate provisions of those Instructions and no packaging shall be marked with a packaging specification marking unless it meets the appropriate packaging specification contained in those Instructions.~~

~~6.3—Languages to be used for markings~~

~~**Recommendation.**—*In addition to the languages required by the State of Origin and pending the development and adoption of a more suitable form of expression for universal use, English should be used for the markings related to dangerous goods.*~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The provisions in this chapter are details contained in the Technical Instructions. The SARPs are therefore redundant. Labelling and marking requirements are now covered more generally by the SARP proposed in new Chapter 5, 5.2.1 b) 4).

CHAPTER 7. ~~SHIPPER'S RESPONSIBILITIES~~

~~7.1—General requirements~~

~~Before a person offers any package or overpack of dangerous goods for transport by air, that person shall ensure that the dangerous goods are not forbidden for transport by air and are properly classified, packed, marked, labelled and accompanied by a properly executed dangerous goods transport document, as specified in this Annex and the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This SARP is covered by proposed new 5.2.1 a), 5.2.1 b) 2), 5.2.1 b) 3), 5.2.1 b) 4) and 5.2.1 b) 5)

~~7.2—Dangerous goods transport document~~

~~7.2.1—Unless otherwise provided for in the Technical Instructions, the person who offers dangerous goods for transport by air shall complete, sign and provide to the operator a dangerous goods transport document, which shall contain the information required by those Instructions.~~

~~7.2.2—The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are fully and accurately described by their proper shipping names and that they are classified, packed, marked, labelled, and in proper condition for transport by air in accordance with the relevant regulations.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The provisions in 7.2 are details contained in the Technical Instructions. The SARPs are therefore redundant. The dangerous goods transport document is covered by proposed new 5.2.1 b) 3)

~~7.3—Languages to be used~~

~~**Recommendation.**—In addition to the languages which may be required by the State of Origin and pending the development and adoption of a more suitable form of expression for universal use, English should be used for the dangerous goods transport document.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This recommendation is contained in by Part 5, Chapter 4, 4.1.6.3 of the Technical Instructions. It is therefore redundant.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>This rationale applies to all of new Chapter 6 (Operator's responsibilities):</p> <ul style="list-style-type: none"> — A change in the structure of the chapter is proposed to differentiate between those operators with and those without specific approvals to transport dangerous goods as cargo in alignment with the structure of the dangerous goods chapters in Annex 6 (Chapters 14 in Parts I and IV and Chapter 12 in Part II). This makes the responsibilities applicable to each type of operator clear and establishes a stronger connection with Annex 6. — The SARPs for the operator responsibilities have been expanded to ensure all the detailed provisions in the Technical Instructions are connected to a high-level Standard in the Annex to provide more visibility to States, enabling them to better assess an operator's ability to perform dangerous goods functions through the AOC process and during surveillance activities. — Editorial amendments to existing SARPs are made to make the subject of the SARP clear and to align with language used in Annex 6 (i.e. "The operator shall ...").

CHAPTER **86**. OPERATOR'S RESPONSIBILITIES

Note 1.— This chapter distinguishes responsibilities for operators who have not been issued a specific approval to transport dangerous goods (6.2) from those who have been issued a specific approval to transport dangerous goods (6.3) by separating them into two sections. Specific approval in the context of this chapter refers to an approval issued to an air operator in accordance with Annex 6.

Note 2.— Annex 19 includes safety management provisions for air operators. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859).

Note 3.— The carriage of dangerous goods is included in the scope of the operator's safety management system (SMS).

Note 4.— See Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes, Chapter 15 and Part IV — International Operations — Remotely Piloted Aircraft Systems, Chapter 15 for SARPs concerning cargo compartment safety.

Note 5.— It is not intended that this Annex be interpreted as requiring an operator to transport a particular article or substance. It is also not intended to prevent an operator from adopting requirements on the transport of a particular article or substance in addition to what is required by this Annex.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Note 1 explains the structure of the chapter and what is meant by a specific approval.</p> <p>Note 4 refers to operator responsibilities impacting dangerous goods contained in Annex 6.</p> <p>Note 5 is moved from Chapter 2: Applicability. The note is currently under the provisions for approvals and exemptions, but its application goes beyond these. Moving the note to this chapter makes the provisions for operators more comprehensive. Editorial amendments are proposed for clarification.</p>

6.1 General

6.1.1 The provisions of 6.2 apply to operators who have not been issued a specific approval for the transport of dangerous goods.

6.1.2 The provisions of 6.3 apply to operators who have been issued a specific approval for the transport of dangerous goods.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>6.1.1 and 6.1.2 set out the applicability of the two remaining sections in this chapter, one for those operators without specific approval to transport dangerous goods as cargo and one for those with specific approval. The two sections correspond with the two sections in Annex 6, Part I, Chapter 14, Part II, Chapter 12 and Part IV, Chapter 14. DGP proposes to maintain the dangerous goods provisions in Annex 18 and to replace what is in Annex 6 with references to the sections in this Annex. Keeping the dangerous goods SARPs in Annex 18 allows for a comprehensive set of dangerous goods provisions and facilitates maintenance of them. DGP proposes repeating provisions that apply to both types of operators in 6.2 and 6.3 as is done in Annex 6. This eliminates any ambiguity as to what each operator is responsible for, which is sometimes the case for operators without specific approval.</p>

6.2 Operators with no specific approval for the transport of dangerous goods

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>6.2 is a proposed new section specific to operators with no specific approval for the transport of dangerous goods as cargo. It is added with the aim of making dangerous goods responsibilities for these operators clear (see rationale under 6.1.3).</p>

6.2.1 General

Note 1.— Annex 6, Part I, Chapter 14 and Appendix 2, Annex 6, Part III – International Operations – Helicopters, Chapter 12 and Appendix 8 and Annex 6, Part IV, Chapter 14 and Appendix 2 include provisions for operators to include dangerous goods procedures, instructions and guidance in its operations manual, including emergency procedures involving dangerous goods.

Note 2.— See also Annex 6 Part I, 4.2.1.3.1, Part III, 2.2.1.3.1 and Part IV, 4.2.2.1 for work performed by third parties on behalf of the operator.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Note 1 is proposed in lieu of maintaining the Standards in current 9.2 and 9.4 requiring information and instructions to flight crew members in the Operations Manual and information to other operator employees involved in the transport of dangerous goods enabling them to carry out their responsibilities given that these requirements are in Annex 6.</p> <p>Note 2 refers to Standards in Annex 6 requiring the operator to develop policies and procedures for third parties that perform work on its behalf.</p>

6.2.2 Dangerous goods carried by passengers and crew

6.2.2.1 The operator shall ensure that measures are in place to mitigate the risk of passengers and crew members carrying dangerous goods on board an aircraft which they are not permitted to carry.

6.2.2.2 The mitigations required by 6.2.2.1 shall include, at a minimum:

- a) measures to ensure that passengers and crew members are aware of the limitations on the carriage of dangerous goods on aircraft; and
- b) ensuring relevant personnel are trained to assist them in identifying and detecting dangerous goods.

Note 1.— See Part 7;5 of the Technical Instructions for provision of information to passengers and for passenger check-in procedures.

Note 2.— See Part 7;6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

<i>Origin:</i>	Rationale:
DGP/29	6.2.2.1 and 6.2.2.2 are proposed new SARPs aimed at mitigating against the risk of dangerous goods in baggage or mail being transported on an aircraft that are not in compliance with the Technical Instructions. The Technical Instructions currently contain several prescriptive requirements related to information to passengers and crew to make them aware of dangerous goods limitations. The proposed new SARPs are intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.

6.2.2.3 The operator shall establish criteria for approving a passenger or crew member to safely carry dangerous goods that are identified by Part 8 of the Technical Instructions as only being permitted with the approval of the operator.

<i>Origin:</i>	Rationale:
DGP/29	6.2.2.3 is a proposed new SARP. Some dangerous goods are only permitted for carriage by passengers and crew with the approval of the operator as specified in Table 8-1 of the Technical Instructions (e.g. battery-powered mobility aids, oxygen cylinders required for medical use, dry ice). There are specific handling and loading requirements for the operator for some of them. Including this general SARP in the Annex is proposed to make it clear to States that the operator needs to demonstrate it can carry these goods safely.

6.2.2.4 The operator shall load dangerous goods carried by passengers or crew members in accordance with the applicable requirements of the Technical Instructions.

<i>Origin:</i>	Rationale:
DGP/29	The Technical Instructions contain loading requirements for certain dangerous goods carried by passengers and crew, but there is no related Standard in current Annex 18. 6.2.2.4 is proposed to close that gap and to make it clear to States.

6.2.2.5 The operator shall isolate baggage suspected of being contaminated by dangerous goods and nullify any hazardous contamination before the baggage is subsequently transported.

6.2.3 Transport of cargo or mail

6.2.3.1 The operator shall ensure that measures are in place to mitigate the risk of:

a) dangerous goods being transported as cargo on an aircraft;

b) dangerous goods being transported which are intended as replacement for or removed for replacement of those required to be aboard an aircraft in accordance with pertinent airworthiness requirements and operator regulations; and

c) dangerous goods being transported in mail which are not in compliance with the Technical Instructions.

6.2.3.2 The mitigations required by 6.2.3.1 shall include, at a minimum:

- a) measures to ensure that cargo customers are aware of the limitations on the transport of dangerous goods as cargo on aircraft;
- b) measures to assist operators' cargo personnel in identifying, detecting and rejecting dangerous goods presented as general cargo and dangerous goods not permitted in mail.

Note 1.— See 2.4 for limitations on the transport of dangerous goods by air.

Note 2.— See Part 7;1.1 of the Technical Instructions for cargo acceptance procedures related to detecting dangerous goods presented as general cargo.

Note 3.— See Part 7;4.8 of the Technical Instructions for provision of information at cargo acceptance points.

Note 4.— See Part 7;6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

<i>Origin:</i>	Rationale:
DGP/29	<p>6.2.3.1 and 6.2.3.2 are proposed new SARPs aimed at mitigating the risk of non-compliance dangerous goods being transported by air.</p> <p>The inadvertent transport of undeclared dangerous goods offered as general cargo, dangerous goods in air mail that are not permitted, and dangerous goods carried by passengers and crew that are not permitted pose a risk to aircraft. The Technical Instructions currently contain several prescriptive requirements for information concerning dangerous goods to be provided to various entities that may introduce this risk as one way to mitigate it. These are referred to in the Notes proposed for inclusion under 6.2.3.2. The proposed new SARPs are intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.</p>

6.2.3.3 Damage or leakage

The operator shall ensure that cargo or mail suspected of being contaminated by dangerous goods is isolated and any hazardous contamination nullified before the cargo or mail is subsequently transported.

<i>Origin:</i>	Rationale:
DGP/29	<p>Current 8.4.3 applies to packages of dangerous goods appearing to be damaged or leaking but not to mail, and it implies that the operator would know that a package contained dangerous goods. The operator would only know if a package contained dangerous goods if it was declared as such. The SARP in 8.4.3 is therefore proposed to contamination from undeclared dangerous goods.</p>

6.3 Operators with a specific approval for the transport of dangerous goods

6.3.1 General

Note 1.— Specific approvals for the transport of dangerous goods are issued by the State of Operator in accordance with Annex 6.

Note 2.— Annex 6, Part I, Chapter 14 and Appendix 2, Annex 6, Part III, Chapter 12 and Appendix 8 and Annex 6, Part IV, Chapter 14 and Appendix 2 include provisions for the operators to include dangerous goods procedures, instructions and guidance in its operations manual, including emergency procedures involving dangerous goods.

Note 3.— See also Annex 6, Part I, 4.2.1.3.1, Part III, 2.2.1.3.1 and Part IV, 4.2.2.1 for work performed by third parties on behalf of the operator.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Note 1 creates a link to Annex 6 with respect to the AOC process by explaining where the provisions for a specific approval are contained.</p> <p>Note 2 creates a link to Annex 6 with respect to the operations manual and for it to include emergency procedures involving dangerous goods by where the requirements are. This requirement is currently contained in Annex 18 through 9.2 and 9.4. It is proposed for deletion given that it is redundant.</p> <p>Note 3 refers to Standards in Annex 6 requiring the operator to develop policies and procedures for third parties that perform work on its behalf.</p>

6.3.2 Dangerous goods carried by passengers and crew members

6.3.2.1 The operator shall ensure that measures are in place to mitigate the risk of passengers and crew members carrying dangerous goods on board an aircraft which they are not permitted to carry.

6.3.2.2 The mitigations required by 6.3.2.1 shall include, at a minimum:

- a) measures to ensure that passengers and crew members are aware of the limitations on the carriage of dangerous goods on aircraft; and
- b) ensuring relevant personnel are trained to assist them in identifying and detecting dangerous goods.

Note 1.— See Part 7:5 of the Technical Instructions for provision of information to passengers and for passenger check-in procedures.

Note 2.— See Part 7:6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

<i>Origin:</i>	Rationale:
DGP/29	6.2.2.1 and 6.2.2.2 are proposed new SARPs aimed at mitigating against the risk of dangerous goods in baggage or mail being transported on an aircraft that are not in compliance with the Technical Instructions. The Technical Instructions currently contain several prescriptive requirements related to information to passengers and crew to make them aware of dangerous goods limitations. The proposed new SARPs are intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.

6.3.2.3 The operator shall establish criteria for approving a passenger or crew member to safely carry dangerous goods that are identified by Part 8 of the Technical Instructions as only being permitted with the approval of the operator.

<i>Origin:</i>	Rationale:
DGP/29	6.2.2.3 is a proposed new SARP. Some dangerous goods are only permitted for carriage by passengers and crew with the approval of the operator as specified in Table 8-1 of the Technical Instructions (e.g. battery-powered mobility aids, oxygen cylinders required for medical use, dry ice). There are specific handling and loading requirements for the operator for some of them. Including this general SARP in the Annex is proposed to make it clear to States that the operator needs to demonstrate it can carry these goods safely.

6.3.2.4 The operator shall load dangerous goods carried by passengers or crew members in accordance with the applicable requirements of the Technical Instructions.

<i>Origin:</i>	Rationale:
DGP/29	The Technical Instructions contain loading requirements for certain dangerous goods carried by passengers and crew, but there is no related Standard in current Annex 18. 6.3.2.4 is proposed to close that gap and to make it clear to States.

6.3.2.5 The operator shall isolate baggage suspected of being contaminated by dangerous goods and nullify any hazardous contamination before the baggage is subsequently transported.

<i>Origin:</i>	Rationale:
DGP/29	Current Annex 18 has a similar requirement in 8.4.3 that does not apply to baggage. The Technical Instructions have provisions related to baggage. 6.3.2.5 is proposed to make it clear to States that operators need procedures in place to deal with baggage suspected of being contaminated by dangerous goods.

6.3.3 Transport of cargo and mail

6.3.3.1 Prevention of non-compliance

6.3.3.1.1 The operator shall ensure that measures are in place to mitigate the risk of:

- a) dangerous goods being transported as cargo on an aircraft that are not in compliance with the Technical Instructions and the limitations with regard to the transport of dangerous goods established in the Operations Manual;
- b) dangerous goods being transported which are intended as replacement for or removed for replacement of those required to be aboard an aircraft in accordance with pertinent airworthiness requirements and operator regulations that are not in compliance with the Technical Instructions; and
- c) dangerous being transported in air mail which are not in compliance with the Technical Instructions.

6.3.3.1.2 The mitigations required by 6.3.3.1,1 shall include, at a minimum:

- a) measures to ensure that cargo customers are aware of the limitations on the transport of dangerous goods as cargo by air; and
- b) measures to assist operators' acceptance staff personnel in identifying, detecting and rejecting dangerous goods presented as general cargo.

Note 1.— See 2.4 for limitations on the transport of dangerous goods by air.

Note 2.— See Part 7;4.8 of the Technical Instructions for provision of information at cargo acceptance points.

Note 3.— See Part 7;1.1 of the Technical Instructions for cargo acceptance procedures related to detecting dangerous goods presented as general cargo.

Note 4.— See Part 7;6 of the Technical Instructions for provisions to aid recognition of dangerous goods in general cargo, baggage or mail.

<p><i>Origin:</i></p> <p>DGP/29</p>	<p>Rationale:</p> <p>6.3.3.1 contains proposed new SARPs aimed at mitigating the risk of non-compliance dangerous goods being transported by air.</p> <p>The inadvertent transport of undeclared dangerous goods offered as general cargo, dangerous goods in air mail that are not permitted, and dangerous goods carried by passengers and crew that are not permitted pose a risk to aircraft. The Technical Instructions currently contain several prescriptive requirements for information concerning dangerous goods to be provided to various entities that may introduce this risk as one way to mitigate it. These are referred to in the Notes proposed for inclusion at the bottom of the section. The proposed new SARPs are intended to make the need to mitigate the risk clear while not limiting measures to what is provided in Technical Instructions. It aims to ensure operators implement effective measures for their specific operating environment while incorporating the existing measures in the Technical Instructions in a manner that focuses on what needs to be achieved.</p>
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8.16.3.3.2 Acceptance *of dangerous goods* for transport *as cargo*

~~An~~ 6.3.3.2.1 The operator shall not accept dangerous goods for transport ~~by air~~ as cargo:

- a) ~~unless the dangerous goods are accompanied by a completed~~ information is provided in accordance with Part 7;1.2 of the Technical Instructions describing the dangerous goods transport document in the consignment, except where the Technical Instructions indicate that such ~~a document~~ information is not required; and
- b) until the package, overpack or freight container containing the dangerous goods has been inspected in accordance with the acceptance procedures contained in Part 7;1 of the Technical Instructions.

~~————— Note 1. — See Chapter 12 concerning the reporting of dangerous goods accidents and incidents.~~

~~————— Note 2. — Special provisions relating to the acceptance of overpacks are contained in the Technical Instructions.~~

8.2—Acceptance checklist

6.3.3.2.2 ~~An~~The operator shall ~~develop and~~ use an acceptance checklist as an aid to compliance with the provisions of ~~8.1~~ 6.3.3.2.1 in accordance with Part 7;1 of the Technical Instructions.

6.3.3.2.3 The operator shall not accept a freight container or unit load device containing dangerous goods from a shipper except as permitted by 7;1 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>“As cargo” is added to reflect the fact that these acceptance procedures apply only to dangerous goods offered for transport as cargo.</p> <p>Sub-paragraph a) is modified from current 8.1 a) to accommodate dangerous goods information provided electronically, which the Technical Instructions allow.</p> <p>Note 1 under current 8.1 is deleted to remove the implication that the reporting of dangerous goods accidents and incidents is only applicable during acceptance.</p> <p>Note 2 under current 8.1 is deleted as it is considered unnecessary. “Overpack” is referenced in 6.3.3.1, making it clear that there are provisions for them in the Technical Instructions.</p> <p>A separate section for the acceptance checklist is considered unnecessary since it is directly related to the provisions in the previous section. It is therefore proposed to delete the heading in current 8.2.</p> <p>The requirement in proposed new 6.3.3.2.3 is contained in the Technical Instructions but not Annex 18. The amendment closes this gap.</p>

6.3.3.3 Handling

6.3.3.3.1 General

6.3.3.3.1.1 The operator shall handle cargo containing dangerous goods in a manner that prevents damage, leakage or dangerous reaction in accordance with the provisions of the Technical Instructions.

6.3.3.3.1.2 The operator shall ensure that marks and labels required by the Technical Instructions are visible throughout the course of air transport in accordance with Part 7;2 of the Technical Instructions.

6.3.3.3.1.3 The operator shall ensure that dangerous goods contained in unit load devices are identified on the exterior of the unit load devices in accordance with Part 7;2 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP-WG/Annex 18	How dangerous goods are handled contributes to their safe transport. The Technical Instructions contain provisions related to handling, yet there is no mention of this function in Annex 18. SARPs related to handling are proposed to address this gap in Annex 18.

86.3.3.3.2 Loading, unloading and stowage

~~Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be loaded and stowed on an aircraft in accordance with the provisions of the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	It is proposed to replace this general SARP with more detailed SARPs contained in this section about loading and stowage and also requirements for unloading of dangerous goods.

8.4—Inspection for damage or leakage

~~8.4.1 Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for evidence of leakage or damage before loading on an aircraft or into a unit load device. Leaking or damaged packages, overpacks or freight containers shall not be loaded on an aircraft.~~

~~8.4.2 A unit load device shall not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of leakage from, or damage to, any dangerous goods contained therein.~~

~~8.4.3 Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated.~~

~~8.4.4 Packages or overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device. If evidence of damage or leakage is found, the area where the dangerous goods or unit load device were stowed on the aircraft shall be inspected for damage or contamination.~~

6.3.3.3.2.1 Damage or leakage

6.3.3.3.2.1.1 The operator shall not load dangerous goods as cargo onto an aircraft unless:

- a) packages, overpacks and freight containers containing dangerous goods have been inspected immediately prior to placing them in a unit load device or loading them on an aircraft and found free from any evidence of leakage or damage; and
- b) unit load devices have been inspected and found free from any evidence of leakage from, or damage to, any dangerous goods contained therein.

6.3.3.3.2.1.2 The operator shall inspect upon unloading:

- a) packages, overpacks and freight containers containing dangerous goods for evidence of damage or leakage from the aircraft or unit load device; and
- b) unit load devices containing dangerous goods from the aircraft for evidence of leakage from, or damage to any dangerous goods contained therein.

6.3.3.3.2.1.3 The operator shall ensure that cargo or mail containing or suspected of containing dangerous goods is removed from the aircraft or unit load device if there is evidence of damage or leakage in accordance with Parts 7;2 and 7;3 of the Technical Instructions.

6.3.3.3.2.2 Removal of contaminationThe operator shall ensure that:

- a) any hazardous contamination found on an aircraft or unit load device from dangerous goods is removed without delay in accordance with the Technical Instructions.
- b) an aircraft which has been contaminated by radioactive materials is immediately taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>The Standards for inspecting for damage or leakage of dangerous goods in current 8.4 is separated from Standards for removal of contamination in current 8.6 despite being related. The Standards for contamination are therefore moved under the Standards for inspecting for damage or leakage.</p> <p>“Inspection” is removed from the heading since the discovery of damage or leakage is not limited to inspections.</p> <p>The structure of the section is modified and reordered more logically to more clearly delineate inspections for damage or leakage during loading from inspections during unloading and the action that needs to be taken whenever damage or leakage is discovered.</p> <p>The current Standard for action to be taken if evidence of damage or leakage is discovered in 8.4.3 appears to be comprehensive when it is not. The action is replaced with a reference to more detailed action contained in the Technical Instructions.</p> <p>Current 8.4.3 applies only to packages of dangerous goods appearing to be damaged or leaking. It does not address leakage of dangerous goods from anything other than a package, including mail, and implies that the operator would know that a package contained dangerous goods. The operator would only know if a package contained dangerous goods if it was declared as such. The SARP in 8.4.3 is therefore proposed to be amended to ensure it covers contamination from declared and undeclared dangerous goods and dangerous goods in mail. It also replaces text specifying the action to be taken when evidence of damage or leakage is discovered, which appears to be comprehensive when it is not, with a reference to the detailed requirements in the Technical Instructions.</p> <p>Editorial amendments are made for the sake of consistent language.</p> <p>A distinction between packages and overpacks containing dangerous goods and freight containers containing radioactive material was removed by simply stating “packages, overpacks and freight containers containing dangerous goods” since radioactive material is dangerous goods. The fact that freight containers can only contain radioactive material when shipping dangerous goods is not relevant to this section.</p>

8.5~~6.3.3.3.2.3~~ *Loading restrictions* ~~in passenger cabin or on flight deck~~

~~Dangerous~~ 6.3.3.3.2.3.1 The operator shall ensure that dangerous goods ~~shall~~are not ~~be~~ carried in an aircraft cabin occupied by passengers or on the flight deck ~~of an aircraft~~, except in circumstances permitted by the provisions of the Technical Instructions.

6.3.3.3.2.3.2 The operator shall ensure that dangerous goods are not carried in the main deck cargo compartment of an aircraft conducting passenger operations, except in circumstances permitted by the provisions of the Technical Instructions.

6.3.3.3.2.3.3 Notwithstanding the provisions in 6.3.3.3.2.3.2, the operator may transport dangerous goods in the main deck cargo compartment of an aircraft conducting passenger operations that do not meet the requirements of Part 7;2.1.1 of the Technical Instructions, if approved by the State of Origin and the State of the Operator, based on the results of an approved safety risk assessment process implemented by the operator.

6.3.3.3.2.3.4 The process required by 6.3.3.3.2.3.3 shall demonstrate how risks to the operation resulting from such an allowance can be managed.

6.3.3.3.2.3.5 The operator shall ensure that packages of dangerous goods bearing the “Cargo aircraft only” label are not loaded for transport on aircraft conducting passenger operations.

The following is moved from 8.9 of current Annex 18:

8.9—Loading on cargo aircraft

6.3.3.3.2.3.6 ~~Packages~~The operator shall ensure that packages of dangerous goods bearing the “Cargo aircraft only” label ~~shall be~~are loaded on an aircraft conducting cargo operations in accordance with ~~the provisions in~~Part 7;2.4.1 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Editorial amendments to make the subject of the action required clear and to point to the specific provisions of the Technical Instructions.

8.6—Removal of contamination

~~8.6.1~~ Any hazardous contamination found on an aircraft as a result of leakage or damage to dangerous goods ~~shall be removed without delay.~~

~~8.6.2~~ An aircraft which has been contaminated by radioactive materials shall immediately be taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

8.7~~6.3.3.3.2.4~~ *Separation and segregation*

~~8.7~~6.3.3.3.2.4.1 ~~Packages~~The operator shall ensure that packages containing dangerous goods which might react dangerously ~~one~~ with one another ~~shall not be stowed on an aircraft next to~~are

~~segregated or separated from~~ each other ~~or in a position that would allow interaction between them in the event of leakage.~~

~~— 8.7.2 Packages of toxic and infectious substances shall be stowed on an aircraft, as applicable, in accordance with the provisions~~Part 7:2.2 of the Technical Instructions.

~~— 8.7.3 Packages~~ 6.3.3.3.2.4.2 ~~The operator shall ensure that packages~~ of radioactive materials ~~shall be~~are stowed on an aircraft so that they are separated from persons, live animals and undeveloped film, in accordance with ~~the provisions in~~Part 7:2.9.6 of the Technical Instructions.

~~8.8~~6.3.3.3.2.5 *Securing of dangerous goods cargo loads*

~~When~~ 6.3.3.3.2.5.1 ~~The operator shall protect~~ dangerous goods ~~subject to~~on the ~~provisions contained herein are loaded in an aircraft, the operator shall protect the dangerous goods~~ or in a unit load device from being damaged, and ~~shall~~ secure such goods in the aircraft in such a manner that will prevent any movement ~~in flight which would change the orientation of the packages.~~

6.3.3.3.2.5.2 For packages containing radioactive materials, the securing shall be adequate to ensure that the separation requirements of ~~8.7~~6.3.3.3.2.5.1 are met at all times.

6.3.4 Operator responsibilities for specific types of dangerous goods

The operator shall comply with handling, stowage, loading and transport requirements for the specific types of dangerous goods identified in Part 7 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP-WG/Annex 18	There are specific requirements for handling, stowing and transporting infectious substances and radioactive material and for handling and loading some specific types of dangerous goods contained in the Technical Instructions, but no mention of this is currently made in Annex 18. The amendment addresses this gap.

9.16.3.5 Information to pilot-in-command or remote-pilot-in-command

The operator ~~of~~shall ensure that when an aircraft ~~in which~~is to transport dangerous goods ~~are to be carried~~ shall provide ~~as cargo,~~ the pilot-in-command or remote-pilot-in-command, as applicable, is provided as early as practicable before departure of the aircraft with accurate and legible written or printed information ~~as specified in~~ accordance with Part 7:4.1 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>This Standard is moved from current 9.1 and modified to:</p> <ul style="list-style-type: none"> a) incorporate specific language from Annex 6, Part I, 14.3.5), which is proposed for deletion from that Annex; b) clarify that the information provided applies to dangerous goods transported as cargo; and c) include reference to remote-pilot-in-command.

6.3.6 Additional provisions for helicopters and remotely piloted aircraft

6.3.6.1 The State of the Operator may, based on the results of a specific safety risk assessment conducted by the operator, allow for variations to the Technical Instructions for the transport of dangerous goods on helicopters or remotely piloted aircraft where full compliance is not appropriate or necessary due to the type of operation.

6.3.6.2 The process required by 6.3.6.1 shall demonstrate how risks to the operation resulting from such variations can be managed.

Note 1.— Types of operations where full compliance may not be appropriate or necessary as referred to in 6.3.6.1 are for example those involving unmanned sites, remote locations, mountainous areas and construction sites.

Note 2.— Guidance for States on approving variations from the Technical Instructions to transport dangerous goods on helicopters or remotely piloted aircraft is provided in Doc xxxx (forthcoming), Chapter yy.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Proposed new 6.3.6.3 is contained in the Technical Instructions, but no mention of it is made in current Annex 18. The amendment addresses this gap. Proposed 6.3.6.4 is not contained in the Technical Instructions. It is added to ensure the State only approves variations if it can be demonstrated that safety risks can be managed. A consequential amendment to the Technical Instructions will be necessary if this is adopted. Guidance currently contained in the Supplement will be moved to the new guidance document to support the implementation of Annex 18.</p> <p>It is proposed to extend this provision to remotely-piloted aircraft, given that full compliance may similarly not always be appropriate or necessary for certain types of remotely-piloted aircraft.</p>

Replace 9.6 with the following:

6.3.7 Provision of information in the event of an aircraft accident, serious incident or incident

6.3.7.1 Information to emergency services

The operator shall, without delay, provide emergency services responding to an accident, serious incident or incident the information about the dangerous goods on board that was provided to the pilot-in-command or remote-pilot in command.

6.3.7.2 Information to States

6.3.7.2.1 Aircraft accident or serious incident

In the event of an aircraft accident or serious incident where dangerous goods as cargo may have been involved, the operator shall provide, as soon as possible, the information that was provided to the pilot-in-command or remote-pilot in command about the dangerous goods on board to the appropriate national authorities of the State of the Operator and the State of Occurrence.

6.3.7.2.2 Aircraft incident

In the event of an aircraft incident, the operator shall, if requested to do so, provide, without delay, the information about the dangerous goods on board that was provided to the pilot-in-command or the remote-pilot-in-command to the appropriate national authority of the State of Occurrence.

Note.— The terms “accident”, “serious incident” and “incident” are as defined in Annex 13.

End of replaced text

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The provisions in 6.3.7 are modified from current 9.6 to improve clarity, to clarify who the intended recipients of the dangerous goods information are, and to facilitate the operator’s ability to determine who to provide the information to and when to provide.

~~CHAPTER 7. SHIPPER'S RESPONSIBILITIES~~

~~7.1—General requirements~~

~~Before a person offers any package or overpack of dangerous goods for transport by air, that person shall ensure that the dangerous goods are not forbidden for transport by air and are properly classified, packed, marked, labelled and accompanied by a properly executed dangerous goods transport document, as specified in this Annex and the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This SARP is covered by proposed new 5.2.1 a), 5.2.1 b) 2), 5.2.1 b) 3), 5.2.1 b) 4) and 5.2.1 b) 5)

~~7.2—Dangerous goods transport document~~

~~7.2.1—Unless otherwise provided for in the Technical Instructions, the person who offers dangerous goods for transport by air shall complete, sign and provide to the operator a dangerous goods transport document, which shall contain the information required by those Instructions.~~

~~7.2.2—The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are fully and accurately described by their proper shipping names and that they are classified, packed, marked, labelled, and in proper condition for transport by air in accordance with the relevant regulations.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The provisions in 7.2 are details contained in the Technical Instructions. The SARPs are therefore redundant. The dangerous goods transport document is covered by proposed new 5.2.1 b) 4)

~~7.3—Languages to be used~~

~~**Recommendation.**—*In addition to the languages which may be required by the State of Origin and pending the development and adoption of a more suitable form of expression for universal use, English should be used for the dangerous goods transport document.*~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This recommendation is contained in by Part 5, Chapter 4, 4.1.6.3 of the Technical Instructions. It is therefore redundant.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	A new chapter on airport operator's responsibilities is proposed to capture a requirement currently in the Technical Instructions

CHAPTER 7. AIRPORT OPERATOR'S RESPONSIBILITIES

7.1 Provision of information to passengers

Each State shall require airport operators to promulgate information in such a manner that passengers are warned of the types of dangerous goods which they are forbidden from carrying aboard an aircraft as provided for in Part 7 of the Technical Instructions.

Note.— Requirements for the operator to provide information to passengers are contained in Chapter 6.

The provisions for operator responsibilities contained in current Chapter 8 are modified and moved to Chapter 6. The provisions for dangerous goods by mail contained in current 11.4 are moved to a new chapter on the transport of dangerous goods by mail.

CHAPTER 8. ~~OPERATOR'S RESPONSIBILITIES~~ CHAPTER 8. ~~TRANSPORT OF DANGEROUS GOODS BY POST~~ TRANSPORT OF DANGEROUS GOODS BY MAIL

8.1 Designated postal operator's responsibilities

8.1.1 A designated postal operator accepting mail into air transport shall:

- a) establish and maintain a dangerous goods training programme in accordance with Chapter 9;
- b) implement procedures for preventing the introduction of dangerous goods in mail when not in compliance with the provisions of this Annex and the Technical Instructions; and
- c) implement procedures in accordance with Chapter 10 for the reporting of dangerous goods accidents, dangerous goods incidents and occasions when dangerous goods which do not comply with the provisions of this Annex and the Technical Instructions are discovered in mail.

8.1.2 A designated postal operator that allows dangerous goods in mail shall:

- a) ensure that dangerous goods are only permitted in the mail in accordance with Part 1;2.3 of the Technical Instructions; and
- b) not permit lithium batteries identified in Part 1;2.3 of the Technical Instructions in the mail into air transport unless the civil aviation authority of its State has issued a specific approval.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Current Standard 11.4 requires procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport be approved by the civil aviation authority of the State where the mail is accepted. Annex 18 does not require the designated postal operators to do anything. This new SARP outlines what the designated operator needs to do and what the civil aviation authority needs to consider when approving its procedures. It also adds a requirement for procedures for reporting of dangerous goods accidents, dangerous goods incidents and occasions when undeclared or misdeclared dangerous goods offered for air transport are discovered in mail. Data from these reports is necessary for the State's safety risk management activities.

8.1.3 Each State's designated postal operator accepting mail in another State shall comply with the requirements of 8.1.1 and 8.1.2.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The designated postal operator is responsible for its postal operators regardless of where they operate. The civil aviation authority needs to evaluate how the designated postal operator manages its operation in other States when approving the dangerous goods training programme.

Moved from 11.4:

11.4.8.2 Approval of procedures for controlling the introduction of ~~D~~dangerous goods by mail into air transport

The procedures of a State's designated postal operators ~~for controlling the introduction of dangerous goods in mail into air transport identified in 8.1~~ shall be approved by the State's civil aviation authority ~~of the State where the mail is accepted~~.

Note 1.—~~In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions. See Chapter 9 for approval of the designated postal operator's dangerous goods training programme.~~

Note 2.—~~The Universal Postal Union has established procedures to control the introduction of dangerous goods into air transport through the postal services (see the UPU Parcel Post Regulations and Letter Post Regulations). The Universal Postal Convention embodies the rules applicable throughout the international postal service and the provisions concerning the letter-post and parcel-post services. The Universal Postal Union (UPU) requires that member countries ensure that their designated postal operators fulfil the obligations arising from the Universal Postal Convention. The Regulations to the Universal Postal Convention contain the rules of application necessary for the implementation of the Universal Postal Convention and reflect the ICAO Standards and Recommended Practices for the transport of dangerous goods in airmail (see the UPU Convention Manual).~~

Note 3.—~~Guidance for approving the procedures established by designated postal operators to control the introduction of dangerous goods into air transport may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 3) Doc xxxx (forthcoming), Chapter yyyy.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>The wording of the Standard was modified to remove any implication that the civil aviation authority must approve procedures of a foreign designated postal operator operating in its territory. The SARP is intended to make the procedures of the State's DPOs subject to the approval of the CAA regardless of where the DPO is operating.</p> <p>Existing Note 1 is deleted because new Note 2 achieves the same intent more comprehensively. New Note 1 is added to refer to the training provisions in Chapter 9, which include those for designated postal operators.</p> <p>Amendments to Note 2 are proposed to more accurately reflect the role of the Universal Postal Union. The amendments make existing Note 1 unnecessary.</p>

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The Standards in this chapter are either moved to other locations or deleted as they are considered redundant.

~~CHAPTER 9. PROVISION OF INFORMATION~~

~~9.1 Information to pilot in command~~

~~The operator of an aircraft in which dangerous goods are to be carried shall provide the pilot in command as early as practicable before departure of the aircraft with written information as specified in the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This is now captured in Chapter 6, 6.3.5 to make the chapter on operator responsibilities more comprehensive.

~~9.2 Information and instructions to flight crew members~~

~~The operator shall provide such information in the Operations Manual as will enable the flight crew to carry out its responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	It is proposed to delete this Standard because it is a duplicate of what is required in Annex 6. It is more appropriate for it to be in Annex 6, because it relates to the operation of the aircraft.

~~9.3 Information to passengers~~

~~Each Contracting State shall ensure that information is promulgated in such a manner that passengers are warned as to the types of dangerous goods which they are forbidden from transporting aboard an aircraft as provided for in the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This is now captured more comprehensively through safety management SARPs directly at the State in 4.3.2 and 4.4.2, the operator through 6.6.2 and 6.6.3 and the aerodrome in Chapter 7.

9.4—Information to other persons

~~Operators, shippers or other organizations involved in the transport of dangerous goods by air shall provide such information to their personnel as will enable them to carry out their responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Information to operators is captured in Annex 6 and to entities other than operators in This is now captured in 5.2 i).

9.5—Information from pilot in command to aerodrome authorities

~~If an in-flight emergency occurs, the pilot in command shall, as soon as the situation permits, inform the appropriate air traffic services unit, for the information of aerodrome authorities, of any dangerous goods on board the aircraft, as provided for in the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This SARP is requiring a specific duty of the pilot-in-command. Annex 6 contains provisions for the duties of the pilot in command. It is therefore proposed to delete this requirement from Annex 18 and included it in Annex 6, given that it is an operational requirement.

9.6—Information in the event of an aircraft accident or incident

~~9.6.1—In the event of:~~

- ~~a) an aircraft accident; or~~
- ~~b) a serious incident where dangerous goods carried as cargo may be involved,~~

~~the operator of the aircraft carrying dangerous goods as cargo shall provide information, without delay, to emergency services responding to the accident or serious incident about the dangerous goods on board, as shown on the written information to the pilot in command. As soon as possible, the operator shall also provide this information to the appropriate authorities of the State of the Operator and the State in which the accident or serious incident occurred.~~

~~9.6.2—In the event of an aircraft incident, the operator of an aircraft carrying dangerous goods as cargo shall, if requested to do so, provide information without delay to emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, about the dangerous goods on board, as shown on the written information to the pilot in command.~~

~~Note.—The terms “accident”, “serious incident” and “incident” are as defined in Annex 13.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARPs in 9.6 are now captured in 6.3.7 to make the chapter on operator responsibilities more comprehensive.



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CHAPTER ~~10~~ 9. TRAINING PROGRAMMES AND ASSESSMENT

<i>Origin:</i>	<i>Rationale for approach taken in amending the training provisions:</i>
DGP/29	The title is modified to reflect the critical role assessment plays in ensuring personnel are competent to perform their dangerous goods functions.

10.19.1 Establishment of Dangerous goods training programmes

~~Initial and recurrent dangerous goods training programmes shall be established and maintained in accordance with the Technical Instructions.~~

<i>Origin:</i>	<i>Rationale for approach taken in amending the training provisions:</i>
DGP/29	This SARP is moved to 9.3.2.

Note 1.— A training programme includes elements such as design methodology, assessment, initial and recurrent training, instructor qualifications and competencies, training records, and evaluation of the effectiveness of the training.

<i>Origin:</i>	<i>Rationale for approach taken in amending the training provisions:</i>
DGP/29	The note is moved from the Technical Instructions. It is intended to make it clear that the State needs to consider more than a course syllabus when approving dangerous goods training programmes.

9.1.1 Each State shall require the establishment and maintenance of a dangerous goods training programme by any entity that:

- a) offers, handles, or transports dangerous goods by air; or
- b) causes dangerous goods to be offered, handled, or transported by air.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Who requires a dangerous goods training programme is currently established in the Technical Instructions. There have been extensive discussions on the Dangerous Goods Panel on whether training programmes can be required for entities not intending to handle dangerous goods by air. Entities such as freight forwarders play an important role in preventing undeclared dangerous goods from being introduced into the air cargo system, but they can only do this if they know how to identify them. A mandatory requirement for freight forwarders and other entities handling general cargo to be trained was introduced into the 2005-2006 Edition of the Technical Instructions, but some panel members had not interpreted the provisions to be mandatory because they referred to guidance. Whether mandating training for entities not intending to handle dangerous goods is feasible globally was raised by the DGP when it was revising the dangerous goods training provisions in the Technical Instructions to support a competency-based approach to training and assessment. Some States did not have oversight authority over entities not performing functions

	described in the Technical Instructions, so a mandatory requirement was not feasible in those States. However, entities performing functions described in the Technical Instructions are required to be trained in those States regardless of whether they knowingly or unknowingly perform them. The amendment is intended to capture this concept.
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Note.— A dangerous goods training programme is required for all operators regardless of whether the operator has been issued a specific approval to transport dangerous goods in accordance with Annex 6.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The note is moved from under current 10.2.1 and amended to refer to the specific approval required by Annex 6. The need for all operators to have dangerous goods training programmes is established in new 9.1.1, but it is important to maintain this note for the same reason it was added through Amendment 12 to Annex 18. The need for clarification was based on safety oversight audit results that highlighted a lack of awareness of dangerous goods training requirements in relation to operators not approved to carry dangerous goods.

9.1.2 Each State shall require the establishment and maintenance of a dangerous goods training programme by its designated postal operators regardless of whether the designated postal operator allows the introduction of dangerous goods in mail in accordance with Part 1 of the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	This is a proposed new SARP intended to ensure all DPOs are trained to ensure they are able to identify reject dangerous goods in mail when not permitted.

10.2.2 Approval of training programmes

~~10.2.19.2.1 Dangerous goods training programmes for operators~~ The appropriate national authority of the State of the Operator shall be approved by the appropriate authority of the State of the Operator the operator's dangerous goods training programme.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Editorial revision for the sake of alignment with the wording of other Standards.

~~Note.— Dangerous goods training programmes are required for all operators regardless of whether or not they are approved to transport dangerous goods.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	Moved to 9.1.1.

~~10.2.2.2 The State's civil aviation authority shall approve the D~~ dangerous goods training programmes for of the State's designated postal operators ~~shall be approved by the civil aviation authority of the State where the mail is accepted by the designated postal operator.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Revised to clarify the scope of oversight. Designated postal operators may operate in different States. The wording of the current Standard may imply that the civil aviation authority must approve the training programme of foreign designated postal operators operating in its State.</p> <p>The existing SARP was added to Annex 18 through Amendment 12, along with new Standards in current 11.4, to control the introduction of dangerous goods not permitted in mail from entering the airmail stream. The provisions were intended to provide for stronger relationships between civil aviation and postal authorities. Not specifying the civil aviation authority as the authority required to approve the training programme could result in the designated postal operator approving itself. The civil aviation authority needs to approve the dangerous goods programme because of the unique risks to air transport of which the designated postal operator may appreciate.</p>

~~10.2.3~~**9.2.3 Recommendation.**— *Dangerous goods training programmes required for entities other than operators and designated postal operators should be approved as determined by the appropriate national authority in accordance with its safety risk management activities.*

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	<p>Modified to clarify that a risk-based approach to determining whether to approve other entities should be used. The decision will be different among States based on the level of risk posed by specific entities in the State and the size and complexity of the State. Alternate risk mitigating approaches may be more appropriate</p>

~~————~~ *Note 1. — See 11.4 for dangerous goods by mail.*

~~————~~ *Note 2. — See 4.2.2 of Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes for surveillance of operations by a foreign operator.*

<i>Origin:</i>	<i>Rationale:</i>
DGP/30	<p>Note 1 is deleted because provisions for the mail are no longer contained in one area and it would be inconsistent to cross reference provisions for one entity without cross referencing parts of the Annex for others.</p> <p>The development of guidance material will be developed in lieu of maintaining Note 2. It has been reported that some States subject foreign operators' training programmes to review and approval despite training programmes only being subject to the approval of the State of the Operator. This note was intended to refer States to the Standard in Annex 6 that specifies that the State shall recognize as valid an air operator certificate issued by another State. However, operations experts recommend deleting this note and addressing the issue through guidance material, as the practice applies to more than dangerous goods and the Standard referred to in Annex 6 is intended to automatically apply only to personnel licenses and airworthiness certificates.</p>

9.3 Competency of personnel

9.3.1 Each State shall require the employer to ensure their personnel are competent to perform any function for which they are responsible prior to performing any of these functions through dangerous goods training and assessment commensurate with the functions for which they are responsible.

9.3.2 Each State shall require the employer to provide initial and recurrent dangerous goods training and assessment in accordance with the Technical Instructions.

9.3.3 Each State shall require the employer to ensure that the competency of personnel is maintained.

9.3.4 Each State shall require the employer to ensure the effectiveness of the dangerous goods training programme.

Note.— An approach to ensuring personnel are competent to perform any function for which they are responsible is provided in Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment (Doc I0147).

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	These provisions are current contained in the Technical Instructions but not the Annex. Proposed to include them in the Annex given the State's responsibility to approve training programmes.

9.4 Training and assessment records

9.4.1 Each State shall require the employer to maintain and retain records of training and assessment in accordance with the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARPs in Section 9.3 are moved from the Technical Instructions. The record of training provides evidence that employees have been trained and assessed as competent to perform their functions. They provide a standardized tool for authorities to use when evaluating training programmes.

~~CHAPTER 11. COMPLIANCE~~

~~11.1—Inspection systems~~

~~Each Contracting State shall establish inspection, surveillance and enforcement procedures for all entities performing any function prescribed in its regulations for air transport of dangerous goods with a view to achieving compliance with those regulations.~~

~~——— *Note 1.* — It is envisaged that these procedures would include provisions for:~~

~~——— inspecting dangerous goods consignments prepared, offered, accepted or transported by the entities referred to in 11.1;~~

~~——— inspecting the practices of the entities referred to in 11.1; and~~

~~——— investigating alleged violations (see 11.3).~~

~~——— *Note 2.* — Guidance on dangerous goods inspections and enforcement may be found in the Supplement to the Technical Instructions (Part S-5, Chapter 1 and Part S-7, Chapters 5 and 6).~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARP in 11.1 is now covered by new 5.1 and the proactive/risk-based SARPs in new Chapter 4.

~~11.2—Cooperation between States~~

~~——— **Recommendation.** — Each Contracting State should participate in cooperative efforts with other States concerning violations of dangerous goods regulations, with the aim of eliminating such violations. Cooperative efforts could include coordination of investigations and enforcement actions; exchanging information on a regulated party's compliance history; joint inspections and other technical liaisons; exchange of technical staff, and joint meetings and conferences. Appropriate information that could be exchanged include safety alerts, bulletins or dangerous goods advisories; proposed and completed regulatory actions; incident reports; documentary and other evidence developed in the investigation of incidents; proposed and final enforcement actions; and educational/outreach materials suitable for public dissemination.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARP in 11.2 is now covered by new 4.2.3.

~~11.3—Penalties~~

~~11.3.1—Each Contracting State shall take such measures as it may deem appropriate to achieve compliance with its dangerous goods regulations including the prescription of appropriate penalties for violations.~~

~~11.3.2—**Recommendation.**—Each Contracting State should take appropriate action to achieve compliance with its dangerous goods regulations, including the prescription of appropriate penalties for violations, when information about a violation is received from another Contracting State, such as when a consignment of dangerous goods is found not to comply with the requirements of the Technical Instructions on arrival in a Contracting State and that State reports the matter to the State of Origin.~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARPs in 11.3 are now covered by new 5.1 and the proactive/risk-based SARPs in new Chapter 4. More robust guidance will be contained in the new guidance document to support implementation of Annex 18.

~~11.4—Dangerous goods by mail~~

~~The procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport shall be approved by the civil aviation authority of the State where the mail is accepted.~~

~~Note 1.—In accordance with the Universal Postal Union (UPU) Convention, dangerous goods are not permitted in mail, except as provided for in the Technical Instructions.~~

~~Note 2.—The Universal Postal Union has established procedures to control the introduction of dangerous goods into air transport through the postal services (see the UPU Parcel Post Regulations and Letter Post Regulations).~~

~~Note 3.—Guidance for approving the procedures established by designated postal operators to control the introduction of dangerous goods into air transport may be found in the Supplement to the Technical Instructions (Part S-1, Chapter 3).~~

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARPs for dangerous goods in the mail are now contained in a dedicated (Chapter 8).

CHAPTER ~~12~~¹⁰. DANGEROUS GOODS ~~ACCIDENT~~ AND INCIDENT REPORTING SAFETY INTELLIGENCE

~~12.1 With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State shall establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such accidents and incidents shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.2 **Recommendation.** With the aim of preventing the recurrence of dangerous goods accidents and incidents, each Contracting State should establish procedures for investigating and compiling information concerning such accidents and incidents which occur in its territory other than those described in 12.1. Reports on such accidents and incidents should be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.3 With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State shall establish procedures for investigating and compiling information concerning such occurrences which occur in its territory and which involve the transport of dangerous goods originating in or destined for another State. Reports on such instances shall be made in accordance with the detailed provisions of the Technical Instructions.~~

~~12.4 **Recommendation.** With the aim of preventing the recurrence of instances of undeclared or misdeclared dangerous goods in cargo, each Contracting State should establish procedures for investigating and compiling information concerning such occurrences which occur in its territory other than those described in 12.3. Reports on such instances should be made in accordance with the detailed provisions of the Technical Instructions.~~

~~*Note.— The provisions for the development of safety intelligence contained in Chapter 5 of Annex 19 are applicable to this Annex. This chapter of Annex 18 contains specific safety intelligence development responsibilities relevant to the safe transport of dangerous goods by air.*~~

10.1 Mandatory dangerous goods safety reporting

~~10.1.1 States shall require the operator to report:~~

- ~~a) dangerous goods accidents to the appropriate national authority of the State in which they occurred and to the State of the Operator;~~
- ~~b) dangerous goods incidents to the appropriate national authority of the State in which they occurred and to the State of the Operator;~~
- ~~c) occasions when undeclared dangerous goods are discovered in cargo or mail to the appropriate national authority of the State in which they were discovered and the State of the Operator;~~
- ~~d) occasions when misdeclared dangerous goods are discovered in cargo or mail, other than those discovered during the acceptance check required by 6.3.3.1, to the appropriate national authority of the State in which they were discovered and the State of the Operator;~~

e) occasions when misdeclared dangerous goods are discovered in cargo or mail during the acceptance check required by 6.3.3.1, which if left undetected would cause the potential to endanger an aircraft, its occupants, or any other person to the appropriate national authority of the State in which they were discovered and the State of the Operator; and

f) occasions when dangerous goods not permitted to be carried by passengers or crew members are discovered in baggage or on the person to the appropriate national authority of the State in which this occurred.

Note 1.— 10.1.1 f) includes occasions when the operator discovers dangerous goods not permitted to be carried by passengers or crew and when the operator is advised they were discovered by another entity.

Note 2.— Dangerous goods permitted to be carried by passengers and crew members are included in Part 8 of the Technical Instructions.

10.1.2 States shall require their designated postal operators to report to the civil aviation authority of the State where the mail is accepted:

a) dangerous goods accidents;

b) dangerous goods incidents; and

c) occasions when dangerous goods which do not comply with the provisions of this Annex and the Technical Instructions are discovered in mail.

10.1.3 **Recommendation.**— States should require entities other than operators and designated postal operators to report dangerous goods accidents and dangerous goods incidents to the appropriate national authority of the State in which they occurred.

10.1.4 **Recommendation.**— States should require entities other than operators to report occasions when undeclared or misdeclared dangerous goods are discovered to the appropriate national authority of the State in which they were discovered.

10.1.5 States shall ensure that dangerous goods safety data and dangerous goods safety information collected through mandatory dangerous goods safety reporting are incorporated into the safety data collection and processing system (SDCPS) required by Annex 19.

Note.— Guidance on the establishment of an SDCPS is contained in the Safety Intelligence Manual (Doc 10159). Guidance specific to dangerous goods is provided in Doc yyyy (forthcoming).

10.2 Voluntary dangerous goods safety reporting

States should ensure that dangerous goods safety data and dangerous goods safety information not captured through the mandatory dangerous goods safety reporting system are reported through the voluntary safety reporting system established in Annex 19, Chapter 5.

Note.— Guidance on voluntary safety reporting systems is contained in Doc 10159. Guidance specific to dangerous goods is provided in Doc yyyy (forthcoming).

10.3 Safety data and safety information analysis

Note.— Guidance on safety data and safety information analysis is contained in Doc 10159. Guidance specific to dangerous goods is provided in Doc yyyy (forthcoming).

10.4 Safety data and safety information protection

Note.— Principles for the protection of safety data, safety information and related sources can be found in Appendix 3 to Annex 19. Guidance on safety data and safety information protection is contained in the Manual on Protection of Safety Information (Doc 10053).

10.5 Safety information sharing and exchange

10.5.1 If a State, in the analysis of the dangerous goods information contained in its SDCPS, identifies safety issues which may pose an unacceptable risk to the global aviation safety system, that State shall forward such safety information to ICAO with a minimum of delay.

10.5.2 States shall provide ICAO with dangerous goods information from their SDCPS upon request to address global safety issues related to the transport of dangerous goods by air.

Note.— Guidance to support the sharing and exchange of safety information and safety intelligence between States is contained in Doc 10159.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The SARPs in current Chapter 10 relate to both investigating and reporting. The investigating part of the SARPs is proposed to be included in 4.2. The reporting requirements remain in the retitled chapter “Dangerous goods Safety Intelligence” and are modified to align with terminology in Annex 19.

CHAPTER ~~13~~ 11. DANGEROUS GOODS SECURITY PROVISIONS

Each ~~Contracting~~ State shall establish dangerous goods security measures, applicable to ~~shippers, operators and other individuals~~ entities in the supply chain engaged in the transport of dangerous goods by air, ~~to be taken~~, to minimize theft or misuse of dangerous goods that may endanger persons, property or the environment. These measures should be commensurate with security provisions specified in other Annexes and the Technical Instructions.

<i>Origin:</i>	<i>Rationale:</i>
DGP/29	The current reference to “other individuals” is ambiguous. Referring to “entities in the supply chain” covers the specific entities currently referred to and “other individuals” more clearly.

议程项目 6：支持遥控驾驶航空器系统（RPAS）运行的危险物品规定（编号：工作卡 DGP.007.02）**6.1 支持遥控驾驶航空器系统（RPAS）的危险物品规定（DGP/30-WP/29）和特定无人航空器系统中的危险物品运输（DGP/30-IP/5）****6.1.1 背景**

6.1.1.1 专家组与秘书处一名遥控驾驶航空器系统（RPAS）官员共同讨论了为支持遥控驾驶航空器系统国际运行而提出的附件 18、《技术细则》及《补篇》的新规定。这些修订由危险物品专家组遥控驾驶航空器系统工作组（DGP-WG/RPAS）制定，旨在支持空中航行委员会（ANC）通过 ANC 工作卡 DGP.007 向该专家组分配的工作任务。该项工作的目标是确保附件 18 及《技术细则》能够支持附件 6 第 IV 部分 — 《遥控驾驶航空器系统的国际运行》所载的标准和建议措施。DGP-WG/24 和 DGP-WG/25 会议讨论的反馈意见（参见 DGP-WG/24 报告第 4.6 段及 DGP-WG/25 报告第 4.6.2 段）已在提交给本次会议的修订案中予以考虑。工作组同意用以下假设作为修订的基础：

- a) 附件 6 第 IV 部分适用于经授权开展国际 RPAS 的运营人运行根据附件 8 《航空器适航性》审定的遥控驾驶航空器系统。该部分不适用于开放类和特定类运行。超出此范围的 RPAS 运行不能纳入《技术细则》。针对超出此范围的危险物品运输，应在《技术细则》之外单独制定指导文件并发布。
- b) 未发现遥控航空器系统中存在独特危险源或操作差异以至于需要修改《技术细则》的以下部分：第 2 部分（危险物品的分类）、第 3 部分（危险物品表、特殊规定和限量数量与例外数量）、第 4 部分（包装说明）或第 6 部分（包装术语、标记、要求和试验）。第 8 部分的规定（关于乘客和机组人员的规定）目前尚不适用于 RPAS，故无需修改。但鉴于此类运行在不久的将来不可避免，最终仍需予以考虑。乘客和机组人员是否可在此类航空器上携带危险物品，将成为需要审议的事项。
- c) 多数专家组成员支持在第 7 部分增设新章节以满足遥控驾驶航空器系统（RPAS）的特定需求。部分成员质疑其必要性，认为根据附件 8 审定的遥控驾驶航空器（RPA）与有人驾驶航空器具有相似性。然而，两者在运行种类上可能存在差异。专家组最终决定应参照直升机相关规定，制定含有高层面对应的规定的新章节。
- d) 第 4 部分概述的正常运输条件可以适用于根据附件 8 加以审定的遥控驾驶航空器的运行。

6.1.2 对附件 18 的拟议修订

6.1.2.1 DGP-WG/RPAS 工作组与 DGP-WG/附件 18 工作组协同开展工作，对附件 18 进行了必要的修订，以适应遥控驾驶航空器系统（RPAS）。这些修订已纳入附件 18 修订案，载于关于议程项目 5 的报告的附录中，具体内容如下：

- a) 在第 1 章中增加了附件 6 中所载的遥控机长的定义；
- b) 更新对于附件 6 的提及内容，以包含第 IV 部分（第 6 章，注 4）；
- c) 更新对于机长的提及内容，以包含遥控机长（第 6 章 6.3.5 和 6.3.7）；和
- d) 增加一项新的标准和建议措施，在因运行类型导致不适合或不必要完全合规时，运营人国可以依据运营人开展的特定安全风险评估结果，准予偏离《技术细则》（第 6 章，6.3.6）。

6.1.3 对《技术细则》及其《补篇》的拟议修订

6.1.3.1 秘书处的遥控驾驶航空器系统专家对修订案提出的若干修改建议得到采纳。对关于 RPAS 系统运行的新章节的某些修改建议未获专家组采纳，理由如下：

6.1.3.2 尽管附件 6 第 IV 部分载有与第 I 部分相同的货舱要求，但专家组同意保留在货舱中运输危险物品的运输要求：须满足 C 类、D 类或 E 类航空器货舱的全部审定要求，或通过遥控驾驶直升机进行外部运载。此举旨在确保危险物品不会被装载于满足某些审定要求而依赖航空器设计使机组人员能够探测或应对火灾的货舱内。针对运营人所在国向运营人签发批准文件，允许其在未满足所有适用审定要求的货舱中运输特定危险物品的情况，已为《补篇》制定了指导材料。

6.1.3.3 尽管附件 6 第 IV 部分的范围限定于“管制空域及机场”，但专家组同意保留对相关情形的提及，即《技术细则》的全部规定均不适用或不必要的情形，例如遥控驾驶航空器运行往返于无人场地、偏远地区或山区。该表述与现行直升机章节内容保持一致。

6.1.3.4 RPAS 官员建议，鉴于《芝加哥公约》第 8 条规定“任何无人驾驶而能飞行的航空器，未经一缔约国特许并遵照此项特许的条件，不得无人驾驶地在该国领土上空飞行”，因此不必要强调更多国家可在涉及 RPAS 的情况下通过国家差异条款要求参与豁免流程（第 1 部分；1.1.4 注 2），这种表述可能是多余的。鉴于这是一个特定的豁免要求，并为了确保运营人和各国知悉危险物品运输的这一规定，专家组同意保留此案文。

6.1.4 支持无人航空器（UA）运输危险物品的指导材料

6.1.4.1 大多数国家已允许特定类别的无人航空器（即附件 6 第 IV 部分所指的中等风险/得到监管的低风险类别）运输危险物品，这超出了附件 6 第 IV 部分、附件 18 和《技术细则》的范围。但专家组认为，越来越需要统一此类运行中危险物品的运输要求。相关辅助指导已通过咨询通告（AC）102-37（《载运危险物品的无人航空器系统（UAS）》）提供。专家组同意在未来两年内审查各国在此类航空器运输危险物品方面面临的挑战，并填补该指导材料中的任何缺口。

6.1.5 未尽工作

6.1.5.1 仍需对《技术细则补篇》、《飞机货舱安全运行指南》（Doc 10102 号文件）及《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）进行全面审查。此项工作将在下一个两年期内完成。

6.1.6 建议

6.1.7 根据上述讨论，会议制定了以下建议：

建议 6/1 — 修订《危险物品安全航空运输技术细则》（Doc 9284 号文件）以支持遥控驾驶航空器系统运行

将本议程项目报告附录 A 中提出的、支持遥控驾驶航空器系统运行的修订纳入 2027 — 2028 版《技术细则》。

建议 6/2 — 修订《危险物品安全航空运输技术细则补篇》（Doc 9284 SU 号文件）以支持遥控驾驶航空器系统运行

将本议程项目报告附录 B 中提出的、支持遥控驾驶航空器系统运行的修订纳入 2027 — 2028 版《技术细则》。

建议 6/3 — 制定指导材料，以支持在特定类别无人航空器上运输危险物品

专家组酌情审查并修改咨询通告（AC）102-37（《载运危险物品的无人航空器系统（UAS）》），以确保应对那些允许特定类别无人航空器运输危险物品的国家所面临的挑战。

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关于议程项目 6 的报告附录 A

为支持遥控驾驶航空器系统运行而对《技术细则》做出的拟议修订

编辑注：在《技术细则》中，“机长”一词出现逾五十次。除了旅客电动助行设备运载相关规定对遥控航空器系统运行不适用外，其余均将做出修订，改为“机长或遥控机长”。

第 1 部分

概论

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第 1 章

范围和适用

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1.1.4 对于被飞越国，如果没有相应的予以豁免标准，可依据认为是否已达到同等的航空运输安全水平予以豁免。

注 1：为批准之目的，“有关国家”系指始发国和运营人所属国，除非本《细则》另有规定。

注 2：为豁免之目的，“有关国家”系指始发国、运营人所属国、过境国、飞越国和目的地国家。对于遥控驾驶航空器系统（RPAS）的运行，也要求获得其它国家如遥控站所在国或遥控驾驶员所在国等的豁免（若这些国家已通过国家差异条款就豁免要求一事通知了国际民航组织）。

注 3：关于处理豁免的指南，包括极端紧急情况的例子，载于技术细则补篇（S-1；1.2 和 1.3 段）。

注 4：关于在任何情况下均禁止航空运输的危险物品，参见 1;2.1。

注 5：由于直升机与定翼飞机所从事的运行种类不同，在用直升机运载危险物品时需要考虑到某些额外因素，如 7;7 所述。

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第 3 章

一般说明

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外部运载 直升机或遥控驾驶航空器（RPA）所吊挂的任何负载，或与直升机或遥控驾驶航空器相连设备中的任何负载。

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遥控机组成员 由运营人指派在飞行值勤期间承担遥控驾驶航空器系统运行相关职责的人。

遥控飞行机组成员 在飞行值勤期间负责遥控驾驶航空器系统运行基本职责的持照飞行机组成员。

遥控驾驶员 由运营人指派对遥控驾驶航空器的运行负有基本职责并在飞行时间适时操纵飞行控件的人。

遥控机长 由运营人指派指挥和负责进行安全飞行的遥控驾驶员。

遥控站 (RPS) 装有遥控驾驶航空器操纵设备的遥控驾驶航空器系统的组成部分。

遥控驾驶航空器系统运行许可证 (ROC) 授权遥控驾驶航空器系统运营人进行特定遥控驾驶航空器系统运行的证书 (AOC)。

遥控驾驶航空器 (RPA) 从遥控驾驶站操纵的无人航空器。它们属于无人航空器的一种类型。

遥控驾驶航空器系统 (RPAS) 一架遥控驾驶航空器、其相关遥控驾驶站、所需的 C2 链路以及型号设计规定的任何其他部件。

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第 7 部分

运营人的责任

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第 1 章

收运程序

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1.7 开展安全风险评估

运营人必须将锂电池和电池芯等危险物品的货运：

- a) 根据附件 19 纳入其安全管理体系 (SMS) 中；和
- b) 根据附件 6 — 《航空器的运行》第 I 部分 — 《国际商业航空运输 — 飞机》和 第 IV 部分 — 《国际运行》 — 《遥控驾驶航空器系统》，纳入到针对物品货运的具体安全风险评估中。

注 1：安全管理体系的实施指南，见《安全管理手册》(SMM) (Doc 9859 号文件)。

注 2：关于就物品货运进行具体安全风险评估的指导，见《货舱操作安全手册》(Doc 10102 号文件)。

注 3：有关就含有 COVID-19 医药用品的托运货物进行安全风险评估的具体指南，载于 www.icao.int/safety/OPS/OPS-Normal/Pages/Safety-transport-vaccines.aspx。

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第 2 章

仓储储存和装载

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2.1 驾驶舱和客机的装载限制

2.1.1 危险物品不得装入驾驶舱或载有旅客的航空器客舱，1;2.2.1 和 8;1 所允许的危险物品及 2;7.2.4.1.1 所述的放射性物质例外包装件除外。客机的上货舱如果符合 B 级或 C 级航空器货舱的全部认证要求，可以载运危险物品。粘贴“Cargo aircraft only”（仅限货机）标签的危险物品不得装入客机。

2.1.2 在补篇 S-7;2.2 规定的条件下，始发国和运营人所属国可以批准危险物品在不符合 2.1.1 中要求的客机上货舱中载运。

注：货舱分类说明载于国际民航组织文件《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）。

2.1.3 关于用直升机运载的危险物品的补充装载要求，参见 7;7。

2.1.4 关于用遥控驾驶航空器运载危险物品的补充装载要求，参见 7;8。

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2.4 危险物品的装载与固定

2.4.1 货机的装载

2.4.1.1 粘贴“Cargo aircraft only”（仅限货机）标签的危险物品包装件或合成包装件，必须按照下述一条规定进行装载，以使用货机运输：

- a) 装入 C 级航空器货舱；或
- b) 装在配有火情探测/扑灭系统的集装器中，该系统与国家有关当局决定的 C 级航空器货舱认证要求所规定的系统相同（凡由国家有关当局确定符合 C 级航空器货舱标准的集装器，必须在集装器挂牌上标明“C 级货舱（Class C compartment）”）；或
- c) 其装载方式使得在发生涉及这些包装件或合成包装件的紧急情况下，机组人员或其他经授权的人员能够接近并搬运这些包装件或合成包装件，并能在其大小及质量允许的条件下，把这样的包装件或合成包装件与其他货物隔开；或
- d) 用直升机或遥控驾驶直升机进行外部运载；或
- e) 经运营人所属国批准，如果是直升机运行，装入机舱内。（见补篇 S-7;2.4 部分）。

注：货舱分类说明载于国际民航组织文件《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）。

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2.9.6 分隔

2.9.6.1 与人员的分隔

II 级 — 黄色与 III 级 — 黄色的包装件、合成包装件或专用货箱必须与人员分隔开来。采用的最小间隔距离如表 7-3 和表 7-4 中所示。该距离从包装件、合成包装件或专用货箱的外表面算起至客舱或驾驶舱的墙板或地板的最近内表面止，不考虑载运放射性物质的持续时间。表 7-4 只适用于货机载运放射性物质的情况。在这种情况下，必须采用如上所述的最小间隔距离，这也适用于任何其他的人员所处区域。

注：如果航空器上无人，则表 7-3 和表 7-4 的规定对在遥控驾驶航空器中运载放射性物质的情况不适用。

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第 4 章

通报情况

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4.1 向机长或遥控机长通报的信息

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4.1.1.1 除非另有规定，否则 4.1.1 要求的信息必须包括如下内容：

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f) 包装件的数量及其具体装载地点。对于放射性物质，见以下 g-h)；

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j) 包装件的预定卸载机场；

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第 8 章

遥控驾驶航空器系统运行

注 1：本章的要求系对适用于所有运营人的本细则其他规定（如 1；4 和第 7 部分）的补充。

注 2：就本章的目的而言，除运营人所在国外，相关国家还可指：运行所在国、遥控驾驶员所在国，或遥控站所在国（当有别于运营人所在国时）。

8.1 遥控驾驶航空器仅可在下列其一条件下运输危险物品：

a) 在满足 C 级、D 级或 E 级航空器货舱所有合格审定要求的货舱内；或

b) 如为遥控驾驶直升机，可作为外部运载。

注：贴有“仅限货机”标签的危险物品包装件或合成包装件，另有限制规定，详见 7:2.4.1。

8.2 若遥控驾驶航空器货舱不符合 C 级、D 级或 E 级航空器货舱的所有合格审定要求，运营人所在国和始发国可依据《补篇》S-7:2.3 为运输这些危险物品给予批准。运营人必须通过具体安全风险评估处理相关危险源。

8.3 鉴于遥控驾驶航空器（RPA）所执行运行的性质或类型，在某些情况下，可能不适于或者不必要采用《技术细则》的全套规定。此类情形包括：遥控驾驶航空器机上不运载人员、遥控驾驶航空器往返于无人地点进行运行、以及在偏远地区或山区进行运行等情况。在此类情形下，运营人所在国可酌情给予批准，允许在没有满足《技术细则》所有正常要求的情况下运载危险物品。如果运营人所在国之外的其他国家已通知国际民航组织它们要求事先批准此类运行，则还必须视情获得始发国和目的地国家或其他相关国家的批准。

注 1: Doc 9859 号文件载有关于附件 19 的实施, 包括进行安全风险评估的一般性指导。

注 2: Doc 10102 号文件针对在遥控驾驶航空器货舱内运输物品, 包括危险物品等的具体安全风险评估提供了指导。

8.4 在装载危险物品以供遥控驾驶直升机外部运载时, 除了 7.2 的一般装载规定外, 还应考虑所用包装类型以及在必要情况下对这些包装的保护, 使其免受气流和天气的影响 (例如因雨水或极端温度而受损)。如果这种装载物包括吊挂于遥控驾驶直升机的危险物品, 运营人则必须确保考虑在着陆或释放装载物时静电放电的危险。

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关于议程项目 6 的报告附录 B

为支持遥控驾驶航空器系统运行而对《技术细则补篇》做出的拟议修订

第 S-7 部分

国家对运营人的责任

.....

第 2 章

仓储存储和装载

.....

2.2 客机装载

.....

2.3 遥控驾驶航空器(RPA)装载

2.3.1 《技术细则》7:8.1 规定遥控驾驶航空器仅可在下列其一条件下运输危险物品:

- a) 在满足 C 级、D 级或 E 级航空器货舱所有合格审定要求的货舱内; 或
- b) 作为外部运载。

对于遥控驾驶航空器运行, 运营人所在国可根据 2.2.5、2.2.6、2.2.7 和 2.2.8 的规定, 批准在不符合所有适用合格审定要求的货舱内运载 2.2.2 和 2.2.3 所列的危险物品。当要给予此类批准时, 各国应考虑以下相关因素, 这些因素可能意味着要求进行内部运载或最好进行内部运载:

- 包装件的大小/质量导致无法将其作为外部负载;
- 所涉危险物品的类型和数量;
- 所用的包装类型;
- 飞行持续时间;
- 运行类型; 和
- 在紧急情况下快速着陆的能力。

2.3.2 当运营人所在国之外的其他国家已通知国际民航组织它们要求事先批准此类运行时, 则还必须视情获得始发国和目的地国家的批准。

请对后续段落相应重新编号

议程项目 7：航空安保/危险物品的协调

7.1 在 DGP/30 会议期间，航空安保专家组（AVSECP）未提供任何更新。在议程项目 5 下制定与供应链和危险品安全相关的附件 18 修订案期间，危险物品专家组与航空安保专家组（AVSECP）进行了紧密协调（见 DGP-WG/24 报告第 4.7 段）。在制定指导材料以支持实施附件 18 中与供应链相关的标准和建议措施时，将需要进一步协调。

议程项目 8：与空中航行委员会其他专家组的协调

8.1 DGP-FLTOPSP 跨专家组工作组制定的对附件 6 的拟议修订

8.1.1 附件 18 危险物品工作组（DGP-WG/Annex 18）查明了附件 6、附件 18 和《技术细则》的危险物品规定之间的不一致、差距和重叠之处。由危险物品专家组和飞行运行专家组（FLTOPSP）专家组成的工作组制定了一项拟议修订，以处理这些问题。请会议在 FLTOPSP 第十二次会议（FLTOPSP/12，2025 年 11 月 17 日至 21 日，蒙特利尔）审议这些问题之前，对其进行审查并发表意见。该修订收录于本议程项目报告的附录中。这一修订连同议程项目 5 项下拟定的关于附件 18 中运营人责任的拟议修订：

- a) 引入了明确标准，禁止运营人未经运营人所在国的专门批准运输危险物品（但有一些例外），并澄清了发布批准需满足的要求（现行附件 6 仅通过运行规范模板中的一条危险物品字段隐含要求这一点）；
- b) 通过将详细的危险物品责任替换为对附件 18 拟议修订中相关规定的参引，简化了危险物品规定并删除了重复的标准和建议措施（SARPs）；
- c) 取消了附件 18 中对运行手册的要求，因其受附件 6 规范；
- d) 从附件 18 中移除了与附件 6 更相关的标准和建议措施，包括飞行机组的责任；
- e) 强化了飞行机组人员和其他运营人员的危险物品培训要求；和
- f) 用具体针对附件 6 的关于发布专门批准的指导替换了附件 6 附篇 G 所载的危险物品指导材料，后者被认为不必要，因其专门针对附件 18，将由其辅助指导材料予以涵盖。

8.1.2 提供了以下意见：

- a) 例外数量和微量数量被列为不需经过专门批准的危险物品。会上对于专门提及例外数量的逻辑提出了质疑，因为《技术细则》中还有其他例外规定。有人建议将规定范围扩大，只是提及不受《技术细则》约束的危险物品。另一项建议则是仅应将微量数量排除在专门批准的要求之外，因为例外数量需要相关程序和培训，而微量数量则不需要。

- b) 有人建议添加一条注释，以强调之所以提出应急响应所需信息必须随航空器携带，是因为担心随着相关规定从附件 18 移至附件 6，这一要求可能会缺失。会上指出，并非总是向飞行机组提供危险物品手册，因此有必要强调这一要求。
- c) 关于在飞行中发生紧急情况时，机长须向有关空中交通服务单位通报机上所载危险物品信息的要求，已从附件 18 第 9 章移至附件 6。有人建议明确说明所需信息是针对作为货物运输的危险物品。
- d) 会上对于邮件是否适用专门批准提出了质疑。专门批准的适用范围曾在专家组以往会议中得到过讨论，普遍的假设是该批准仅适用于作为货物运输的危险物品。然而，一些国家在专门批准中提及邮件中的危险物品，以明确是否允许或限制此类物品。因此，不建议在专门批准中将危险物品限定为货物，因为这会缩小其适用范围，超出了部分国家目前的做法。

8.1.3 专家组对 DGP/FLTOPSP 跨专家组工作组的工作表示感谢。将与工作组分享会上提出的意见。

8.2 关于删除客机和货机定义的拟议修订 (DGP/30-WP/32)

8.2.1 提出了一项修订，以解决各国之间关于可允许何人搭载运输危险物品的货机（而此类危险物品禁止由客机运输）的不一致之处。这是为解决这些问题而制定的若干个不同拟议修订中的最新一个修订，第一个修订是在危险物品专家组第二十七次会议（DGP/27，2019 年 9 月 16 日至 20 日，蒙特利尔）（见报告第 8.1.1 和 8.1.2 段）上提出的，而最新的一个修订则是在 DGP-WG/25 会议上提出的（见报告第 4.3.3 段）。

8.2.2 专家组原则上支持一项提案，即建议请 FLTOPSP 考虑修订附件 6，以允许运营人根据运营人所在国规定的要求和附件 6 的相关规定授权在机上运载人员。商定的文本随后将添加到《技术细则》第 7 部分。

8.3 最新参考文献 (DGP/30-WP/42)

8.3.1 会议同意在第 7 部分中增加一项要求，即运营人应确保其载于运行手册或其他适当手册中便于飞行机组和其他员工履行其所负责的危险物品相关职责的信息保持最新。虽然部分成员认为附件 6 中已有此项要求，因此属于重复规定，但会议对添加这一内容并无异议。将该要求纳入《技术细则》可使其更加醒目，并通过提高合规性而有益于安全。部分专家组成员报告指出，在检查过程中发现运行手册未更新至最新版本的情况。有人提议要求将所有修订或修改发放给所有需要使用这些文件的人员，但会议对此未予支持。鉴于已要求运营人向员工提供所有相关信息，因此认为这项要求没有必要。专家组成员认为这可能被视为一项新要求，从而给行业带来不必要的负担。

8.3.2 专家组不支持在第 5 部分中增加类似要求，即要求托运人确保其运行手册或其他相关手册保持最新。专家组认为无此必要，因为已要求托运人通过附件 18 遵守《技术细则》的最新版本。对托运人的既有要求是向员工提供信息，使其能够履行其负责的危险物品相关职责。专家组成员认为，拟议的要求将带来一项新的且不必要的负担。

议程项目 9：《危险物品专家组（DGP）帮助编制技术细则和辅助文件的指导材料》与经修订的危险物品规定的协调统一

9.1 维护危险物品专家组的指导材料

9.1.1 危险物品专家组的联合国协调工作组受托审查《危险物品专家组（DGP）帮助编制技术细则和辅助文件的指导材料》（第 2 版），并审议因 DGP/30 所提修订而产生的必要修改。

议程项目 10：其他事项

10.1 秘书处关于《技术细则》可获取性的反馈

10.1.1 本次会议进一步延续 DGP-WG/25 会议关于将《技术细则》在线发布的讨论。该问题已在危险物品专家组及大会第 39 届和第 40 届会议上多次讨论。大会第 40 届会议根据理事会在第 39 届会议之后的分析结果，批准采用免费增值模式，分两阶段实现在公共网络上获取国际民航组织出版物（见大会第 40 届会议行政委员会报告第 52.2 段）。第一阶段已实施，提供了载有标准和建议措施（SARPs）的文件的只读权限。第二阶段将为《技术细则》提供同等权限，但前提是本组织有能力持续创造收入以支持其三年期预算承诺。本组织尚未找到途径来抵消出版物免费开放将带来的收入损失，因此第二阶段尚未实施。本组织继续探索收入补偿方案，以最终实施第二阶段。

10.1.2 法律局的一名法律官员和能力发展实施局电子商务及出版物销售主管现场解答了关于《技术细则》版权状况、将其纳入国家立法的流程、以及分两个阶段提供网络获取方案第二阶段的实施计划等问题。将标准纳入国家立法是每个成员国的责任。一旦纳入，这些标准就对该国行业具有约束力。她承认《技术细则》的特定性质，但强调流程依然保持不变：成员国必须确保将其纳入法律以实现行业合规。《技术细则》受《国际民航组织出版物条例》（Doc 7231）的版权保护。但是，各国可以向国际民航组织申请许可，对其进行翻译。ICAO 在授予此类许可方面持灵活态度，某一特定国家提出的一次申请即可涵盖多种语文。

10.1.3 电子商务与出版物销售的主管指出，根据 Doc 7231 号文件和国际民航组织电子公报 EB 2023/4，《技术细则》可供成员国免费获取。《技术细则》两阶段网络获取方案中，第二阶段尚未实施，因其将影响国际民航组织用于资助核心活动的收入来源。第二阶段被推迟而非取消，国际民航组织将继续监测财务影响并探索替代性收入渠道。

10.1.4 专家组对所提供的信息表示感谢。它重申支持《技术细则》公开可及，同时认识到版权问题 and 财务现实。它强调确保所有国家了解其获取文件的权利以及能够与国际民航组织合作解决实施挑战的重要性。

10.2 危险物品专家组 (DGP) 工作组会议 (DGP-WG/24 和 DGP-WG/25) 的报告 (DGP/30-WP/2 号文件和 DGP/30-WP/3 号文件)

10.2.1 会议审查了 2024 年和 2025 年危险物品专家组工作组会议报告的陈述部分 (DGP-WG/24 会议, 2025 年 10 月 6 日至 10 日, 蒙特利尔以及 DGP-WG/25 会议, 2025 年 4 月 21 日至 25 日, 印度德里)。会议就 DGP-WG/24 会议提出的一个意见进行了讨论, 该意见认为需要审查关于在货机上装载客机禁运危险物品的规定, 以确保条款表述清晰且其依据的假设仍然有效。报告指出相关方将与秘书协调制定工作卡, 但此项工作尚未完成。另有意见指出, DGP-WG/25 报告第 4.2.2.4 a) 段存在表述错误, 将 “stowage” (积载) 误解为航空器过站期间物品的安排和处理。专家组同意, “积载” 专门针对航空器上的物品。

10.2.2 工作组提出的各项修订在以下文件下得到审查:

- DGP/30-WP/11、12、13、14、15、16、19 和 20 号工作文件 (见关于议程项目 1 的报告); 和
- DGP/29-WP/17 和 21 号工作文件 (见关于议程项目 2 的报告); 和
- DGP/29-WP/18 号工作文件 (见关于议程项目 3 的报告)。

10.3 国际民航组织危险物品专家组培训工作组的报告 (DGP/30-IP/7)

10.3.1 会议听取了危险物品专家组培训工作组 (DGP WG/Training) 自 DGP-WG/25 会议以来的活动情况。已制定一个航委会工作卡, 指出更多实用指导以支持实施危险物品培训规定。尽管工作卡尚未获批, 工作组已着手处理其中列出的事项。建议的交付期限为 2026-2027 两年期结束时。会议受邀审议并评论《基于胜任能力的危险物品培训和评估做法指导》(Doc 10147 号文件) 的拟议修改及相关材料。

10.3.2 修改后的文件努力使危险物品培训指导更具实用性、灵活性, 并契合实际需求。该文件强调基于胜任能力的培训, 针对实际职能而非仅仅按照职位或职称进行培训。会议请专家组成员通过函件向报告员提供改进意见与建议。

10.3.3 会议对所做的工作表示感谢, 请专家组成员通过函件向报告员提供反馈意见。

10.4 工作方案的更新

10.4.1 专家组审查了其工作方案的状态，概述如下：

10.4.2 减缓载运锂电池带来的安全风险（见关于议程项目 4 的报告）

10.4.3 ANC 工作卡 DGP.003 上的以下行动项仍然未完成：减缓载运锂电池带来的安全风险。

10.4.3.1 SAE G27 委员会是否能够完成基于性能的安装标准制定工作（项目 9412）以及联合国分委会是否建立一个有效的危险分类体系（项目 9419），均依赖于这两个小组的工作进展。两个小组虽已取得进展并接近完成任务，但仍需更多时间推进。SAE 已发布 G27 委员会制定的圆柱形锂离子电池标准，并正等待相关反馈。该委员会将根据反馈意见扩大该标准的范围。联合国危险通报系统已达到成熟水平，有望在未来两年内完成。

10.4.3.2 简化规定（项目 9416）是一个持续推进的过程，将受到 SAE 和联合国分委员会工作的影响。尽管如此，自 ANC 工作卡启动以来，相关规定已得到显著简化。

10.4.4 评估是否需要根据技术发展和新的数据采取更多减缓措施是一项反复进行的任务，因为专家组一直在根据技术发展和新的数据评估是否需要采取更多的减缓措施。DGP/30 会议制定的部分修订案正是这一过程的成果。

10.4.5 在附件 18 中明确国家的监督责任（见关于议程项目 5 的报告）

10.4.5.1 关于 ANC 工作卡 DGP.005：在附件 18 中明确国家的监督责任，尚有一项未决事项：制定指导材料以协助各国。专家组正在编写材料，以纳入一份关于实施附件 18 的新手册中。目前已完成大量材料，但仍需进一步完善，部分工作需与其他专家组协调推进。交付日期需调整至 2027 年，即 DGP 第三十一届会议之后。

10.4.6 支持遥控驾驶航空器系统（RPAS）运行的危险物品规定（见关于议程项目 6 的报告）

10.4.7 专家组完成了航委会工作卡 DGP.007（支持遥控驾驶航空器系统运行的危险物品规定）上的所有行动项目。专家组同意本报告议程项目 6 下对附件 18、《技术细则》及其《补篇》的修订，以支持遥控驾驶航空器系统运输危险物品。但专家组查明，需要制定指导材料帮助各国应对日益增长的需求，即对使用无人驾驶航空器系统运输危险物品的要求进行协调统一。DGP/30 已制定基本指南，但专家组认为有必要进一步扩展。因此建议在工作卡中新增一项行动事项。

10.4.8 拟议的新工作卡

10.4.8.1 会议提议增加两个新的工作卡，一个是审查关于在货机上装载客机禁运危险物品的规定，以确保这些规定清晰明确且其依据的基本假设仍然有效（见本报告第 10.2.1 段）；另一个是制定实用指南，以支持实施关于危险物品培训的规定（见本报告第 10.3 段）。

附录 A

DGP/30 建议对《技术细则》的综合修订

第 1 部分

概论

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第 1 章

范围和适用

.....

为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段：

1.1.4 对于被飞越国，如果没有相应的予以豁免标准，可依据认为是否已达到同等的航空运输安全水平予以豁免。

注 1：为批准之目的，“有关国家”系指始发国和运营人所属国，除非本细则另有规定。

注 2：为豁免之目的，“有关国家”系指始发国、运营人所属国、过境国、飞越国和目的地国家。对于遥控驾驶航空器系统 (RPAS) 的运行，其他国家，如遥控站所在国或遥控驾驶员所在国等，若已通过国家差异条款就此通知国际民航组织，则也必须获得此类国家的豁免。

注 3：关于处理豁免的指南，包括极端紧急情况例子，载于技术细则补篇 (S-1；1.2 和 1.3 段)。

注 4：关于在任何情况下均禁止航空运输的危险物品，参见 1；2.1。

注 5：由于直升机与定翼飞机所从事的运行种类不同，在用直升机运载危险物品时需要考虑到某些额外因素，如 7；7 所述。

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1.1.5 一般性例外

为便利运输或国家监管的修订

DGP-WG/24 报告第 4.3.4 段：

1.1.5.1 除了 7；4.2 中规定的情况外，本细则不适用于由航空器载运的以下危险物品：

- a) 在飞行中对病人提供医疗救护或用于保存输血用血液或血液成分，或移植用组织或器官的危险物品，且其：
 - 1) 经运营人批准载运；或
 - 2) 在航空器改装用于专门用途时构成航空器永久设备的组成部分；

条件是：

- 1) 气瓶是专门为了盛装和运输该特定气体而制造的；
- 2) 含有湿电池的设备保持直立并在必要时将其固定在直立位置，以防止电解质泄漏；
- 3) 锂金属或锂离子电池芯或电池符合第 2 部分第 9.3 节中的规定。备用锂电池必须单个进行保护，以防止在不使用时发生短路。

注：允许旅客携带的用做医疗救护的危险物品，见 8；1.1.2。

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对储能装置规定的修订

DGP-WG/24 报告第 4.4.3 段和 DGP/30 报告第 1.2.1.1 段：

- i) 装有锂电池或钠离子电池、附着在或置于包装件、合成包装件或集装箱的数据记录器和货物追踪仪，但需满足以下条件：
 - 1) 运输过程中，数据记录器或货物追踪仪必须在用或打算使用；
 - 2) 每一电池芯或电池必须满足第 2 部分 9.3 a)、e)、f)（如适用）和 g) 或第 2 部分 9.4 a)、e)和 f)中的规定；
 - 3) 对于锂离子电池芯或钠离子电池芯，瓦时额定值不超过 20 Wh；
 - 4) 对于锂离子电池或钠离子电池，瓦时额定值不超过 20 Wh；
 - 5) 对于锂金属电池芯，锂含量不超过 1 克；
 - 6) 对于锂金属电池，累计锂含量不超过 1 克；
 - 7) 任何包装件或合成包装件之内或其上的数据记录器或货物追踪仪的数量不得超过跟踪或收集特定托运货物的数据所需的数量；

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 5.5 章，5.5.4.1（参见 ST/SG/AC.10/52/Add.1）

- 8) 数据记录器和货物追踪仪必须能够承受运输过程中通常遇到的冲击和负载，并且必须能在其可能暴露的危险环境中安全使用；
- 9) 这些装置不得产生危险的热量释放；和
- 10) 这些装置必须满足规定的电磁辐射标准，以确保装置的运行不会干扰航空器系统。

注：如果按照包装说明 967 或 970 或 978 的规定，将数据记录器或货物追踪仪作为托运货物交由运输，则本例外不适用。

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第 2 章

对航空器上危险物品的限制

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为管理储能装置规定带来的安全风险 的修订

DGP/30 报告第 4.3 段:

2.2 运营人的危险物品例外条款

2.2.1 本细则的规定不适用于如下情况:

- a) 已分类为危险物品, 但按照有关适航要求、操作规定或运营人所属国家规定应遵守的特殊要求而装载于航空器内的物品或物质;
- b) 运营人带上飞机供一次或一系列飞行期间在机上使用或出售的气溶胶、酒精饮料、香水、花露水、液化气打火机和内含锂金属或锂离子电池芯或电池的便携式电子装置, 但**电池它们**必须符合表 8-1 项目 1) 2.2.2 的规定, 但不包括一次性气体打火机和减压条件下易漏气的打火机;
- c) 在航空器上, 用于冷冻食品和饮料的干冰;
- d) 运营人在航空器上载运的供一次或一系列飞行期间为旅客和机组的卫生之目的而在航空器上使用的含酒精的消毒搓手液和含酒精的清洁产品;
- e) 运营人带上飞机供一次或一系列飞行期间在机上使用的电子装置, 例如电子飞行包、个人娱乐装置、信用卡读卡器, 内含锂金属或锂离子电池芯或电池及其备用锂电池**或充电宝**, 但**电池它们**必须符合表 8-1, 条目 1) 2.2.2 的规定。~~备用锂电池必须单个做好保护, 防止在未使用时发生短路现象。~~运行手册和/或其他有关手册必须列明关于这些电子装置的运载和使用条件, 以及备用电池**和充电宝**的运载条件, 以便于飞行机组、客舱机组和其他员工履行其负责的职能。

2.2.2 对于 2.2.1 b) 和 e) 中提及的锂电池芯或电池及其驱动的装置, 必须满足以下条件:

- a) 备用锂电池和充电宝必须单个做好保护, 以防止在不使用时发生短路;
- b) 必须采取措施防止便携式电子装置意外启动; 和
- c) 电池必须:
 - 1) 所属类型符合联合国《试验和标准手册》第 III 部分第 38.3 小节规定的每项试验的要求; 和
 - 2) 锂金属电池的锂含量不得超过 2 克, 锂离子电池的瓦时额定值不得超过 100 瓦时。

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后续段落相应重新编号

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 为管理航空特定风险和处理异常情况的修订

 DGP/30 报告第 2.2.2 段：

2.3 危险物品的邮寄运输

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2.3.3 经指定的邮政业务经营人（DPOs）关于控制航空邮寄危险物品的程序必须得到收运邮件所在国的民航当局的审查和批准。

2.3.4 在经指定的邮政业务经营人能够开始收运 2.3.2 d) 和 e) 列出的锂电池之前，该指定的邮政业务经营人必须得到民航当局的特定批准。准许。

注 1：经指定的邮政业务经营人无需民航当局的专门批准，即可收运 2.3.2 a), b) 和 c) 列出的危险物品。

注 2：本细则补篇（S-1;3）载有为国家主管当局和民航当局提供的指导原则。

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第 3 章

一般说明

 为与联合国协调一致的修订

 DGP-WG/25 报告第 4.1.2.1 段：

 《联合国规章范本》第 1.2 章 1.2.1（参见 ST/SG/AC.10/52/Add.1）

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气瓶 水容量不超过 150 升、试验压力容积乘积不超过 150 万巴升的压力容器。

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 为管理航空特定风险和处理异常情况的修订

 DGP-WG/25 报告第 4.2.2.7 段：

爆炸性物品 含有一种或多种爆炸性物质的物品定义见第 2 部分 1.2。

爆炸性物质 系指自身能通过化学反应以对周围环境造成破坏的如此高的温度、压力和速度产生气体的固体或液体物质（或混合物），烟火物质虽然不释放气体但也包括在内。某种物质本身不是爆炸品，但能够形成气体、蒸气或粉尘爆炸性氛围，这种物质不包括在内定义见第 2 部分 1.2。

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为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段:

外部运载 直升机或遥控驾驶航空器 (RPA) 所吊挂的任何负载, 或与直升机或遥控驾驶航空器相连设备中的任何负载。

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》, 第 1.2 章, 1.2.1 (参见 ST/SG/AC.10/52/Add.1)

充气率 系指在 15°C 条件下将备用压力容器装置分别充满气体和水的质量比。

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1.2.1 a) 段:

GHS 《全球化学品统一分类和标签制度》第十二修订版, 由联合国以 ST/SG/AC.10/30/Rev. 4011 号文件公布。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》, 第 1.2 章, 1.2.1 (参见 ST/SG/AC.10/52/Add.1)

大型包装 由一个装有物品或内包装的外包装组成的包装, 并且:

- a) 进行了便于机械操作的设计; 和
- b) 净质量超过 400 千克或容量超过 450 升, 但体积内部容积不超过 3 立方米。

注: 大型包装须符合第四部分前注 12 和补篇 S-4;13 的规定。

大型补救包装 (不允许航空运输。) 一种用于放置为了回收或处理而运输的受损、残破、发生泄露或不符合规定的危险物品包装件, 或已经溢出或漏出的危险物品的特别包装, 该包装:

- a) 进行了便于机械操作的设计; 和
- b) 净质量超过 400 千克或容量超过 450 升, 但体积内部容积不超过 3 立方米。

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1.2.1 a)段:

《试验和标准手册》 即联合国出版的《试验和标准手册》第八修订版 (ST/SG/AC.10/11/Rev.8 和第 1 次修订)。

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规章范本 题为《关于危险货物运输的建议书：规章范本》的联合国出版物第二十三四修订版 (ST/SG/AC.10/1/Rev.2324)。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 1.2 章，1.2.1 (参见 ST/SG/AC.10/52/Add.1)

净爆炸质量 (NEM) 爆炸物质的总质量，不包括包装、外壳等 (净爆炸数量 (NEQ) ←或净爆炸内装物 (NEC) 或净爆炸重量 (NEW) 常常用于表达同一含义)。

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压力容积乘积 (pV-乘积) 一种容器的 (可用) 水容量与其在充装和使用过程中承受的相关最大压力 (如试验压力或充装压力) 的乘积得出的相关容器类型的参考值。其单位以巴升表示。

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为管理航空特定风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.7 段:

烟火物质 设计用以靠不爆炸反应、自持反应、放热反应和化学反应而产生热、光、声响、气体或烟雾效果或产生这些组合效果的混合物或化合物定义见第 2 部分 1.2。

为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段:

遥控机组成员 由运营人指派在飞行值勤期间承担遥控驾驶航空器系统运行相关职责的人。

遥控飞行机组成员 在飞行值勤期间负责遥控驾驶航空器系统运行基本职责的持照飞行机组成员。

遥控驾驶员 由运营人指派对遥控驾驶航空器的运行负有基本职责并在飞行时间适时操纵飞行控件的人。

遥控机长 由运营人指派指挥和负责进行安全飞行的遥控驾驶员。

遥控站 (RPS) 装有遥控驾驶航空器操纵设备的遥控驾驶航空器系统组成部分。

遥控运行许可证 (ROC) 授权遥控驾驶航空器系统运营人进行特定遥控驾驶航空器系统运行的证书 (AOC)。

遥控驾驶航空器 (RPA) 从遥控站操纵的无人航空器。它们属于无人航空器的一种类型。

遥控驾驶航空器系统 (RPAS) 一架遥控驾驶航空器、其相关遥控站、所需的指挥和控制链路以及型号设计规定的任何其他部件。

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 1.2 章，1.2.1 (参见 ST/SG/AC.10/52/Add.1)

补救压力容器 (不允许航空运输。) 一种水容量不超过 ~~3000~~ 升的压力容器，可用于放置为了回收或处理等目的而运输的受损、残破、发生泄露或不符合规定、试验压力容积乘积总值不超过 150 万巴升的压力容器。

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气筒 (不允许航空运输。) 一种采用无缝或合成结构的压力容器，其水容量超过 150 升但不超过 3 000 升，试验压力容积乘积不超过 150 万巴升。

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为管理航空特定风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.6 段和 DGP-WG/25 报告第 2.2.2.2 段:

第 4 章

危险物品培训

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4.1 制定危险物品培训方案

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4.1.2 所有运营人都必须制定一项危险物品培训方案，不论它们是否被批准被颁发运输危险物品货物的专门批准。

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第 6 章

关于放射性物质的一般规定

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6.1 范围和应用

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 1.5 章，1.5.1.3（参见 ST/SG/AC.10/50/Add.1）

6.1.3 本细则适用于放射性物质的航空运输，包括伴随使用放射性物质的运输。运输包括与放射性物质搬运有关的和搬运中所涉的所有作业和条件；这些作业包括包装的设计、制造、维护和修理，以及放射性物质和包装件的准备、托运、装载、运输（包括中途贮存~~储存~~）、~~贮存储存后装运~~、卸载和最终目的地的接收。本细则对性能标准采用了分级的办法，将严重性分为三大等级：

- a) 例行运输条件（无事故征候）；
- b) 正常运输条件（小事故）；和
- c) 事故运输条件。

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第 6 章

关于放射性物质的一般规定

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为与联合国协调一致的修订

DGP/30 报告第 1.2.1.9 段:

6.1.5 例外包装件运输的具体规定

6.1.5.1 2;7.2.4.1.1 中规定的可能装有放射性物质的例外包装件仅须遵守第 5 至第 7 部分的下列规定:

- a) 5;1.1 (适用时), 5;1.2.2.2、5;1.2.2.3、5;1.2.4、5;1.4、5;1.6.3、5;2.2、5;2.4.10、5;3.2.12 e)、5;3.3、5;4.1.5.7.1 fg) 1)、5;4.1.5.7.1 fg) 2)、5;4.4、7;1.6、7;2.5、7;2.9.3.1、7;3.2.1、7;3.2.4、7;4.4 和 7;4.5 中所述的适用规定; 和
- b) 6;7.3 中规定的对例外包装件的要求;

放射性物质具有其他特性, 必须根据特殊规定 A130 或 A194 被列入第 7 类以外类别的情况除外, 在此情况下, 除了与主要类别或项别相关的规定外, 只有上文 a) 和 b) 中所列的相关规定适用。

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第 2 部分

危险物品的分类

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3. 联合国编号和运输专用名称

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 2.0 章，2.0.2.7（参见 ST/SG/AC.10/52/Add.1）

3.7 含有一种或多种在表 3-1 中列出名称或按未另作规定条目分类的物质和一种或几种不受本规则限制的物质的混合物或溶液，如果其危险性不符合任何类别或项别的标准（包括人的经验标准），该混合物或溶液不受本细则限制。

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4. 危险性主次顺序

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 2.0 章，2.0.3.1（参见 ST/SG/AC.10/52/Add.1）

- g) 吸入毒性达到 I 级包装的 6.1 项物质，符合第 8 类标准其粉尘或气雾吸入毒性 (LC50) 达到 I 级包装标准，但入口或和皮肤接触毒性仅为 III 级或未达到 III 级包装范围的物质或制剂混合物除外。这类物质或制剂混合物必须归入第 8 类（见 2:6.2.2.4.1 和 2:8.2.4 之下的注）；

5.4 用于试验的含能材料样品

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1.3 段:

《联合国规章范本》，第 2.0 章，2.0.4.3（参见 ST/SG/AC.10/52/Add.1）

5.4.1 含有联合国《试验和标准手册》附录 6（甄别程序）表 A6.1 和/或 A6.3 所列功能团的有机物质样品可酌情按第 4.1 项 UN 3224（C 型自反应固体）或 UN 3223（C 型自反应液体）运输，条件是：

- a) 样品不含任何：
- i) 已知爆炸物；
 - ii) 试验中显现爆炸效应的物质；

- iii) 为产生实际爆炸或烟火效果设计的化合物；或
- iv) 由已知爆炸物的合成前体构成的化合物；
- b) 对于混有有机材料的第5.1项无机氧化性物质的混合物、复合物或盐类，无机氧化性物质的浓度为：
 - i) 按质量计低于15%，如划定为I级包装（高度危险性）或II级包装（中度危险性）；或
 - ii) 按质量计低于30%，如划定为III级包装（低度危险性）；
- c) 根据现有数据无法更精确分类；
- d) 样品未与其他物品包装在一起；
- e) 样品按包装说明 459 的规定包装；和
- f) 对运输专用名称补充了“样品”一词。

5.4.2 含有联合国《试验和标准手册》附录 6（甄别程序）表 A6.1 或 A6.3 所列官能团的有机物质样品，可归于 4.1 项 C 型自反应物质（UN 3223 或 UN 3224）的一个适当条目之下，并按照 2.4.2.3.2.6 的规定运输，运输时每个外包装所装数量为固体不超过 200 克或液体不超过 200 毫升，条件是：

- a) 样品符合第 2 部分引言章 5.4.1 a)段至 c)段和 f)段的标准；和
- b) 样品的分解能为：
 - i) 有机化合物的盐或络合物小于 1 500 焦耳/克；
 - ii) 其他有机物质小于 2 000 焦耳/克；
 - iii) 有机化合物的盐或络合物为 1,500 焦耳/克或更高，在试验 C.1 中，结果不是“是，很快”，在试验系列 F 的任何一次试验中，结果不是“不低”；或者
 - iv) 其他有机物质为 2 000 焦耳/克或更高，在试验 C.1 中，结果不是“是，很快”，在试验系列 F 的任何一次试验中，结果不是“不低”。

b) iii) 和 iv) 中的评估可基于单一的试验 C.1 和试验系列 F 中一次单一试验。如果符合 b)中所列标准，则可假定样品不比 B 型自反应物质更危险。不符合 b) iii) 或 iv) 中所列标准的样品禁止运输，除非使用惰性化合物将样品溶解或稀释，以形成符合 b) i) 或 ii) 中所列标准的均匀混合物。

5.4.3 图 2-1 为高能样品分类流程图。

插入以下新案文：

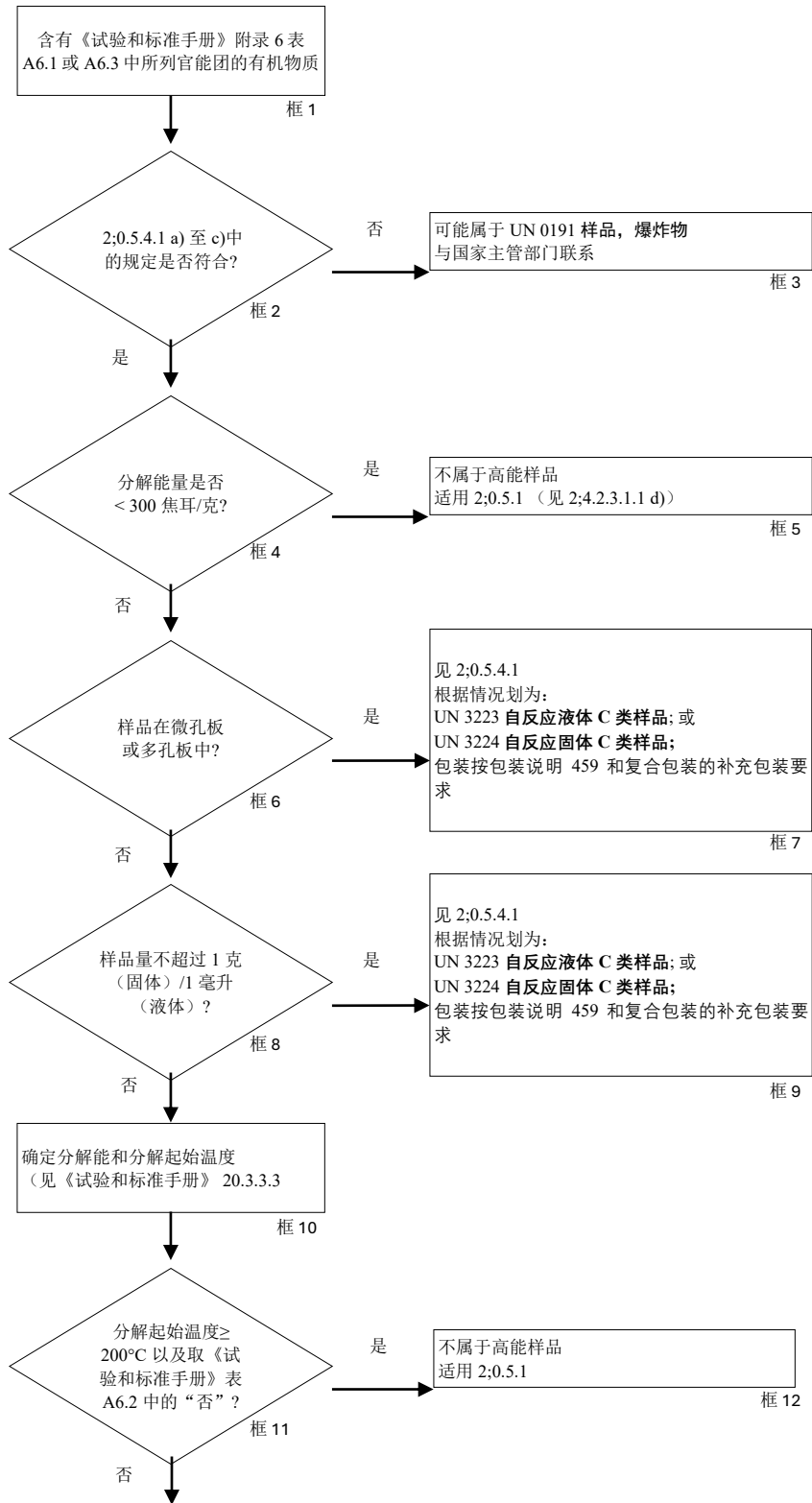


图 2-1. 高能样品分类

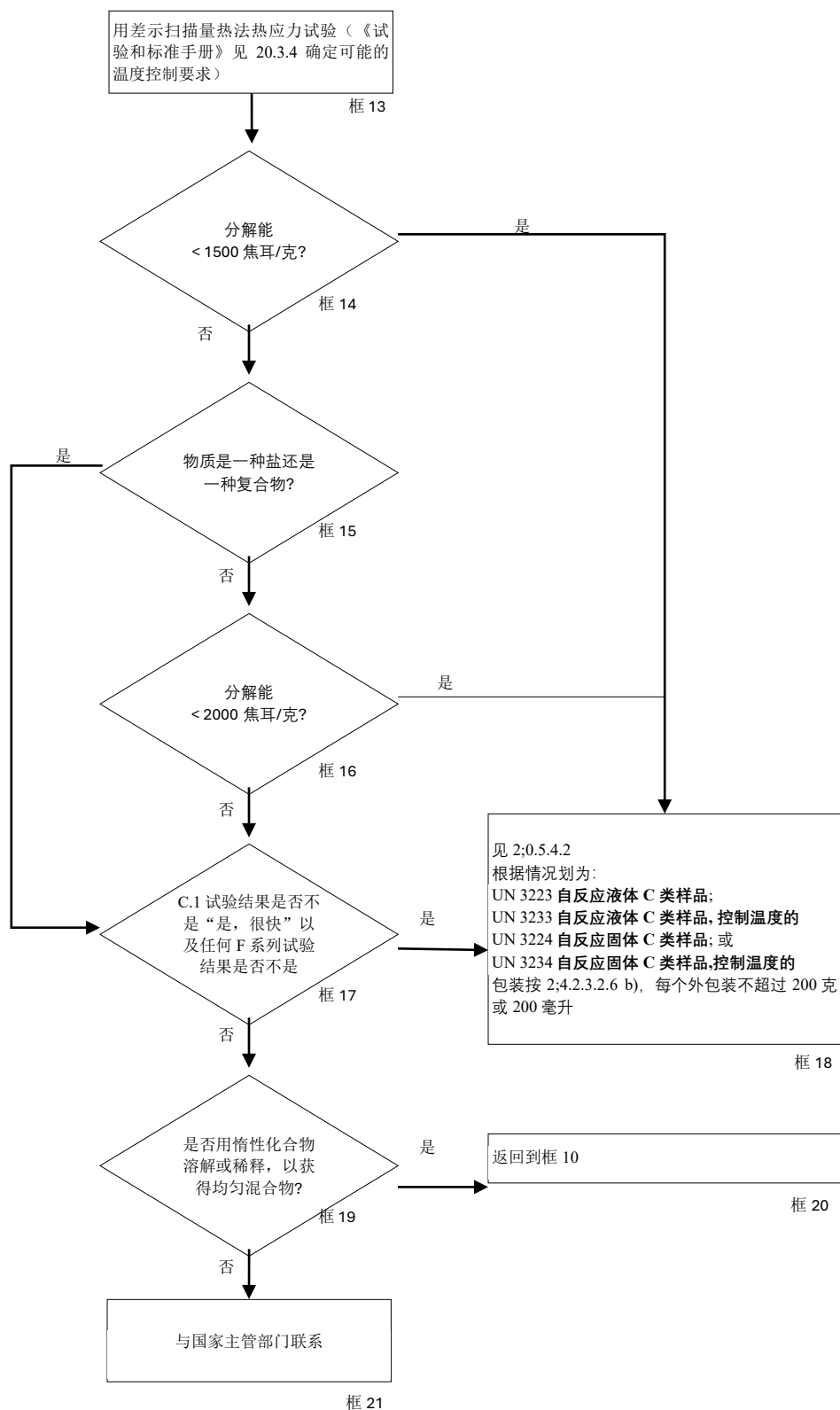


图 2-1. 高能样品分类（续）

新案文结束。

6. 未另作规定的含有危险品的物品的分类

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 和 4.4.2 段和 DGP/30 报告 4.1 段：

《联合国规章范本》，第 2.0 章，2.0.5.2（参见 ST/SG/AC.10/52/Add.1）

6.2 这种物品也可含有电池芯或电池。属物品组成部分的锂电池芯和电池锂金属、锂离子和钠离子电池芯和电池必须是经验证符合联合国《试验和标准手册》第 III 部分第 38.3 小节试验要求的类型。对于为试验而运输的含有预生产原型锂电池芯和电池锂金属、锂离子或钠离子电池芯或电池的物品，或对于在不超过 100 个电池芯或电池的年生产批量中制造的含有锂电池芯和电池锂金属、锂离子或钠离子电池芯或电池的物品，应适用特殊规定 A88 的要求。

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第 1 章

第 1 类 — 爆炸品

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1.1 定义和一般规定

第 1 类包括：

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 2.1.1.1 章（参见 ST/SG/AC.10/52/Add.1）

- b) 爆炸性物品，不包括过于危险而不能运输的物品或下述装置：其中所含爆炸性物质的数量或特性不会使其在运输过程中偶然或意外被点燃或引发后因进射、发火、冒烟、发热或巨响而在装置外部产生任何影响（见 1.5.2）；和

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1.2 定义

在本细则中，适用下述定义：

- a) **爆炸性物质**是固态或液态物质（或物质混合物），自身能够通过化学反应产生气体，其温度、压力和速度高到能对周围造成破坏。烟火物质即使不放出气体也包括在内；
- b) **烟火物质**是用来产生热、光、声、气或烟的效果或这些效果加在一起的一种爆炸性物质。这些效果是由不爆炸的自持放热化学反应产生的；
- c) **爆炸性物品**是含有一种或几种爆炸性物质的物品。
- d) **减敏的**，是将一种物质（或减敏剂）加入爆炸物中，以增加搬运和运输过程中的安全。减敏剂使爆炸物不敏感或降低爆炸物对以下情况的敏感度：热、振动、撞击、打击或摩擦。典型的减敏剂有纸、蜡、水、聚合物（如氯氟聚合物），酒精和油等（如凡士林油和石蜡），但并不限于此列。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 2.1.1.3 章（参见 ST/SG/AC.10/52/Add.1）

- e) **爆炸或烟火效果**在涉及 4.1 e) 时，是指自我维持的放热化学反应产生的效果，包括冲击、爆炸、碎裂、投射、热、光、声、气体和烟。

注：有些与爆炸性相关的其他术语解释见本细则附录 2。

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为管理航空特定风险和处理异常情况的修订

DGP/30 报告第 2.2.4 段：

1.5 爆炸品的分类

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1.5.1.3 除按其运输专用名称列入危险物品表（表 3-1）中的物质外，未经本章描述的分类程序，物品不得作为第 1 类物品提交运输。此外，分类程序必须在新产品提交运输之前进行。在这里，新产品是国家有关当局认为具有下列任何一种情况的产品：

- a) 新爆炸性物质或被认为同已分类的其他组合物和混合物有重大区别的爆炸性物质组合物或混合物；
- b) 新设计的物品或含有新爆炸性物质、爆炸性物质的新组合物或混合物的物品；
- c) 新设计的爆炸性物质或物品包装件，包括新类型的内包装。

注：这一情况的重要性可能被忽视，除非意识到内包装或外包装所做的较小改变可以是关键性的，并可以使较小的危险变为整体爆炸危险。因此，若爆炸物需要重新包装以供后续分发，则托运人需要核实拟采用的包装是否符合原始分类要求，或重新执行本章规定的分类程序。

1.5.1.4 在运输前，必须由相关国家主管部门完成、批准或接受爆炸物的分类。

1.5.1.4⁵ 申请对一产品进行分类的产品制造商或其他人必须提供关于产品中所有爆炸性物质名称和性质的充分资料，必须提供所有已经做过的相关试验结果。其前提条件是新型物品中的所有爆炸性物质已做适当的试验并获得批准。

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第 2 章

第 2 类 — 气体

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.2.1 b) 段:

《联合国规章范本》，第 3.3 章, SP 63 (参见 ST/SG/AC.10/52/Add.1)

2.5 气溶胶

2.5.1 对于气溶胶，第 2 类的项别和次要危险性取决于气溶胶喷雾器中内装物的性质。如下规定适用：

- a) 如果内装物所含可燃成分按质量计达到或超过 85%，且化学燃烧热量达到或超过 30kJ/g，则适用 2.1 项；
- b) 如果内装物所含可燃成分按质量计为 1%或更低，且化学燃烧热量低于 20kJ/g，则适用 2.2 项；
- c) 否则产品必须归类为按照联合国《试验和标准手册》第三部分第 31 节规定所试验过的产品。极度易燃气溶胶和易燃气溶胶必须划入 2.1 项，非易燃气溶胶划入 2.2 项。
- d) 2.3 项气体不得作为气溶胶喷雾器的推进剂；
- e) ~~如果除了气溶胶喷雾器喷射的推进剂之外的内装物划入 6.1 项，II 级或 III 级包装，或第 8 类 II 级或 III 级包装，则气溶胶必须具有 6.1 项或第 8 类次要危险性；如喷雾器内除助喷剂以外的内装物被划为以下类/项，那么气溶胶必须具有 6.1 项或第 8 类次要危险性：~~
 - ~~i) 6.1 项，II 级或 III 级包装；或~~
 - ~~ii) 第 8 类，II 级或 III 级包装。~~

~~如内装物被划为 6.1 项，I 级包装或第 8 类 I 级包装，则气溶胶禁止运输。~~
- f) ~~内装物的毒性或腐蚀性达到包装 I 级标准的气溶胶禁止运输。如内装物还符合以下分类标准，则气溶胶禁止运输：~~
 - ~~i) 第 1 类，爆炸品；~~
 - ~~ii) 第 3 类液态退敏爆炸品；~~
 - ~~iii) 4.1 项自反应物质和固态退敏爆炸品；~~
 - ~~iv) 4.2 项，易于自燃的物质；~~
 - ~~v) 4.3 项，遇水放出易燃气体的物质；~~
 - ~~vi) 5.2 项，有机过氧化物；~~
 - ~~vii) 6.2 项，感染性物质；或~~
 - ~~viii) 第 7 类，放射性物质。~~

2.5.2 可燃成分系指按照联合国《试验和标准手册》第 III 部分 31.1.3 分节注 1 至注 3 所定义的易燃液体，易燃固体或易燃气体和气体混合物。这一名称并不包括自燃物质、自热物质或遇水反应物质。化学燃烧热量必须通过下列任一方式予以确定：ASTM D 240, ISO/FDIS 13943: 1999 (E/F) 86.1 至 86.3 或 NFPA 30B 参考已发表的科学文献、通过计算或使用适当的热量测定试验方法（如 ASTM D 240 和 NFPA 30B）加以确定。

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第 4 章

第 4 类 — 易燃固体； 易于自燃的物质；遇水放出易燃气体的物质

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4.3 易于自燃的物质（4.2 项）

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4.3.2 划入 4.2 项

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 2.4.3.2.3.1 章，（参见 ST/SG/AC.10/52/Add.1）

4.3.2.3.1 一种物质如在按照现版联合国《试验和标准手册》第 III 部分第 33.3.1.6 小节所载的试验方法进行的试验中取得如下结果，必须划为 4.2 项自热物质：

- a) 用 25 mm 立方体试样在 140°C 下做试验时取得肯定结果；
- b) 用 100 mm 立方体试样在 140°C 下做试验时取得肯定结果，用 100 mm 立方体试样在 120°C 下做试验时取得否定结果，该物质须装在内体积大于 3 m³ 的包装件内运输；
- c) 用 100 mm 立方体试样在 140°C 下做试验时取得肯定结果，用 100 mm 立方体试样在 100°C 下做试验时取得否定结果，该物质须装在内体积大于 450 L 的包装件内运输；

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 为与联合国协调一致的修订

 DGP-WG/25 报告第 4.1.2.1 段：

 《联合国规章范本》，第 2.4.3.2.3.2 章，（参见 ST/SG/AC.10/52/Add.1）

4.3.2.3.2 一种物质如符合下列条件不得划入 4.2 项：

- a) 用 100 mm 立方体试样在 140℃ 下做试验时取得否定结果；
- b) 用 100 mm 立方体试样在 140℃ 下做试验时取得肯定结果，用 25 mm 立方体试样在 140℃ 下做试验时取得否定结果，用 100 mm 立方体试样在 120℃ 下做试验时取得否定结果，该物质须装在内体积不大于 3 立方米的包装内运输；
- c) 用 100 mm 立方体试样在 140℃ 下做试验时取得肯定结果，用 25 mm 立方体试样在 140℃ 下做试验时取得否定结果，用 100 mm 立方体试样在 100℃ 下做试验时取得否定结果，该物质须装在内体积不大于 450 L 的包装内运输。

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4.3.3 包装等级的划定

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 为与联合国协调一致的修订

 DGP-WG/25 报告第 4.1.2.1 段：

 《联合国规章范本》，第 2.4.3.3.3 章，（参见 ST/SG/AC.10/52/Add.1）

4.3.3.3 自热物质如符合下列条件必须划入 III 级包装：

- a) 用 100 mm 立方体试样在 140℃ 下做试验时取得肯定结果，用 25 mm 立方体试样在 140℃ 下做试验时取得否定结果，该物质须装在内体积大于 3 立方米的包装内运输；
- b) 用 100 mm 立方体试样在 140℃ 下做试验时取得肯定结果，用 25 mm 立方体试样在 140℃ 下做试验时取得否定结果，用 100 mm 立方体试样在 120℃ 下做试验时取得肯定结果，该物质须装在内体积大于 450 L 的包装内运输；
- c) 用 100 mm 立方体试样在 140℃ 下做试验时取得肯定结果，用 25 mm 立方体试样在 140℃ 下做试验时取得否定结果，用 100 mm 立方体试样在 100℃ 下做试验时取得肯定结果。

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有机过氧化物	浓度 (%)	B 型		惰性 固体 (%)	水 (%)	控制 温度 (°C)	危急 温度 (°C)	UN 类属 条目	次要 危险 性和 备注
		A 型 稀释剂 (%)	稀释剂 (%) (注 1)						
2,2-Dihydroperoxypropane 2,2-二氢过氧丙烷	≤27			≥73				禁运	3
<u>Dihydroartemisinin (including stereoisomers)</u> <u>双氢青蒿素(包括立体异构体)</u>	≤100							3106	
.....									
1-(2-Ethylhexanoylperoxy)-1,3-dimethylbutyl peroxyvalate 1-(2-乙基酰过氧)-1,3-二甲基丁基过氧新戊酸酯	≤52	≥45	≥10			-20	-10	3115	
<u>1,2,4,5,7,8-Hexoxonane, 3,6,9-trimethyl-3,6,9-tris (ethyl and propyl) derivatives</u> <u>1,2,4,5,7,8-己氧烷、3,6,9-三甲基-3,6,9-三(乙基和丙基)衍生物</u>	≤41	≥59						3105	35
tert-Hexyl Peroxyneodecanoate 过新癸酸叔己酯	≤71	≥29				0	+10	3115	
.....									
注:									
.....									
34. A 型稀释剂和水的总和 ≥ 55%，此外还有甲乙酮。									
35. <u>有效氧 ≤ 7.3 %</u>									

第 6 章

第 6 类 — 毒性物质和感染性物质

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6.2 6.1 项 — 毒性物质

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6.2.2 包装等级的划定

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 2.6.2.2.4.1 章，（参见 ST/SG/AC.10/52/Add.1）

6.2.2.4.1 表 2-8 列出以口服、皮肤接触以及吸入粉尘和烟雾的方式确定分级的标准。

注：符合第 8 类标准、并且吸入粉尘和烟雾毒性 (LC₅₀) 属于 I 级包装的物质或混合物，只有在口服摄入或皮肤接触毒性至少是 I 级或 II 级包装时才被认可划入 6.1 项。否则酌情划入第 8 类（见第 2 部分引言章第 4 g) 段和 8.2.4）。

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6.3.2 感染性物质的分类

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 2.6.3.2.2 章，（参见 ST/SG/AC.10/52/Add.1）

6.3.2.2 感染性物质分为以下各类 A 类和 B 类。

6.3.2.2.1 A 类~~←~~

6.3.2.2.1.1 指在运输中与之接触能对本来健康的人或动物造成永久性残疾，危及生命或致命疾病的感染性物质，划入 A 类。符合这些标准的物质示例见表 2-10。

注：发生接触系指使感染性物质离开保护性包装与人或动物的身体接触的情况。

~~a)~~ 6.3.2.2.1.2 符合这些标准的感染性物质使人染病或使人或动物都染病的必须划入 UN 2814 — 感染性物质，对人感染。仅使动物染病的必须划入 UN 2900 — 感染性物质，对动物感染。

~~b)~~ 6.3.2.2.1.3 划入 UN 2814 或 UN 2900 的必须基于病源人或动物的已知病史和症状，当地的地方性特征或对病源人或动物的个体情况的职业判断。

~~注 1：UN 2814 的运输专用名称为感染性物质，对人感染。UN 2900 的运输专用名称为感染性物质，只对动物感染。~~

~~注 2：6.3.2.2.1.4~~ 下面的表 (表 2-10) 不是详尽无遗的。表中没有出现但符合同样标准的感染性物质，包括新的或正在出现的病原体必须划为 A 类。另外，如果对一物质是否符合标准有疑问，也必须将该物质列入 A 类。

~~注 3：在表 2-10 中，以斜体字书写的微生物是细菌或真菌。~~ 为应对新出现的卫生局势，可从人和动物健康政府间组织和国家主管部门那里获得更多关于适用类别的最新信息。

6.3.2.2.2 B 类~~←~~

不符合列入 A 类标准的感染性物质 划入 B 类。B 类中的感染性物质必须划入 UN 3373 — B 类生物物质。

~~注：UN 3373 的运输专用名称是 Biological substance, Category B (生物物质，B 类)。~~

.....

表 2-10 除非另有指明，以任何形式列入 A 类的感染性物质示例 ~~(6.3.2.2.1 a)~~

联合国编号和运输专用名称	微生物 <u>(细菌和真菌以楷体书写)</u>
UN 2900 感染性物质， <u>只对动物感染</u>	

.....

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 2.6.3.2.3.9 章，（参见 ST/SG/AC.10/52/Add.1）

6.3.2.3.9 除了以下物品之外：

- a) 医疗废弃物（UN 3291 或 UN3549）；
- b) 沾染或带有 A 类感染性物质的医疗装置或设备（UN 2814 或 UN 2900）；和
- c) 沾染或带有其他危险物品的医疗装置或设备，而该危险物品符合另一危险性类别的定义，包含在设备中或与设备包装在一起的锂电池芯或电池或钠离子电池芯或电池（UN 3091、UN 3481 和 UN 3552）除外。

可能沾染或带有感染性物质的医疗装置或设备，为了对之进行消毒、清洗、灭菌、修理，或对设备进行评估而需要运输，如果其所用包装在设计和制造上可保证在正常运输条件下不会破裂、刺穿或内装物泄漏，则不受本细则规定的限制。包装设计必须满足 6.3 列出的制造要求。

6.3.2.3.9.1 必须尽实际可能排出医疗装置或设备中的流动液体。它们必须被装入牢固、坚硬、装有充分减震材料的外包装当中，以防止外包装移动。这些包装必须符合 4;1.1.1, 4;1.1.3.1 和 4;1.1.4 列出的一般包装要求（但 4; 1.1.4.1 除外）。如果外包装不是密封防漏的，且医疗装置或设备受到液态感染性物质污染或含有液态感染性物质，则必须有防漏内衬、塑料袋或其它等效的封闭装置，作为发生渗漏时封住液体的手段。这些包装在从 1.2 米高度落下时必须能够保持医疗装置和设备仍在包装内。

注：应当通过测试为运输准备的包装样品，或通过其他方式，如：非破坏性试验和工程分析，用类似质量和尺寸的物品进行试验，或采用其他相同方式来确定从 1.2 米高度落下时，包装保持医疗装置或设备的能力。

6.3.2.3.9.2 包装必须标明“Used medical device（用过的医疗装置）”或“Used medical equipment（用过的医疗设备）”。如果使用了合成包装，除非各个包装件上的标记清晰可见，否则合成包装上必须标明“Used medical device（用过的医疗装置）”或“Used medical equipment（用过的医疗设备）”。

6.3.2.3.9.3 当用过的医疗装置含有锂电池芯或电池或钠离子电池芯或电池，或与锂电池芯或电池或钠离子电池芯或电池包装在一起时，必须使用危险物品一览表（表 3-1）中的相关条目，并必须适用本细则的所有适用规定。

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第 8 章

第 8 类 — 腐蚀性物质

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8.2 一般分类规定

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 2.8.2.4 章，（参见 ST/SG/AC.10/52/Add.1）

8.2.4 符合第 8 类标准并且吸入粉尘和烟雾毒性（LC₅₀）为 I 级包装、但口服摄入或和皮肤接触毒性仅为 III 级包装或更小的物质或混合物必须划入第 8 类（见第 2 部分引言章第 4 g) 段和 6.2.2.4.1 下的注）。

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第 9 章

第 9 类 — 杂项危险物质和物品，包括危害环境的物质

.....

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》，第 2.9.2 章，（参见 ST/SG/AC.10/52/Add.1）

表 2-16 第 9 类物质和物品

UN 编号	名称	说明
.....		
3536	Lithium ion batteries installed in cargo transport unit 装在货运装置中的锂离子 电 池组	
<u>3563</u>	<u>Lithium metal batteries installed in cargo transport unit</u> 装在货运装置中的 电 池	

.....

3552	Sodium ion batteries contained in equipment with organic electrolyte 含有机电解质的装在设备中的钠离子电池	
3552	Sodium ion batteries packed with equipment with organic electrolyte 含有机电解质的与设备包装在一起的钠离子电池	
<u>3564</u>	<u>Sodium ion batteries installed in cargo transport unit</u> <u>装在货运装置中的钠离子电池</u>	

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.2.1b)段:

《联合国规章范本》，第 2.9.4 章（参见 ST/SG/AC.10/52/Add.1）

9.3 锂电池

电池芯和电池、装在设备中装在物品、发动机、设备或车辆中的电池芯和电池，或者与设备包装在一起的电池芯和电池，如果含有任何形态的锂，都必须酌情划入 UN 3090、3091、3480 或 3481。这类电池芯和电池可按上述适当条目进行运输，条件是：

- a) 每个电池芯或电池的所属类型证明满足联合国《试验和标准手册》第 III 部分 38.3 小节规定的每项试验的要求。

根据联合国《试验和标准手册》第三修订版第 1 号修正第 38.3 小节各项要求的类型或任何适用于类型试验日期的后续修订和修正而制造的电池芯和电池可以继续予以运输，除非本细则中另有规定。

仅符合联合国《试验和标准手册》第三修订版各项要求的电池芯和电池类型不再有效。但是，2003 年 7 月 1 日之前制造的这些类型电池芯和电池如果达到所有其他的适用要求，可以继续予以运输。

注 1：无论电池所含的电池芯是否属于经过试验的类型，电池所属的类型必须证明满足联合国《试验和标准手册》第 III 部分 38.3 小节规定的试验要求。

注 2：因根据联合国《试验和标准手册》38.3.2.2(c)进行修复、翻新或重新制造等处理而产生变化的电池，可被视为与试验型号不同。

- b) 每个电池芯和电池都装有安全排气装置，或在设计上能防止在正常运输中难免发生的条件下猛烈破裂；
- c) 每个电池芯和电池都装有防止外部短路的有效装置；
- d) 每个包含多个并联电池芯或电池芯系列的电池，都装有防止危险的反向电流所需的有效装置（例如二极管、保险丝等）；
- e) 电池芯和电池按照包含以下内容的质量管理方案予以制造：
- 1) 设计和产品质量方面的组织结构和人员责任说明；
 - 2) 相关检查和试验、质量控制、质量保证和使用的程序作业说明；
 - 3) 程序控制应包括防止和发现在电池制造过程中出现内部短路故障的相关活动；
 - 4) 质量记录，例如检查报告、试验数据、校准数据和证书。必须保存试验数据，在国家有关当局要求时予以提供；
 - 5) 管理审查，确保质量管理方案的有效运作；

- 6) 文件控制和修订程序；
- 7) 对不符合联合国《试验和标准手册》第III部分38.3节试验类型的电池芯或电池采取的控制措施；
- 8) 对有关人员的培训方案和资格审查程序；
- 9) 确保最终产品无损坏的程序。

注：可以接受机构内部的质量管理方案。不需要第三方的认证，但上文1)至9)列出的程序须作适当记录并可跟踪查询。必须预备一份质量管理方案副本，在国家有关当局索要时予以提供。

- f) 非设计为可外部充电的、同时含有原锂金属电池芯和可充电锂离子电池芯的锂电池（见特殊规定A213）符合下列条件：
 - i) 仅可从原锂金属电池芯为可充电锂离子电池芯充电；
 - ii) 通过设计排除可充电锂离子电池芯过度充电；
 - iii) 电池作为原锂电池做过试验；
 - iv) 作为电池元件的电池芯是经验证符合联合国《试验和标准手册》第III部分第38.3小节各项试验要求的类型；和
- g) 除安装在设备（包括电路板）上的纽扣电池外，2003年6月30日以后生产的电池芯或电池的制造商和随后的销售商提供联合国《试验和标准手册》第III部分第38.3小节第38.3.5段规定的试验概要。

注：“提供”一词是指制造商和随后的经销商确保试验概要可供查阅，以便托运人或供应链中的其他人能确认合规。

- h) 含有锂离子电池芯和钠离子电池芯二者的混合电池（见特殊规定A235）必须满足以下条件：
 - i) 锂离子电池芯和钠离子电池芯有电路连接；
 - ii) 电池已按照9.3 a)作为锂离子电池做过试验；
 - iii) 电池中每个锂离子和钠离子单体电池芯是经验证符合联合国《试验和标准手册》第III部分第38.3节各项试验要求的类型。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.2.1 b) 段：

《联合国规章范本》，第 2.9.5 章（参见 ST/SG/AC.10/52/Add.1）

9.4 钠离子电池

电池芯和电池、装在设备中装在物品、发动机、设备或车辆中的电池芯和电池、或与含钠离子设备包装在一起的电池芯和电池，如果是可再充电的电化学系统，其正极和负极都是嵌入化合物或插入化合物，在结构上两个电极都没有钠金属（或钠合金），而用有机非水化合物作电解质，则必须酌情划为联合国编号 3551 或 3552。

这类电池芯和电池可按上述适当条目运输，条件是：

注：嵌入的钠以离子或准原子形式存在于电极材料的晶格中。

a) 经过验证，每个电池芯或电池的类型均符合联合国《试验和标准手册》第三部分第 38.3 小节各项试验的要求；

注：电池的类型必须经证明符合《联合国测试和标准手册》第 III 部分第 38.3 款的测试要求，无论其组成的电池芯是否属于经过测试的类型。

b) 每一电池芯和电池都装有安全排气装置，或在设计上能防止在运输中正常遇到的条件下骤然破裂；

c) 每一电池芯和电池都装有防止外部短路的有效装置；

d) 每个包含多个并联电池芯或电池芯系列的电池，都装有防止反向电流造成危险所需的有效装置（例如二极管、保险丝等）；

e) 电池芯和电池按照 9.3 e) 1) 至 9) 规定的质量管理计划制造；

f) 电池芯或电池的制造商和随后的经销商提供联合国《试验和标准手册》第 III 部分第 38.3 小节第 38.3.5 段中规定的试验概要。

注：“提供”一词是指制造商和随后的经销商确保试验概要可供查阅，以便托运人或供应链中的其他人能确认合规。

编辑说明：因新增图 2-1，需进行以下编辑修订。

第 6 章

第 6 类 — 毒性物质和感染性物质

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6.2.2 包装等级的划定

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6.2.2.4.4 图 2-1 2-2 以图形表示 6.2.2.4.3 规定的标准，这是一种便于分类的辅助手段。但是，由于使用图形固有的近似性，在包装等级界线上或附近的物质必须使用数字标准予以核对。

.....

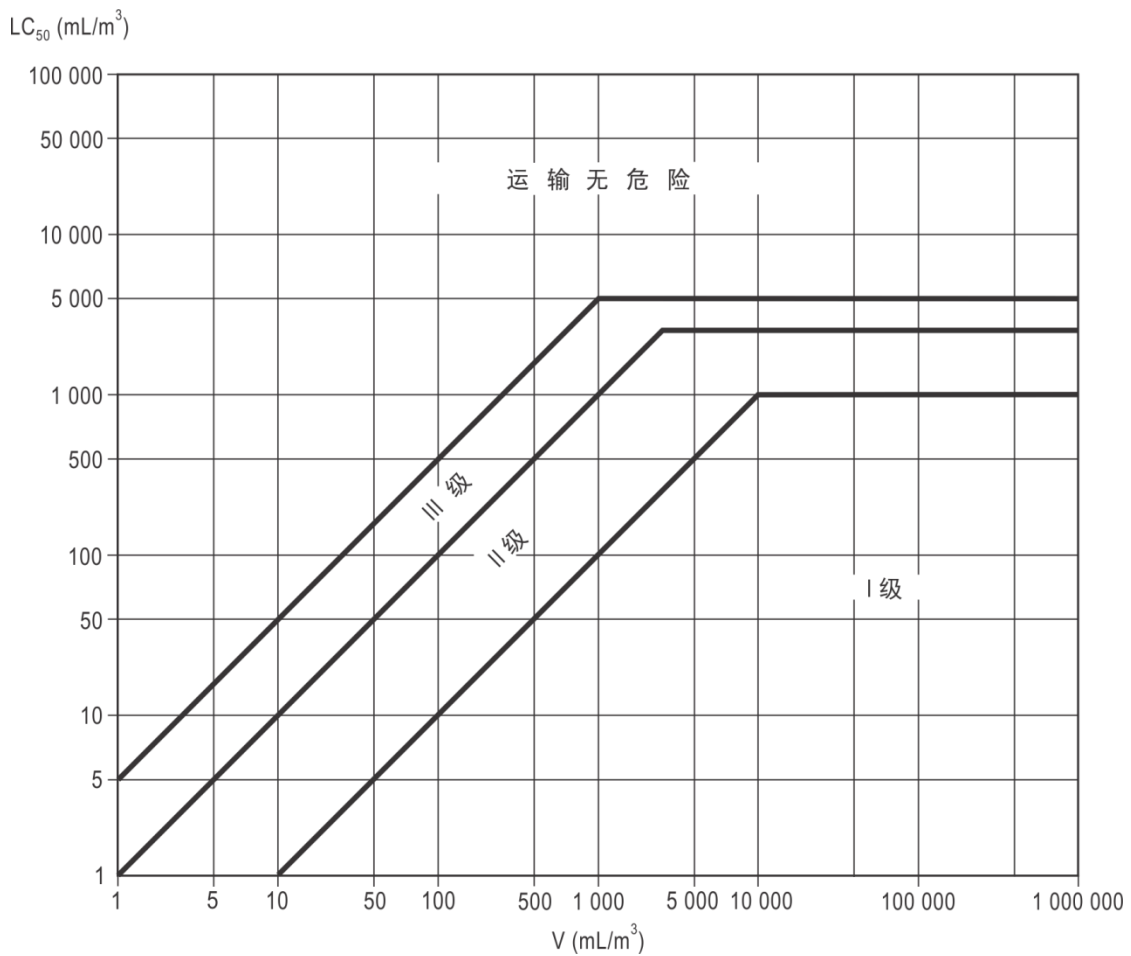


图 2-1 2-2 吸入蒸气标准

第 8 章

第 8 类 — 腐蚀性物质

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8.4 混合物包装等级的变通划定方法：分步法

8.4.1 一般规定

对于混合物，需要获得或导出使这些标准能够应用于混合物的信息，以便进行包装等级的分类和划定。包装等级的分类和划定方法是分层的，而且取决于混合物本身、类似混合物和/或其各种成分的现有信息量。图 2-2 2-3 的流程图概括了需遵循的步骤。

.....

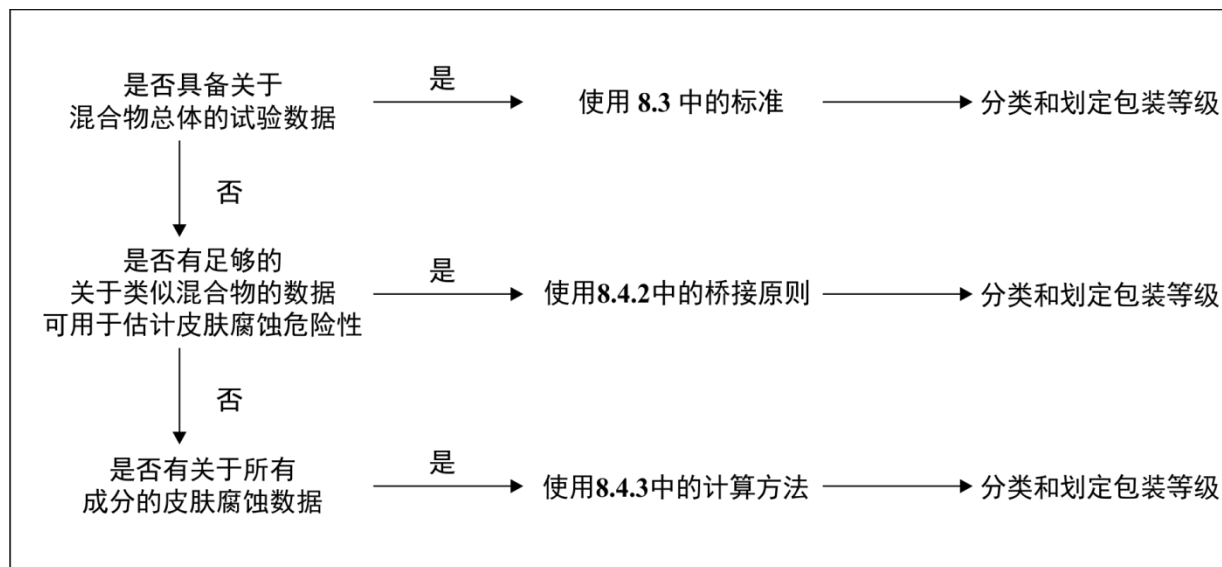


图 2-2 2-3 用分步法对腐蚀性混合物进行包装等级分类和划定

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8.4.3 基于物质分类的计算法

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8.4.3.3 为确定一种含有腐蚀性物质的混合物是否必须被视为腐蚀性混合物并划定一个包装等级，必须使用图 2-3 2-4 流程图中的计算法。

8.4.3.4 如果对一种物质按其在表 3-1 或某项特殊规定中的条目而为之划定一个具体浓度限值（SCL），则必须使用这个限值而不使用通用浓度限值（GCL）。这种情况分别见于图 2-3 2-4 中评估 I 级包装物质的第一步使用 1%浓度的情况，以及其他步骤使用 5%浓度的情况。

8.4.3.5 为此，必须调整计算法每个步骤的求和公式。这就意味着，在适用的情况下，通用浓度限值必须改为划定给（各）物质的具体浓度限值（SCL_i），调整后的公式反映划定给混合物所含各物质的不同浓度限值的加权平均值：

$$(PG_{x_1}/GCL + (PG_{x_2}/[SCL]_2 + \dots + (PG_{x_i}/[SCL]_i) \geq 1$$

式中：

PG_{xi} = 划为包装等级x（I、II或III级）的混合物所含物质1、2、……i的浓度

GCL = 通用浓度限值

SCL_i = 划定给物质i的具体浓度限值

当计算结果 ≥ 1 时，就达到了某个包装等级的标准。计算法每一步骤评估所用的通用浓度限值为图2-3 2-4所示数值。

.....

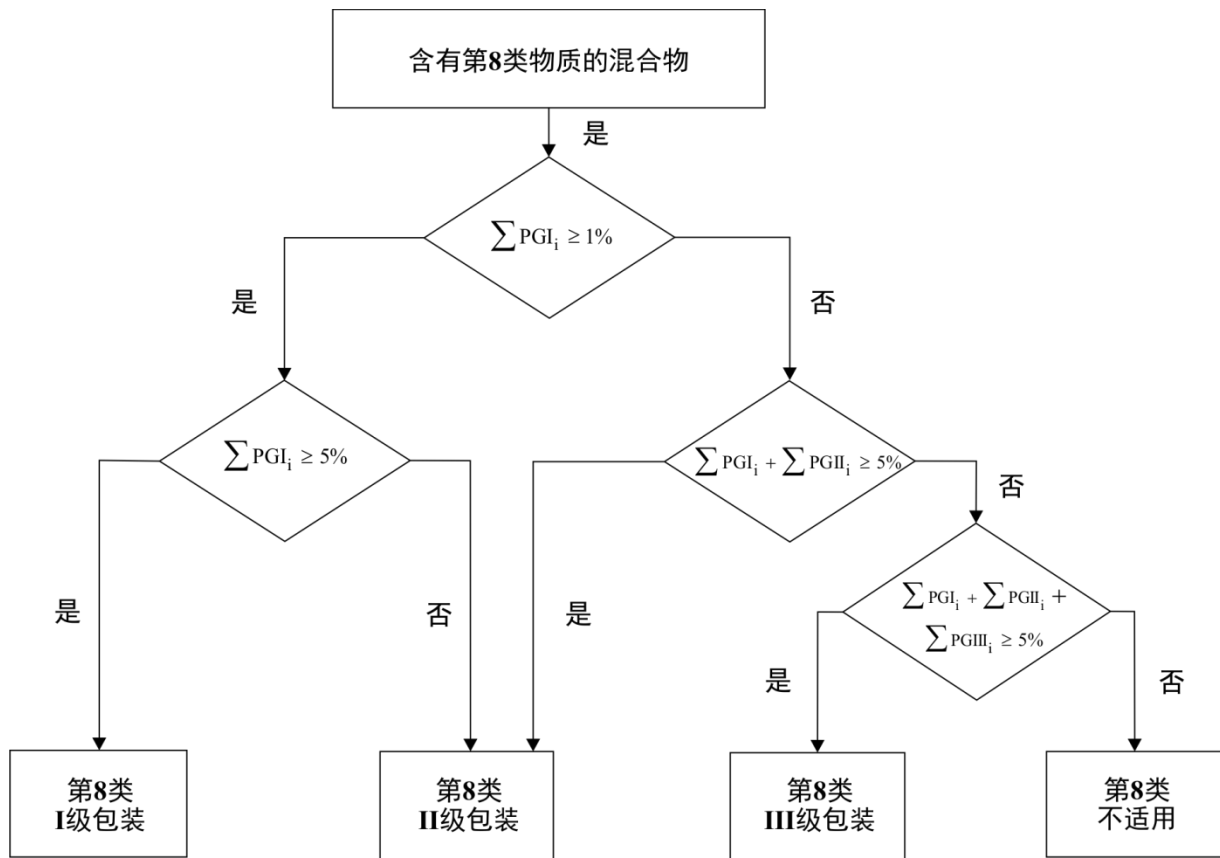


图 2-3 2-4 计算方法

.....

第 3 部分

危险物品表，特殊规定和限制数量与例外数量

.....

第 2 章

危险物品表（表 3-1）的编排

对表3-1的拟议修订见本附录附篇。

第 3 章

特殊规定

.....

表 3-2 特殊规定

本细则 UN

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1.4.1 e) 段:

《联合国规章范本》第 3.3 章，SP 145（参见 ST/SG/AC.10/52/Add.1）

A9 (≈145) 以体积计酒精含量超过 24%但未超过 70%的酒精饮料，包装在没超过 5 L 的容器内作为货物运输时，不受本细则限制。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP 119（参见 ST/SG/AC.10/52/Add.1）：

- A26 (119) 冷冻机包括专门为了在内隔间低温保存食物或其他物品而设计的空调器和机器或其他器具。加热机包括专门用于加热的机器或其他器具。如果冷冻或加热机和冷冻机其组件内包含 12 kg 以下的 2.2 项气体或 12 L 以下的氨溶液（UN 2672），则不受本细则限制。用于起加热和冷却作用的机器或其他器具可作为“冷冻机”或“加热机”运输。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP 172（参见 ST/SG/AC.10/52/Add.1）：

- A78 (≈172) 如果一种放射性物质具有次要危险性：
- a) 如果适用第 2 部分规定的对应于最突出的次要危险性的包装等级划分标准，物质必须酌情归入 I、II 或 III 级包装。
 - b) 包装件必须按照第 5 部分 3.2 的相关规定贴上与该物质所显示的每一次要危险性相符的次要危险性标签；必须按照第 5 部分 3.6 相关规定，将相应标牌附在货运单元上。
 - c) 为了进行文件记录和包装件标记，必须在运输专用名称中补充成分的名称，这些成分是造成这种（或这些）每一次要危险性的最主要的因素，且必须置于括号内。然而，如果该成分在表 3-1 中按名称列出，并且：
 - i) 第 10 栏和第 11 栏中显示“禁运”，则危险物品运输文件必须注明“仅限货机”，并且包装件必须粘贴“仅限货机”标签，除非经始发国和运营人所属国有关当局根据其制定的条件预先批准该物质可在客机上运输。必须随托运货物附一份说明数量限制及包装要求的批准文件；和
 - ii) 第 12 栏和第 13 栏中显示“禁运”，则该物质不得通过航空进行运输，除非经始发国和运营人所属国有关当局根据其制定的条件预先批准该物质可在货机上运输。必须随托运货物附一份说明数量限制及包装要求的批准文件。
- 具有 4.2 项（I 级包装）次要危险性的放射性物质，必须用 B 型包装件运输。这些可以在客机或货机上运输。
- d) 危险物品运输文件必须按照 5:4.1.4.1 d) 和 e) 的要求指出每一次要危险性的类别和项别，如果已经划定了等级，指出包装等级。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1.4.1 f) 段：

《联合国规章范本》第 3.3 章，SP 405（参见 ST/SG/AC.10/52/Add.1）：

A87 没有被包装物、板条箱或其他包装方式完全封闭而妨碍其被迅速识别的物品，不受 5; 2 的标记要求或 5; 3 的标签要求的限制。

为管理储能装置规定带来的安全风险修订

DGP-WG/25 会议报告第 4.4.2 段和 DGP/30 报告第 4.1 段：

A88 出于试验目的予以运输的生产之前的锂电池芯或电池或钠离子电池芯或电池原型或低年产量（即年度生产量不超过 100 个锂电池芯或电池或钠离子电池芯或电池）的 不超过 100 个 锂电池芯或电池或钠离子电池芯或电池，没有按联合国《试验和标准手册》的第 III 部分 38.3 节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准并且满足补篇的包装说明 910 中的要求，可以在货机上运输。

托运货物必须随附一份列有数量限制的批准文件。必须在危险物品运输文件上注明按本特殊规定进行运输。

尽管表 3-1 第 13 栏规定了限制，如此准备交运的电池芯或电池的质量可以超过 35 千克。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP 291（参见 ST/SG/AC.10/52/Add.1）

A103 (≈291) 易燃的液化气体必须封装于冷冻或加热机组件内。这些组件的设计压力及其试验压力必须至少为其工作压力压力的三倍。冷冻或加热机的设计和制造必须能封装液化气且在正常运输过程中能防止发生承压组件爆裂或破碎。如果冷冻或加热机和 冷冻机的其组件所含易燃、无毒的液化气体不足 100 g，不受本细则限制。用于起加热和冷却作用的机器可作为“冷冻机”或“加热机”运输。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.4.1 c)段：

《联合国规章范本》第 3.3 章，SP 301（参见 ST/SG/AC.10/52/Add.1）

另见对包装说明 962 的拟议修订

A107 (≈301)

本条目仅适用于物品包装的残留物或物品的组成部分是危险物品的物品，如机器、装置或设备。如该机械或装置在表 3-1 中已经有了运输专用名称，则不得使用本条目。此种物品可能额外含有锂电池芯或电池或钠离子电池芯或电池，前提是这些电池芯或电池：

- a) 为物品的运行提供电力；和
- b) 符合包装说明 967 关于锂离子电池芯或电池、包装说明 970 关于锂金属电池芯或电池、或包装说明 978 关于钠离子电池芯或电池的第 II 节的要求。

除锂电池芯或电池或钠离子电池芯或电池外不含其它危险品的物品应酌情按照 UN 3091、UN3481 或 UN3552 运输。

如果危险物品的数量超过包装说明 962 所允许的限量，且危险物品符合《联合国规章范本》的特殊规定 301 的规定，则该物品只能在始发国和运营人所属国有关当局根据其制定的书面条件预先批准的情况下才能运输。

虽然包装说明 962 中规定了数量，但物品还可能含有最多 5 千克 UN 3077 — 对环境有危害的固态物质，未另作规定的，和/或 5 公升 UN 3082 — 对环境有危害的液态物质，未另作规定的。危险物品运输文件上不得标明对环境有危害的物质的数量。

仅含有 UN 3077 — 对环境有危害的固态物质，未另作规定的，和/或 UN 3082 — 对环境有危害的液态物质，未另作规定的物品，各自数量不超过 5 千克或 5 公升的物品不受本细则限制。

注：如果物品中危险物品的数量超过《联合国规章范本》特殊规定 301 允许的数量，或者是《联合国规章范本》不允许作为限量的危险物品，则该物品的分类必须符合第 2 部分引言章 6.1 至 6.6 的规定。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP280（参见 ST/SG/AC.10/52/Add.1）：

A115 (280) 本条目适用于车辆、船舶或航空器的安全装置，例如救生气囊充气装置、气囊组件、座椅安全带预紧装置和烟火机械装置，并且包含第 1 类危险品或其他类危险品的物品。作为组件运输，如果这些物品在提交运输时已按联合国《试验和标准手册》第 1 部分的试验系列 6 c) 进行过试验，装置没有爆炸，装置的壳体或压力贮器没有碎裂，而且没有明显阻碍就近采取消防或其他应急措施的抛射危险性或热效应。

本条目不适用于包装说明 955-救生器材（UN 2990 和 3072）所述的救生装置或灭火剂散布装置（UN 0514 和 3559）。不过，本条目可用于按照包装说明 955 运输供安装在救生器材(UN 2990)中的第 9 类安全装置。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP360（参见 ST/SG/AC.10/52/Add.1）：

A185 (360) 完全由锂金属电池、锂离子电池或钠离子电池驱动的车辆，必须酌情归入 UN 3556，以锂离子电池为动力的车辆，或 UN 3557，以锂金属电池为动力的车辆，或 UN 3558，以钠离子电池为动力的车辆。完全以符合 2;9.3(h) 的含有锂离子电池芯和钠离子电池芯的混合电池为动力的车辆，必须归入条目 UN 3556 以锂离子电池为动力的车辆。

安装在货物运输装置中、仅用于向运输装置提供外部供电的锂电池、钠离子电池或者符合 2;9.3(h) 的含有锂离子电池芯和钠离子电池芯的混合电池，必须按适用情况划为 UN 3536 装在货运装置中的锂离子电池，UN3563 装在货运装置中的锂金属电池或 UN 3564 装在货运装置中的钠离子电池。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP 387（参见 ST/SG/AC.10/52/Add.1）

A213 (387) 含有锂金属原电池芯和锂离子可充电电池芯的符合 2;9.3 f) 的锂电池必须根据情况划为 UN 3090 或 UN 3091。按照包装说明 968 第 IB 节、或按照包装说明 969 或 970 第 II 节运输这种电池时，电池所含全部锂金属电池芯的合计锂含量不得超过 1.5 克，电池所含全部锂离子电池芯的合计容量瓦时额定值不得超过 10 瓦时。

本细则 UN

为与联合国保持一致而进行的修订

DGP-WG/24 会议报告第 4.1.2.5 段和 DGP-WG/25 会议报告第 4.1.2.1.4.1g) 段:

《联合国规章范本》第 3.3 章, SP 388 (参见 ST/SG/AC.10/52/Add.1)

另见对包装说明 950、951 和 952 的拟议修订

A214 (388) UN 3166 各条目适用于以易燃液体或易燃气体内燃机或燃料电池为动力的车辆。

燃料电池发动机驱动的车辆必须酌情划归如下条目: UN 3166 易燃气体驱动的燃料电池车辆或 UN 3166 易燃液体驱动的燃料电池车辆。这些条目包含以燃料电池和装有湿电池、~~钠电池、锂金属电池或锂离子电池~~镍金属氢电池、金属钠电池、钠合金电池、锂金属电池、锂离子电池、符合 2:9.3(h)的含有锂离子电池芯和钠离子电池芯的混合电池、或钠离子电池的内燃机共同驱动的混合动力电动车辆, 这些车辆在运输时装有电池。

其他装有内燃发动机的车辆必须酌情划归如下条目: UN 3166 易燃气体驱动的车辆或 UN 3166 易燃液体驱动的车辆。这些条目包含以内燃发动机和湿电池、~~钠电池、锂金属电池或锂离子电池~~镍金属氢电池、金属钠电池、钠合金电池、锂金属电池、锂离子电池、符合 2:9.3(h)的包含锂离子电池芯和钠离子电池芯的混合电池、或钠离子电池共同驱动的混合动力电动车辆, 这些车辆在运输时装有电池。

如果车辆以一台易燃液体内燃机和一台易燃气体内燃机提供动力, 则必须划为 UN 3166 易燃气体驱动的车辆。

条目 UN 3171 仅适用于以湿电池、钠金属电池或钠合金电池提供动力的车辆和设备, 这些车辆和设备在运输时装有电池。

UN 3556 以锂离子电池为动力的车辆、UN 3557 以锂金属电池为动力的车辆和 UN 3558 以钠离子电池为动力的车辆, 分别适用于在装有电池情况下运输的以锂离子、锂金属或钠离子电池为动力的车辆。完全以符合 2: 9.3(h)的含有锂离子电池芯和钠离子电池芯的混合电池为动力的车辆, 必须归入条目 UN 3556 以锂离子电池为动力的车辆。

对本项特殊规定而言, 车辆是自推进式装置, 用于运载一人或多人, 或用于运载物品。这类车辆的例子有汽车、摩托车、轻骑、三轮和四轮车辆或摩托车、卡车、机车、自行车(带马达的脚踏车)和其他这类车辆(如自平衡车辆或未设置至少一个座位的车辆)、轮椅、草坪拖拉机、自力推进式农用和建筑设备、船只和航空器。在包装中运输车辆时, 除电池外, 车辆的某些部分可从外壳上拆下, 以便装入包装。

所指设备的例子包括割草机、清洁机或模型船和模型飞机。以锂金属电池或锂离子电池或钠离子电池为动力的设备必须酌情划归如下条目: UN 3091 装在设备中的锂金属电池或 UN 3091 与设备包装在一起的锂金属电池或 UN 3481 装在设备中的锂离子电池或 UN 3481 与设备包装在一起的锂离子电池 或 UN 3552 装在设备上的钠离子电池 或 UN 3552 与设备包装在一起的钠离子电池。安装在货物运输装置中、仅用于向货运装置提供外部供电的锂离子电池或、锂金属电池、符合 2: 9.3(h)的含有锂离子电池芯和钠离子电池芯的混合电池、或钠离子电池, 必须酌情划为 UN 3536 装在货运装置中的锂离子电池、UN 3563 装在货运装置中的锂金属电池或 UN 3564 装在货运装置中的钠离子电池。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章 SP 393（参见 ST/SG/AC.10/52/Add.1）

A216 (393) 硝化纤维素必须符合联合国《试验和标准手册》附录 10 中贝格曼-容克试验或甲基紫试纸试验的标准。对于干的或未经改变的硝化纤维素，无需进行 3 (c) 类试验。

为与联合国协调一致的修订

DGP-WG/UN 协调一致工作组确定需要将钠离子电池芯或电池纳入特殊规定 A224，以与第 2;0.6.2 部分的修订保持一致。

《联合国规章范本》第 2.0 章，2.0.5.2（参见 ST/SG/AC.10/52/Add.1）

A224 无论表3-1第10至13栏中是否注明“禁运”，UN 3548 — 含有杂项危险品的物品，未另作规定的都可以用客机和货机运输，但条件是：

- a) 除符合包装说明967第II节（如适用）、或包装说明970第II节（如适用）或包装说明978第II节（如适用）的锂电池芯或电池和钠离子电池芯和电池外，物品中包含的唯一危险物品是对环境有害的物质；
- b) 物品按照包装说明975进行包装；和
- c) 按照第5部分第4.1.5.8段的要求，在危险物品运输文件上提及特殊规定A224。

本细则的所有其他规定均适用。如果满足上述条件，则特殊规定 A2 的要求不适用。

本细则 UN

为与联合国协调一致的修订

DGP-WG/UN 协调一致工作组确定需要将钠离子电池芯或电池纳入特殊规定 A225，以与第 2;0.6.2 部分的修订保持一致

《联合国规章范本》第 2.0 章，2.0.5.2（参见 ST/SG/AC.10/52/Add.1）

A225 无论表3-1第10至13栏中是否注明“禁运”，UN 3538 — 含有非易燃、非毒性气体的物品，未另作规定的都可以用客机和货机运输，但条件是：

- a) 除符合包装说明967第II节（如适用）、~~或~~包装说明970第II节（如适用）或包装说明978第II节（如适用）的锂电池芯或电池和钠离子电池芯和电池外，物品中包含的唯一危险物品是无次要危险性的2.2项气体，但不包括冷冻液化气体和禁止在客机上运输的气体；
- b) 物品按照包装说明222进行包装；和
- c) 按照第5部分第4.1.5.8段的要求，在危险物品运输文件上提及特殊规定A225。

本细则的所有其他规定均适用。如果满足上述条件，则特殊规定 A2 的要求不适用。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1.4.1c) 段：

A22 (399) 对于符合附录2中所述定义并划为联合国编号0511、0512和0513的电引爆雷管，~~电雷管条目（联合国编号0030、0255和0456）~~可继续使用至2025年6月30日。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章，SP 401（参见 ST/SG/AC.10/52/Add.1）

A228 (401) 含有有机电解质的钠离子电池芯和电池必须酌情按UN 3551或UN 3552运输。含有碱性电解质水溶液的钠离子电池必须作为“UN 2795电池，湿的，装有碱液，蓄电”运输。含有金属钠或钠合金的电池必须作为UN 3292运输。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章, SP 405 (参见 ST/SG/AC.10/52/Add.1)

- A230 (403) 本条目所包括的硝化纤维素 (NC) 薄膜过滤器, NC 含量不超过 53 克/平方米, 每个内包装的 NC 净重不超过 300 克时, 如符合下列条件, 则不受本细则要求的限制:
- a) 每层 NC 膜过滤器之间放置至少 80 克/平方米的纸质隔离物;
 - b) 它们的包装可保持 NC 膜过滤器和纸分离器在以下任何配置中对齐:
 - 1) 根据 ISO 15105-1:2007 标准, 以紧密卷起的形式包装在至少 80 克/平方米的塑料箔或透氧率等于或小于 0.1% 的铝袋中;
 - 2) 根据 ISO 15105-1:2007 标准, 以片材形式包装在至少 250 克/平方米纸板或透氧率等于或小于 0.1% 的铝袋中; 或
 - 3) 圆形过滤器包装在圆盘托架或最小重量为 250 克/平方米的纸板包装中, 或单片包装在纸和塑料制作的袋中, 袋的合计重量规格最小为 100 克/平方米。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 3.3 章, SP 407 (参见 ST/SG/AC.10/52/Add.1)

- A232 (407) 灭火剂散布装置是含有烟火物质的物品, 其目的是在启动时散布灭火剂 (或气溶胶), 并且不含有任何其他危险物品。经包装后交运的这些物品, 按照《试验和标准手册》第 I 部分第 16 节试验系列 6 c) 进行试验时, 必须符合 1.4S 项的标准。这种装置在运输时必须拆除启动装置或配备至少两个独立的防止意外启动的装置。

灭火剂散布装置只有在满足下列附加条件时才能划入第 9 类, UN 3559:

- a) 该装置符合 2;1.5.2.4 b)、c) 和 d) 中的排除标准;
- b) 根据国际或地区标准 (如 NFPA 2010), 灭火剂必须被视为对正常占用的空间是安全的; 和
- c) 物品的包装方式必须使其在启动时包装件外部的温度不超过 200 °C;

本条目只有在制造国主管当局批准的情况下方可使用。

本条目不适用于特殊规定 A115 所述的 UN 3268 “电启动安全装置”。

本细则 UN

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.3.1 b)段:

《联合国规章范本》第 3.3 章 SP 410 (参见 ST/SG/AC.10/52/Add.1)

A235 410 符合2:9.3(h)的含有锂离子电池芯和钠离子电池芯的混合电池, 必须酌情划入联合国编号3480或3481。当这种电池按照包装说明965第IB节、包装说明966第II节或者包装说明967第II节运输时, 瓦时额定值不得超过100 瓦时, 而且必须在外壳上标明。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 3.3 章 SP411 (参见 ST/SG/AC.10/52/Add.1)

A236 411 在本条目下运输的物品包括含有非易燃、无毒气体的磁共振成像(MRI) 扫描仪。这种非易燃、无毒气体必须装在磁共振成像扫描仪组件内。MRI 扫描仪必须在设计和结构上能够充装这种气体, 防止装有气体的部件在正常运输条件下爆裂或破裂。MRI扫描仪如含有不到12公斤的第2.2项气体, 则不受这些规定的约束。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.3.1 c)段:

《联合国规章范本》第 3.3 章 SP 412 (参见 ST/SG/AC.10/52/Add.1)

A237 412 该条目可包含按质量计不超过12%的二甲醚。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1.4.1 h) 段:

《联合国规章范本》第 3.3 章, SP 413 (参见 ST/SG/AC.10/52/Add.1)

A238 413 基于在本条目下分类的含有物理溶解氢的物质的液态有机氢载体, 只有当物理溶解氢的含量不超过0.5 升(氢)/千克(液态有机氢载体)的限值时, 才能在本条目下运输。

本细则 UN

为便利运输或国家监管的修订

DGP/30 报告第 3.5 段:

A239

如果国家法律或国际公约禁止披露该受管制物质的技术名称或化学类别名称，则危险物品运输文件或包装上无需标明其技术名称或化学类别名称（参见3;1.2.7.1）。

第 4 部分

包装说明

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第 2 章

概述

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》第 4 章，4.1.3.4（参见 ST/SG/AC.10/52/Add.1）

2.5 当被运输的物质有可能在运输过程中变为液体时，不得使用以下包装：

单一包装

I 级包装的物质，除非经批准运输 I 级包装的液体：

桶：1A2、1B2、1H2 和 1N2

罐：3A2、3B2 和 3H2

I、II 和 III 级包装的物质：

桶：1D 和 1G

箱：4A、4B、4C1、4C2、4D、4F、4G 和 4H1、4H2 和 4N

袋：5L1、5L2、5L3、5H1、5H2、5H3、5H4、5M1 and 5M2

复合包装：6HC、6HD1、6HD2、6HG1、6HG2、~~6HD4~~、6PC、6PD1、6PD2、6PG1、6PG2 和 6PH1 和 6PH2.

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 4.1 章，4.1.3.6.5（参见 ST/SG/AC.10/52/Add.1）

2.7.6 在 50°C 时，充装水平程度不得超过气瓶容量的 95%。必须留出充足的剩余空间，以确保气瓶在 55°C 时不会充满液体。

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第 3 章

第 1 类 — 爆炸品

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包装说明 130

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 4.1 章，4.1.4.1，P130（参见 ST/SG/AC.10/52/Add.1）

特殊包装要求或例外：

- 下列规定适用于 UN 0006、UN 0009、UN 0010、UN 0015、UN 0016、UN 0018、UN 0019、UN 0034、UN 0035、UN 0038、UN 0039、UN 0048、UN 0056、UN 0137、UN 0138、UN 0168、UN 0169、UN 0171、UN 0181、UN 0182、UN 0183、UN 0186、UN 0221、UN 0238、UN 0243、UN 0244、UN 0245、UN 0246、UN 0254、UN 0280、UN 0281、UN 0286、UN 0287、UN 0297、UN 0299、UN 0300、UN 0301、UN 0303、UN 0321、UN 0328、UN 0329、UN 0344、UN 0345、UN 0346、UN 0347、UN 0362、UN 0363、UN 0370、UN 0412、UN 0424、UN 0425、UN 0434、UN 0435、UN 0436、UN 0437、UN 0438、UN 0451、UN 0459、UN 0488、UN 0502 和 UN 0510。一般用于军事目的的大件坚固的爆炸品，在未装有引爆装置或引爆装置至少含有两个有效保险装置的情况下，可以不加包装予以载运。装有发射药或是自推进时必须使其点火系统在正常运输条件下免受激发。未包装物品在试验系列 4 中试验结果为负的，表明该物品可以裸装运输。此类裸装物品可以固定在托板上，或放在板条箱或其他合适的操作、储存、发射装置内，保证在正常的运输条件下不会松散。如果此类大件爆炸物品根据符合本细则意图的试验体系作为运行安全和适用性试验的一部分，并且顺利通过了这些试验，国家有关当局可以批准此类物品按照本细则进行运输。
- 对于 UN 0457、UN 0458、UN 0459 和 UN 0460，如果松散的爆炸物质、未装盒的或部分装盒的物品中的爆炸性物质可接触到金属包装（1A2, 1B2, 4A, 4B 和金属容器）的内表面，该金属包装必须有内衬或衬套。
- 对于联合国编号 0012 和 0014，尽管有 4:3.3.1.6 的要求，但物品可以在金属外包装中没有内部衬垫、配件、涂层或衬里的情况下加以包装。

第 4 章

第 2 类 — 气体

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4.1 第 2 类危险物品的特殊包装规定

4.1.1 一般要求

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

联合国规章范本, 第 4.1 章, 4.1.6.1.2 (参见 ST/SG/AC.10/52/Add.1)

4.1.1.2 气瓶和密闭式低温容器直接与危险物品接触的部位不得受危险物品影响或被削弱, 并且不得引起危险性反应 (例如对危险物品起催化作用或与危险物品反应)。必须优先满足有关包装说明当中规定的要求, 此外还必须符合 ISO 11114-1:2020 + [Amd 1:2023](#) 和 ISO-11114-2:2021 中的相应规定。

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

《联合国规章范本》, 第 4.1 章, 4.1.6.1.8 (参见 ST/SG/AC.10/52/Add.1)

4.1.1.8 阀门的设计和构造必须使其本身耐损而不会释放内装的气体, 或者必须采取如下方法之一, 防止阀门损坏, 造成气瓶和密闭式低温容器内气体意外释放:

- a) 阀门位于气瓶和密闭式低温容器颈部内, 有螺栓或护帽保护;
- b) 用护帽或防护装置保护阀门。护帽必须有足够横截面积的排气孔, 以便在阀门发生泄漏时排气;
- c) 阀门可用护罩或耐久保护性附加装置保护;
- d) 未用过; 或
- e) 气瓶和密闭式低温容器装入外包装中运输。该外包装必须达到 6.4.3 规定的 I 级包装性能水平跌落试验的要求。

装有 b) 中描述的阀门的气瓶和密闭式低温容器, 必须符合 ISO 11117:1998、ISO 11117:2008 + Cor 1:2009 或 ISO 11117:2019 的要求。对 c) 项下用于保护阀门的护罩和耐久保护性附加装置的要求载于相关压力容器外壳设计标准, 参见 6.5.2.1。用于可再充装气瓶的本身具有保护装置的阀门, 必须符合 ISO 10297:2006 第 4.6.2 款或 ISO 10297:2014 第 5.5.2 款或 ISO 10297:2014 + [Amd 1:2017](#) 第 5.5.2 款 或 [ISO 10297:2024 第 5.4.2 款](#) 的要求, 或者在自闭阀的情况下, 必须符合 ISO 17879:2017 第 5.4.2 款的要求。对于用于不可再充装气瓶的本身具有保护装置的阀门, 必须符合 ISO 11118:2015 第 9.2.5 款或 ISO 11118:2015 + [Amd 1:2019](#) 第 9.2.5 款的要求。

包装说明 200

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必须符合下列要求：

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

《联合国规章范本》，第 4.1 章，4.1.4.1（参见 ST/SG/AC.10/52/Add.1）

- 5) 气瓶必须由合格人员使用适当的设备和程序来充装。程序应包括检查：
- a) 气瓶和配件是否符合本细则；
 - b) 气瓶是否与所运产品相匹配；
 - c) 不存在可能影响安全的损坏；
 - d) 酌情检查是否满足充装度^比或充装压力要求；和
 - e) 标记和识别标志。

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包装说明 220

仅限于 UN 3529 的货机运输

（参见包装说明378 — 以易燃液体为燃料的发动机或机器，包装说明950 — 以易燃液体为燃料的车辆，
包装说明951 — 以易燃气体为燃料的车辆，包装说明952 — 以电池为动力的设备和车辆，
或包装说明972 — 仅包含对环境有害燃料的发动机或机器）

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补充包装要求

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为管理储能装置规定带来的安全风险^的修订

DGP/30 报告第 4.1 段：

电池

所有电池都必须牢固地安装和固定在机器或设备的电池盒中，并采取保护措施防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且机器或设备有可能被置于一种使电池无法保持其原有朝向的状态时，则必须将电池拆下，并按照包装说明 870 进行包装。
- 2) 如果安装的是锂电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池；和

ii) 锂电池必须满足 2.9.3 的规定，但是出于试验目的予以运输的生产之前的锂电池芯或电池芯原型或低年产量不超过 100 个的锂电池芯或电池的锂电池或电池芯，没有按《联合国试验和标准手册》第 III 部分 38.3 节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准，可以在货机上运输。托运货物必须随附一份批准文件。

3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定 A94 的要求。

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为与联合国协调一致的修订

为管理航空特定风险和处理异常情况的修订

危险物品专家组与联合国协调统一工作组查明有必要将钠离子电池芯和电池纳入本包装说明，以便与第 2 部分 2.0.6.2 保持一致，并在包装说明 222 中增加关于禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的电池芯或电池的规定：

包装说明 222

仅限于 UN 3538 的客机和货机运输

引言

本包装说明只允许用于没有现有适当运输专用名称且仅含 2.2 项无次要危险性的气体（不包括冷冻液化气体和禁止在客机上运输的气体）的物品，如果该 2.2 项气体超出包装说明 962 中规定的 UN 3363 数量限制的话。除 2.2 项气体外，该物品还可以包含符合包装说明 967 第 II 节（如适用）、或包装说明 970 第 II 节（如适用）或包装说明 978 第 II 节（如适用）的锂金属、锂离子或钠离子电池芯或电池。禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的电池芯或电池。

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第 5 章

第 3 类 — 易燃液体

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包装说明 378

仅限于 UN 3528 的客机和货机运输

(参见包装说明220 — 以易燃气体为燃料的发动机或机器, 包装说明950 — 以易燃液体为燃料的车辆, 包装说明 951 — 以易燃气体为燃料的车辆, 包装说明952 — 以电池为动力的设备和车辆, 或包装说明972 — 仅包含对环境有害燃料的发动机或机器)

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补充包装要求

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为管理储能装置规定带来的安全风险 的修订

DGP/30 报告第 4.1 段:

电池

所有电池都必须牢固地安装和固定在机器或设备的电池盒中, 并采取保护措施防止损坏和短路。此外:

- 1) 如果安装的是非防漏型电池, 并且机器或设备有可能被置于一种使电池无法保持其原有朝向的状态时, 则必须将电池拆下, 并按照包装说明 870 进行包装。
- 2) 如果安装的是锂电池:
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池; 和
 - ii) 锂电池必须满足 2.9.3 的规定, 但是出于试验目的予以运输的生产之前的锂电池芯或电池芯原型或低年产量不超过 100 个的锂电池芯或电池的锂电池或电池芯, 没有按《联合国试验和标准手册》的第 III 部分 38.3 节的要求进行过测试的, 如果经始发国和运营人所属国有关当局的批准, 可以在货机上运输。托运货物必须随附一份批准文件。
- 3) 如果安装的是钠金属或钠合金电池, 它们必须符合特殊规定 A94 的要求。

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第 6 章

第 4 类 — 易燃固体；易于自燃的物质；
遇水放出易燃气体的物质

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包装说明 459

客机和货机运输 — 自反应物质和聚合物物质

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 4.1 章，4.1.7.1.1（参见 ST/SG/AC.10/52/Add.1）

组合包装的补充包装要求

- 衬垫材料必须不是易燃物。
- 包装必须符合 II 级包装的性能要求。
- 为避免液体受到不必要的封闭，不得使用符合 I 级包装的内压(液压)试验标准的金属包装。

注：发货人应向包装制造商提出询问，以核实金属包装不符合 I 级包装的内压(液压)试验标准。

UN 3223 或 UN 3224

按照第 2 部分引言章第 5.4 段分类的含能样品可酌情在 UN 3223 或 UN 3224 之下予以运输，条件是：

1. 每个内腔装载量，固体不超过 0.01 克，液体不超过 0.01 毫升；每个外包装的最大净量，固体不超过 20 克，液体不超过 20 毫升，在混合包装的情况下，克数和毫升数之和不超过 20；
 - a) 样品载于塑料、玻璃、瓷器或石器制的作为内包装的微孔板或多效价板中；
 - b) 仅允许使用有外包装，包括盒子（4A、4B、4N、4C1、4C2、4D、4F、4G、4H1、4H2）的组合包装；或

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 4.1 章，4.1.4.1，P520（参见 ST/SG/AC.10/52/Add.1）

2. 每个内包装的最大内装物，固体不超过 1 克，液体不超过 1 毫升；每个外包装的最大净量，固体不超过 56 克，液体不超过 56 毫升，在混合包装的情况下，克数和毫升数之和不超过 56：
- a) 每种物质装在最大容量为 30 毫升的玻璃或塑料内包装中，放置在至少 130 毫米厚、密度为 18 ± 1 克/升或 24 ± 2.4 克/升的可膨胀聚乙烯泡沫基质中；
 - b) 泡沫载体内的内包装相互隔开，最小间隔 40 毫米，与外包装壁的最小间距 70 毫米。包装件最多可含两层此种泡沫基质，每层最多装 28 个内包装；
 - c) 外包装只包括瓦楞纸箱（4G），最小尺寸为 60 厘米（长）x 40.5 厘米（宽）x 30 厘米（高），最小壁厚 1.3 厘米；

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包装说明 497

仅限于 UN 3476（与设备包装在一起）的客机和货机运输

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.2.2.8 段：

补充包装要求

- 当燃料电池盒与设备包装在一起时，必须与其能够供电的设备一起包装在中层包装当中。
- 中层包装内的燃料电池盒数目不得超过为设备供电运行所需的燃料电池盒最小数量加上两个备用燃料电池盒。外加两套备用电池盒。— “套”燃料电池盒为驱动每件设备所需的单个燃料电池盒的数量。
- 燃料电池盒和设备必须用衬垫材料或隔板或内包装予以包装，使燃料电池盒得到保护，不会因包装内设备和电池盒的移动或放置而受到损坏。
- 每个燃料电池盒的质量不得超过 1 kg。

组合包装的外包装（见 6:3.1）

箱

桶
坚固的外包装

方桶

第 7 章

第 5 类 — 氧化性物质；有机过氧化物

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包装说明 570

客机和货机运输

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

联合国规章范本, 第 4.1 章, 4.1.7.1.1 (参见 ST/SG/AC.10/52/Add.1)

组合包装的补充包装要求

- 包装必须符合 II 级包装的性能要求。
- 为避免液体受到不必要的封闭, 不得使用符合 I 级包装的内压(液压)试验标准的金属包装。

注: 发货人应向包装制造商提出询问, 以核实金属包装不符合 I 级包装的内压(液压)试验标准。

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第 8 章

第 6 类 — 毒性和感染性物质

8.1 包装说明

包装说明 603

仅限于 UN 3507 的客机和货机运输

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为与联合国协调一致的修订

DGP/30 报告第 1.2.1.8 段:

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组合包装的补充包装要求

- 物质必须装入金属或塑料主容器内，该容器必须装在带有硬质外包装的硬质防漏辅助包装中。
- 主要内层包装装在辅助包装中的方式必须使之在正常运输条件下不会破损、穿孔或将内装物泄漏在辅助包装中。必须使用适当的衬垫材料将辅助包装固定在外包装中以免移动。如果将多个主容器都放入一个单一辅助包装内，则必须将这些主容器单独包好或分隔开来，以防止其相互碰触。
- 内装物必须符合 2;7.2.4.5.2 的规定。
- 6;7.3 的规定必须得到满足。
- 如果是例外易裂变材料，[在必须符合 2;7.2.3.5 和 6;7.10.2 中规定的子其限值。](#)

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第 11 章

第 9 类 — 杂项危险物品

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包装说明 950

仅限于 UN 3166 的客机和货机运输

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补充包装要求

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为与联合国协调一致的修订

为管理储能装置规定带来的安全风险

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 4.1 段：

联合国规章范本，第 3.3 章，SP 388（参见 ST/SG/AC.10/52/Add.1）

也见对特殊规定 A214 的拟议修订

电池

所有电池都必须牢固地安装和固定在车辆的电池盒中，并采取保护措施防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且车辆有可能被置于一种使电池无法保持其原有朝向的状态时，则必须将电池拆下，并按照包装说明870进行包装。
- 2) 如果安装的是锂电池或钠离子电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池；和
 - ii) 锂电池必须满足2;9.3部分的规定，钠离子电池必须满足2;9.4部分的规定，但是出于试验目的予以运输的生产之前的锂电池或电池芯或电池或钠离子电池或电池芯或电池原型或低年产量不超过100个的锂电池或电池芯或电池或钠离子电池或电池芯或电池，没有按《联合国试验和标准手册》的第三部分38.3节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准，可以在货机上运输。托运货物必须随附一份批准文件。
- 3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定A94的要求。

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包装说明 951

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补充包装要求

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为与联合国协调一致的修订

为管理储能装置规定带来的安全风险

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 4.1 段：

《联合国规章范本》，第 3.3 章，SP 388（参见 ST/SG/AC.10/52/Add.1）：

也见对特殊规定 A214 的拟议修订

电池

所有电池都必须牢固地安装和固定在车辆的电池盒中，并采取保护措施防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且车辆有可能被置于一种使电池无法保持其原有朝向的状态时，则必须将电池拆下，并按照包装说明870进行包装。
- 2) 如果安装的是锂电池或钠离子电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池；和
 - ii) 锂电池必须满足2;9.3部分的规定，钠离子电池必须满足2;9.4部分的规定，但是出于试验目的予以运输的生产之前的锂电池或电池芯或电池或钠离子电池或电池芯或电池原型或低年产量不超过100个的锂电池或电池芯或电池或钠离子电池或电池芯或电池，没有按《联合国试验和标准手册》的第III部分38.3节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准，可以在货机上运输。托运货物必须随附一份批准文件。
- 3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定A94的要求。

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包装说明 952

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补充包装要求

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为与联合国协调一致的修订

为管理储能装置规定带来的安全风险修订

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 4.1 段：

联合国规章范本，第 3.3 章，SP 388（参见 ST/SG/AC.10/52/Add.1）：

也见对特殊规定 A214 的拟议修订

电池

所有电池都必须牢固地安装和固定在车辆或设备的电池盒中，并采取保护措施防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且车辆或设备有可能被置于一种使电池无法保持其原有朝向的状态时，则必须将电池拆下，并按照包装说明870进行包装。
- 2) 如果安装的是锂电池或钠离子电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的电池；
 - ii) 锂电池必须满足2;9.3部分的规定，钠离子电池必须满足2;9.4部分的规定，但是出于试验目的予以运输的生产之前的锂电池或电池芯或钠离子电池或电池芯，没有按《联合国试验和标准手册》的第III部分38.3节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准，可以在货机上运输。托运货物必须随附一份批准文件。
 - iii) 若电池从车辆中拆下，并与同一外包装中的车辆分开包装，该包装件必须酌情按照包装说明966、969或977进行包装，作为UN 3481 — 与设备包装在一起的锂离子电池、UN 3552 — 与设备包装在一起的钠离子电池或UN 3091 — 与设备包装在一起的锂金属电池交运；和
 - iv) 对于UN 3556 — 以锂离子电池为动力的车辆、UN 3557 — 以锂金属电池为动力的车辆，当电池可充电时，和UN 3558 — 以钠离子电池为动力的车辆：
 - 1) 至 2025 年 12 月 31 日
车辆交运时应配备：
 - 荷电状态不超过其额定容量 30%的电池；或
 - 指示的电池容量不超过 25%。
 - 2) 自 2026 年 1 月 1 日起

- a) 由瓦时额定值超过 100 瓦时的电池为动力的车辆交运时必须配备：
- 荷电状态不超过其额定容量 30% 的电池；或
 - 指示的电池容量不超过 25%。
- b) 由瓦时额定值不超过 100 瓦时的电池为动力的车辆交运时应配备：
- 荷电状态不超过其额定容量 30% 的电池；或
 - 指示的电池容量不超过 25%。
- c) 由瓦时额定值超过 100 瓦时且荷电状态超过其额定容量的 30% 或由指示的电池容量超过 25% 的电池为动力的车辆，仅可在始发国和运营人所属国国家主管当局的批准下根据这些国家当局规定的书面条件交运。

注：关于确定额定容量的相关指南和方法，见联合国《试验和标准手册》第 38.3.2.3 小节。在荷电状态降低情况下运输的电池芯和电池不太容易发生热失控。

- 3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定 A94 的要求。

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包装说明 955

仅限于 UN 2990 和 UN 3072 的客机和货机运输

为与联合国协调一致的修订

《联合国规章范本》，第 3.3 章，SP 296（参见 ST/SG/AC.10/52/Add.1）

“救生设备”这一术语适用于救生筏、救生衣、~~个人漂浮装置、自动膨胀防护设备、~~航空器救生包或航空器救生滑梯等物品。

（救生设备，自动膨胀式）（UN 2990）条目应用于自动充气装置偶然启动时可带来危险的救生器材。

一般要求

必须符合第 4 部分第 1 章的要求，其中包括：

- 1) 相容性要求
 - 物质必须按照 4;1.1.3 的要求与其包装相容。
- 2) 封闭要求
 - 封闭必须符合 4;1.1.4 的要求。

联合国编号和运输专用名称		客机数量	货机数量
UN 2990	Life-saving appliances, self-inflating 救生设备，自动膨胀式		
UN 3072	Life-saving appliances, not self-inflating containing dangerous goods as equipment 非自动膨胀式救生设备，含有属于危险物品的设备	无限制	无限制

补充包装要求

救生器材只可以含有如下危险物品：

- a) 2.2 项气体必须装入符合批准和充装气瓶的国家有关当局的要求的气瓶中。此类气瓶可以与救生器材相连。可包括每单元总量不超过 3.2 克爆燃（推进）炸药的启动药筒（药筒，属于 1.4C 和 1.4S 项动力装置）或第 9 类安全装置（UN 3268）。当气瓶分开运输时，必须酌情按照所含 2.2 项气体进行分类，不需要按爆炸物标记、标签或描述；
- b) 信号装置（第 1 类），可能包括烟雾信号弹和照明信号弹；信号装置必须装入塑料或纤维板内包装；
- c) 少量的易燃物质、腐蚀性固体和有机过氧化物（第 3 类、第 8 类、4.1 项和 5.2 项），可能包括修理工具箱和不超过 30 根的摩擦型火柴。有机过氧化物只可放在修理工具箱内，工具箱必须装入坚固的内包装。摩擦型火柴必须装入带有旋盖的圆柱形金属或复合包装内，并要加以衬垫防止移动；
- d) 必须断开或者电气隔离并采取短路防护措施的蓄电池（第 8 类）；

建议的编辑修订（否则该条款语义不通）：

- ≠
- e) 锂电池和或钠离子电池，前提是这些电池满足以下条件：
 - 1) 如果为按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池，则禁止运输；
 - 2) 必须酌情满足 2;9.3 或 2;9.4 中的适用要求；
 - 3) 必须断开或者电气隔离并采取短路防护措施；和
 - 4) 必须固定好，防止在救生装置内移动。
 - f) 可能含有易燃、腐蚀性和毒性物品或物质的急救箱。

救生器材必须装在坚固的外包装内以防意外启动，除了救生筏，危险物品必须置于内包装中，以防移动。所含危险物品必须是救生器材不可少的功能构成部分，并且其数量不得超过实际用量。

救生器材也可包括属于器材的组成部分的不受本细则限制的物品和物质。

包装说明 962

仅限于 UN 3363 的客机和货机运输

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段和 DGP/30 报告第 1.2.1.4.1 a)段:

《联合国规章范本》，第 3.3 章，SP 301（参见 ST/SG/AC.10/52/Add.1）：

也见对特殊规定 A107 的拟议修订

一般要求

必须满足第 4 部分第 1 章的要求（但 4;1.1.2、1.1.9、1.1.13 和 1.1.16 的要求不适用），包括：

1) 相容性要求

— 根据 4;1.1.3 的要求，物质必须与其包装相容。

2) 密封要求

— 密封必须符合 4;1.1.4 的要求。

本条目仅适用于含有危险品残留物或作为危险品组成部分的物品，例如机械、设备或装置。对于表 3-1 中已有正式运输名称的物品，不得使用本条。除燃料系统组件外，物品仅可包含以下一种或多种物质：根据 3;4.1.2 或 UN 2807 允许运输的危险品，或 2.2 类无次要危险的气体（但不包括冷冻液化气体）。物品还可包含符合包装说明 967 第 II 部分（如适用）、包装说明 970 第 II 部分（如适用）或包装说明 978 第 II 部分（如适用）的锂金属、锂离子或钠离子电池芯或电池。根据特殊规定 A154，被查明为已损坏或有缺陷的电池芯或电池禁止运输。

联合国编号和运输专用名称	状态	单件包装内危险品净总量（不含磁性材料）
UN 3363 设备中的危险品、或机械中的危险品或物品中的危险品	液体	0.5 升
	固体	1 千克
	气体 (仅 2.2 类)	0.5 千克

补充包装要求

- 如果物品装含有不止一项危险物品，并且这些危险物品在运输中可能相互之间发生危险反应，则必须对单个每一项危险物品进行单独封闭，以防止它们在运输过程中相互之间发生危险反应（见 4:1.1.3）。
- 对含危险物品的容器，必须加以固定或衬垫，以防止在正常运输条件下容器的破裂、泄漏以及在物品内移动。衬垫材料不得与容器的内装物发生危险的反应。任何内装物泄漏不得明显地降低衬垫材料的保护性能。
- 为保证液态危险物品保持预期朝向，“Package orientation”（包装件方向）标签（图 5-29）或符合同样规格（如图 5-29 或 ISO 780-1997 标准）印制的朝向标签必须粘贴在包装件的至少两个相对垂直侧面上，箭头只可以指向正确方向。
- 不考虑 5:3.2.10 的要求，含有符合包装说明 953 要求的磁性材料的物品还必须粘贴“Magnetized material”（磁性材料）标签（图 5-27）。
- 对于 2.2 项气体，气瓶、内装气体、填充率必须符合包装说明 200 的要求。
- 除非物品的结构能充分地保护含危险物品的容器，否则器械或机器中的危险物品必须装入坚固的外包装。

燃油系统部件

- 燃油系统部件必须尽可能将燃油放空，所有开口必须可靠地密封，并按如下要求进行包装：
 - 1) 使用足够的吸附材料以吸附容器放空后残留的最大量液体。如果外包装不是防漏的，须配备在发生泄漏时能够留住液体的装置，如不漏的衬里、塑料袋或其他等效的密封装置；和
 - 2) 装在坚固的外包装内。

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包装说明 964

仅限于 UN 1941, UN 1990, UN 2315, UN 3151, UN 3082 和 UN 3334 的客机和货机运输

一般要求

必须符合第 4 部分第 1 章的要求（但包装在组合包装中的 UN 3082 不适用 4;1.1.6 的要求）。这些要求包括：

1) 相容性要求

— 物质必须按照 4;1.1.3 的要求与其包装相容。

2) 封闭要求

— 封闭必须符合 4;1.1.4 的要求。

组合包装					单一包装	
联合国编号和运输专用名称	内包装 (见 6;3.2)	(每个容器) 内包装数量	每个包装件 总量 — 客机	每个包装件 总量 — 货机	客机	货机
UN 1941 Dibromodifluoromethane 丙酸丁酯	玻璃	10.0 L	100 L	220 L	100 L	220 L
	塑料	30.0 L				
	金属	40.0 L				
UN 1990 Benzaldehyde 苯甲醛	玻璃	10.0 L	100 L	220 L	100 L	220 L
	塑料	30.0 L				
	金属	40.0 L				
UN 2315 Polychlorinated biphenyls, liquid 液态多氯联苯类	玻璃	10.0 L	100 L	220 L	100 L	220 L
	塑料	30.0 L				
	金属	40.0 L				
UN 3082 Environmentally hazardous substance, liquid, n.o.s. 危害环境的液态物质,未另作规定的	玻璃	10.0 L	450 L	450 L	450 L	450 L
	塑料	30.0 L				
	金属	40.0 L				
UN 3151 Polyhalogenated biphenyls, liquid or Polyhalogenated terphenyls, liquid or Halogenated monomethyldiphenylmethanes, liquid 液态多卤联苯类或液态多卤代三联苯类或液态卤化单甲基二苯甲基烷	玻璃	10.0 L	100 L	220 L	100 L	220 L
	塑料	30.0 L				
	金属	40.0 L				
UN 3334 Aviation regulated liquid, n.o.s. 空运受管制液体,未另作规定的	玻璃	10.0 L	450 L	450 L	450 L	450 L
	塑料	30.0 L				
	金属	40.0 L				

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段和 DGP/30 报告第 12.3.1.1 d)段:

《联合国规章范本》第 4.1 章 4.1.4.1, P001, PP99 (参见 ST/SG/AC.10/52/Add.1) 和 DGP/30 报告第 1.2.1.3.1 d)段:

补充包装要求

对于划入 UN 3082, 高毒性成分物质含量低于 1%, M 系数为 10、100 或 1000 (如《联合国规章范本》2.9.3.4.6.4 所述) 的混合物, 充装量每件包装超过 5 升但不超过 20 升的带活动盖的塑料桶, 在 2034 年 12 月 31 日之前的过渡期内不受第 6;4 中性能测试的约束, 条件是这些包装已成功地通过了在 6;4.6 中对拟装液体的塑料桶进行的堆垛试验, 而且符合 4;1 (4;1.1.2 除外) 和 4;2 的一般规定。

组合包装的外包装 (见 6;3.1)

箱	桶	方桶
铝 (4B)	铝 (1B1, 1B2)	铝 (3B1, 3B2)
纤维板 (4G)	纤维 (1G)	塑料 (3H1, 3H2)
天然木 (4C1, 4C2)	其他金属 (1N1, 1N2)	钢 (3A1, 3A2)
其他金属 (4N)	塑料 (1H1, 1H2)	
塑料 (4H1, 4H2)	钢 (1A1, 1A2)	
胶合板 (4D)		
再生木 (4F)		
钢 (4A)		

单一包装

复合包装	气瓶	桶	方桶
全部 (见 6; 3.1.18)	见 4; 2.7	铝 (1B1, 1B2) 其他金属 (1N1, 1N2) 塑料 (1H1, 1H2) 钢 (1A1, 1A2)	铝 (3B1, 3B2) 塑料 (3H1, 3H2) 钢 (3A1, 3A2)

包装说明 965

仅限货机运输 UN 3480

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为管理储能装置规定造成的安全风险

DGP-WG/25 报告第 4.4.3 段:

IA 第 IA 节

每个电池芯或电池必须满足 2.9.3 的规定。

IA.1 一般要求

- 必须符合 4.1 的要求。
- 电池芯和电池必须在荷电状态不超过其额定容量 30% 的情况下交运。电池芯和/或电池在荷电状态大于其额定容量 30% 的情况下，仅可在始发国和运营人所属国的批准下根据这些当局规定的书面条件来交付运输。

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IB. 第 IB 节

根据本节包装的电池芯或电池须受本细则所有有关规定的限制（包括本包装说明第 2 段和本节要求在內），但第 6 部分的规定除外。

必须根据第 IB 节的规定，在 5.4 部分的危险物品运输文件上说明所托运的电池芯或电池。必须在 5.4.1 和 5.8.1a) 部分所规定的包装说明号码“965”之后加上“IB”字样。5.4 部分所有其他适用的规定均应适用。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段:

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

可以交运电池芯和电池，条件是每个电池芯和电池都满足 2.9.3 a)、e) 和 g) 和 h)（如适用）的规定以及以下条件：

- 1) 电池芯的瓦时额定值（见附录 2 的术语汇编）不超过 20Wh；
- 2) 电池的瓦时额定值不超过 100 Wh；
 - 必须在电池盒外壳上标明瓦时额定值，但在 2009 年 1 月 1 日之前制造的电池除外。

为管理储能装置规定造成的安全风险

DGP-WG/25 报告第 4.4.3 段:

IB.1 一般要求

- 电池芯和电池必须装在符合 4.1.1.1, 1.1.3.1 和 1.1.10（但 1.1.10.1 除外）规定的坚固外包装当中。
- 电池芯和电池必须在荷电状态不超过其额定容量 30% 的情况下交运。电池芯和/或电池在荷电状态大于其额定容量 30% 的情况下，仅可在始发国和运营人所属国的批准下根据这些当局规定的书面条件来交付运输。

注：确定额定容量的相关指南和方法，见《联合国试验和标准手册》的38.3.2.3小节。荷电状态降低的情况下运输的电池芯和电池不太容易发生热失控。

表 965-IB

内装物	每个包装件净数量	
	客机	货机
锂离子电池芯和电池	禁运	10 kg

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包装说明 966

仅限于 UN 3481（与设备包装在一起）的客机和货机运输

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II. 第 II 节

为便于管理航空特有风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.5 段：

与设备一起包装的电池芯和电池，如满足本包装说明第 II 节中要求，则仅需遵守本细则中的如下补充规定：

- 第 1 部分 2.3（概论 — 危险物品的邮寄运输）；
- 第 5 部分 2.4.16（托运人的责任 — 锂电池或钠离子电池的特殊标记要求）；
- 第 7 部分 4.4（运营人的责任 — 危险物品事故和事故征候的报告）；
- 第 7 部分 4.5（运营人的责任 — 报告未申报的和错误申报的危险物品）；
- 第 8 部分 1.1（有关旅客和机组成员的规定 — 旅客或和机组成员携带的危险物品）；和
- 本包装说明第 1 段和第 2 段。

为管理储能装置规定造成的安全风险

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

可以交运电池芯和电池，条件是每个电池芯和电池都满足 2;9.3 a)、e)和 g)和 h)（如适用）的规定以及以下条件：

- 1) 电池芯的瓦时额定值（见附录 2 的术语汇编）不超过 20Wh；
- 2) 电池的瓦时额定值不超过 100Wh；
 - 必须在电池盒外壳上标明瓦时额定值，但在 2009 年 1 月 1 日之前制造的电池除外。

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包装说明 967

仅限于 UN 3481（装在设备中）的客机和货机运输

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II. 第 II 节

为便于管理航空特有风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.5 段：

装在设备中的电池芯和电池，如满足本包装说明第 II 节中要求，则仅需遵守本细则中的如下补充规定：

- 第 1 部分 2.3（概论 — 危险物品的邮寄运输）；
- 第 5 部分 2.4.16（托运人的责任 — 锂电池或钠离子电池的特殊标记要求）；
- 第 7 部分 4.4（运营人的责任 — 危险物品事故和事故征候的报告）；
- 第 7 部分 4.5（运营人的责任 — 报告未申报的和错误申报的危险物品）；
- 第 8 部分 1.1（有关旅客和机组成员的规定 — 旅客或和机组成员携带的危险物品）；和
- 本包装说明第 1 段和第 2 段。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

可以交运电池芯和电池，条件是每个电池芯和电池都满足 2;9.3 a)、e)和、g)和 h)（如适用）的规定以及以下条件：

- 1) 电池芯的瓦时额定值（见附录 2 的术语汇编）不超过 20 Wh；
- 2) 电池的瓦时额定值不超过 100 Wh；
 - 必须在电池盒外壳上标明瓦时额定值，但在 2009 年 1 月 1 日之前制造的电池除外。

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II.2 补充要求

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为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1.5.1 a) 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

- 每个包装件都必须贴有电池标记（图 5-3）。包装件的大小必须使得有足够空间在某一侧粘贴标记，且标记不会出现折叠。
 - 下列情况下，此项要求不适用：
 - 包装件仅含有装在设备（包括线路板）中的纽扣式电池；和
 - 在托运货物中的包装件数不超过两件的情况下，包装件所盛装的装在设备中的电池芯或电池分别不超过四个和两个。

注：如果设备除电池芯或电池外还包含一个或多个纽扣式电池芯，则纽扣式电池芯不计入包装件或托运货物限制。

- 如果托运货物中含有电池标记（图 5-3）的包装，则在使用航空货运单时，货运单上必须写明“锂离子电池，符合 PI 967 第 II 节”的字样。如果一个航空货运单上包含可满足多个包装说明第 II 节要求的电池的包装件，不同电池类型和/或包装说明的合规声明可以合并为一个单一声明，前提是该声明注明适用的电池类型和包装说明编号。
- 为电池芯或电池进行运输准备或将其交付运输的任何人员，必须接受与负责的职能相符的关于这些要求的适当指示。

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包装说明 968

仅限货机 UN 3090

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IB. 第 IB 节

根据本节包装的电池芯或电池须受本细则所有有关规定的限制（包括本包装说明第 2 段和本节要求在内），但以下第 6 部分的规定除外：

必须根据第 IB 节的规定，在 5;4 部分的危险物品运输文件上说明所托运的电池芯或电池。必须在 5.4.1 和 5.8.1a) 部分所规定的包装说明号码“968”之后加上“IB”字样。5;4 部分所有其他适用的规定均应适用。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

可以空运电池芯和电池，条件是每个电池芯和电池都满足 2;9.3 a)、e)、f)（如适用）和 g) 和 h)（如适用）的规定以及以下条件：

- 1) 对于电池芯，锂含量不超过 1 克；
- 2) 对于电池，合计锂含量不超过 2 克。

IB.1 一般要求

电池芯和电池必须装在符合 4;1.1.1, 1.1.3.1 和 1.1.10（但 1.1.10.1 除外）规定的坚固外包装当中。

表 968-IB

内装物	每个包装件净数量	
	客机	货机
锂金属电池芯和电池	禁运	2.5 kg

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包装说明 969

仅限于 UN 3091（与设备包装在一起）的客机和货机运输

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II. 第 II 节

为管理航空特有风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.5 段：

与设备包装在一起的电池芯和电池，如满足本包装说明第 II 节中要求，则仅需遵守本细则中的如下补充规定：

- 第 1 部分 2.3（概论 — 危险物品的邮寄运输）；
- 第 5 部分 2.4.16（托运人的责任 — 锂电池或钠离子电池的特殊标记要求）；
- 第 7 部分 4.4（运营人的责任 — 危险物品事故和事故征候的报告）；
- 第 7 部分 4.5（运营人的责任 — 报告未申报的和错误申报的危险物品）；
- 第 8 部分 1.1（有关旅客和机组成员的规定 — 旅客或和机组成员携带的危险物品）；和
- 本包装说明第 1 段和第 2 段。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

可以交运锂金属电池芯和电池，条件是每个电池芯和电池都满足 2.9.3 a)、e)、f)（如果适用）和、g)和 h)（如适用） 的规定以及以下条件：

- 1) 对于电池芯，锂含量不超过 1 克；
- 2) 对于电池，合计锂含量不超过 2 克。

包装说明 970

仅限于 UN 3091（装在设备中）的客机和货机运输

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II. 第 II 节**为管理航空特有风险和处理异常情况的修订****DGP-WG/25 报告第 4.2.2.5 段:**

装在设备中的电池芯和电池，如满足本包装说明第 II 节中要求，则仅需遵守本细则中的如下补充规定：

- 第 1 部分 2.3（概论 — 危险物品的邮寄运输）；
- 第 5 部分 2.4.16（托运人的责任 — 锂电池或钠离子电池的特殊标记要求）；
- 第 7 部分 4.4（运营人的责任 — 危险物品事故和事故征候的报告）；
- 第 7 部分 4.5（运营人的责任 — 报告未申报的和错误申报的危险物品）；
- 第 8 部分 1.1（有关旅客和机组成员的规定 — 旅客或和机组成员携带的危险物品）；和
- 本包装说明第 1 段和第 2 段。

为与联合国协调一致的修订**DGP-WG/25 报告第 4.1.2.1 段:****联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）**

可以交运电池芯和电池，条件是每个电池芯和电池都满足 2;9.3 a)、e)、f)（如果适用）和、g)和 h)（如适用）的规定以及以下条件：

- 1) 对于电池芯，锂含量不超过 1 克；
- 2) 对于电池，合计锂含量不超过 2 克。

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II.2 补充要求

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- 每个包装件都必须贴有电池标记（图 5-3）。包装件的大小必须使得有足够空间在某一侧粘贴标记，且标记不会出现折叠。
 - 下列情况下，此项要求不适用：
 - 包装件仅含有装在设备（包括线路板）中的纽扣式电池；和
 - 在托运货物中的包装件数不超过两件的情况下，包装件所盛装的装在设备中的电池芯或电池分别不超过四个和两个。

为与联合国协调一致的修订**DGP-WG/25 报告第 4.1.2.1.5.1 a) 段:****联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）**

注：如果设备除电池芯或电池外还包含一个或多个纽扣式电池芯，则纽扣式电池芯不计入包装件或托运货物限制。

- 如果托运货物包括带有电池标记（图 5-3）的包装件，使用航空货运单时，则必须在航空货运单上写上“**lithium metal batteries, in compliance with Section II of PI970**”（锂金属电池，符合 PI 970 第 II 节）的字样。如果一个航空货运单上包含可满足多个包装说明第 II 节要求的电池的包装件，不同电池类型和/或包装说明的合规声明可以合并为一个单一声明，前提是该声明注明适用的电池类型和包装说明编号。
- 为电池芯或电池进行运输准备或将其交付运输的任何人员，必须接受与负责的职能相符的关于这些要求的适当指示。

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包装说明 972

仅限于 UN 3530 的客机或货机运输

（参见包装说明 220 — 以易燃气体为燃料的发动机和机器，包装说明 378 — 以易燃液体为燃料的发动机和机器，包装说明 950 — 以易燃液体为燃料的车辆，包装说明 951 — 以易燃气体为燃料的车辆，或包装说明 952 — 以电池为动力的设备和车辆）

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补充包装要求

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为管理储能装置规定带来的安全风险修订

DGP/30 报告第 4.1 段：

电池

所有电池都必须安装并牢固地固定在机器或设备的电池盒中，并采取保护措施以防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且机器或设备的装卸方式有可能使得电池不会保持其预期朝向，则必须将电池拆下，并按包装说明 870 进行包装。
- 2) 如果安装的是锂电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的锂电池；和
 - ii) 这些电池必须满足第 2 部分 9.3 中规定，但是出于试验目的予以运输的生产之前的锂电池芯或电池芯原型或低年度产量不超过 100 个的锂电池芯或电池的锂电池或电池芯，没有按《联合国试验和标准手册》的 III 部分 38.3 节的要求进行过测试的，如果经始发国和运营人所属国有关局的批准，可以在货机上运输。托运货物必须随附一份批准文件。
- 3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定 A94 中要求。

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为与联合国协调一致的修订**为管理航空特有风险和处理异常情况的修订**

危险物品专家组与联合国协调统一工作组查明有必要将钠离子电池芯和电池纳入本包装说明，以便与第 2 部分 2;0.6.2 保持一致，并增加关于禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的电池芯或电池的规定：

包装说明 975

仅限于 UN 3548 的客机和货机运输

引言

本包装说明只允许用于没有现有适当运输专用名称且仅含 2.2 项无次要危险性的气体（不包括冷冻液化气体和禁止在客机上运输的气体）的物品，如果该 2.2 项气体超出包装说明 962 中规定的 UN 3363 数量限制的话。除 2.2 项气体外，该物品还可以包含符合包装说明 967 第 II 节（如适用）、或包装说明 970 第 II 节（如适用）或包装说明 978 第 II 节（如适用）的锂金属、锂离子或钠离子电池芯或电池。禁止运输按照特殊规定 A 154 查明为已经受损或具有缺陷的电池芯或电池。

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包装说明 978

仅限于 UN 3552（装在设备中）的客机和仅限货机运输

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II. 第 II 节

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II.2 补充要求

- 设备必须在外包装内得到固定以免移动，并配备防止发生意外启动的有效装置。
- 必须保护电池芯和电池防止短路。
- 当多件设备装在同一个外包装中时，每件设备必须包装好，以防止与其他设备接触。
- 每个包装件都必须贴有电池标记（图 5-3）。包装件的大小必须使得有足够空间在某一侧粘贴标记，且标记不会出现折叠。
 - 下列情况下，此项要求不适用：
 - 包装件仅含有装在设备（包括线路板）中的纽扣式电池；和
 - 在托运货物中的包装件数不超过两件的情况下，包装件所盛装的装在设备中的电池芯或电池分别不超过四个和两个。

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1.5.1 a) 段：

联合国规章范本，第 3.3 章，SP 188（参见 ST/SG/AC.10/52/Add.1）

注：如果设备除电池芯或电池外还包含一个或多个纽扣式电池芯，则纽扣式电池芯不计入包装件或托运货物限制。

- 如果托运货物中包含标有电池标记（图 5-3）的包装件，则在使用航空货运单时，货运单上必须写明“sodium ion batteries, in compliance with Section II of PI978”（钠离子电池，符合 PI 978 第 II 节）的字样。如果一个航空货运单上包含可满足多个包装说明第 II 节要求的电池的包装件，不同电池类型和/或包装说明的合规声明可以合并为一个单一声明，前提是该声明注明适用的电池类型和包装说明编号。
- 为电池芯或电池进行运输准备或将其交付运输的任何人员，必须接受与其负责的职能相符的关于这些要求的适当指示。

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第5部分

托运人的责任

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第 1 章

概述

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为与联合国协调一致的修订

DGP/30 报告第 1.2.1.9 段:

1.2.4 对装有第 7 类放射性材料的例外包装件的具体规定

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1.2.4.2 第 5;4 的文件要求，不适用于第 7 类放射性材料的例外包装件，但以下情况除外：1

- a) 以字母“UN”打头的联合国编号，托运人和收货人的姓名和地址，以及如适用的话，每一主管当局批准证书的识别标记（见 5;4.1.5.7.1. [gh](#)）必须在运输文件（例如航空货运单）或符合 5;4.1.2.1 至 5;4.1.2.4 要求的其他类似文件中显示出来；
- b) 如果相关，4.1.5.7.1. [gh](#)）、4.1.5.7.3 和 4.1.5.7.4 的要求适用；和
- c) 4.4 的要求适用。

如果与运营人有协议，托运人可以通过电子数据处理（EDP）或电子数据交换（EDI）技术提供这些资料。

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第2章

标记

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 5.2 章 5.2.1.9.1（参见 ST/SG/AC.10/52/Add.1）:

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2.4.16 [锂电池或钠离子电池的特殊标记要求](#) [电池标记](#)

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2.4.16.2 标记必须标明适当的联合国编号，前面加上字母“UN”，如下所示：

- a) “UN 3090” — 锂金属电池芯或电池；
- b) “UN 3480” — 锂离子电池芯或电池；
- c) “UN 3091” — 装在设备中或与设备包装在一起的锂金属电池芯或电池；
- d) “UN 3481” — 装在设备中或与设备包装在一起的锂离子电池芯或电池；或
- e) “UN 3552” — 装在设备中或与设备包装在一起的钠离子电池芯或电池。

为与联合国协调一致的修订

DGP-WG/25会议报告第4.1.2.1段：

《联合国规章范本》第5.2章5.2.1.9.2（参见ST/SG/AC.10/52/Add.1）

如包装件中装有不同联合国编号的锂电池芯或电池，必须用一个或多个标记标明所有适用的联合国编号。但是，如果设备除电池芯或电池之外还包含一个或多个钮扣电池芯，则无需在标记中标明一个或多个钮扣电池芯的联合国编号。

2.4.16.3 标记必须为长方形或正方形，边缘为阴影线。符号（一组电池，其中一个已经损坏且在冒火焰，下面是锂离子、锂金属或钠离子电池芯或电池的联合国编号）必须为黑色白底，或者具有适当的反差背景。影线必须为红色。标记的尺寸必须至少为100毫米宽×100毫米高，影线的宽度必须至少为5毫米。如果因包装件大小的需要，尺寸可减小，但不得小于100毫米宽×70毫米高。在未明确规定尺寸的情况下，所有要素都必须与全尺寸标记中所示保持合适比例（图5-3）。

为与联合国协调一致的修订

DGP-WG/25会议报告第4.1.2.1段：

《联合国规章范本》第5.2章5.2.1.9.3（参见ST/SG/AC.10/52/Add.1）

2.4.16.4 当按照3.5，除锂电池或钠离子电池第9类标签（图5-26）以外，要求做出电池标记并和危险性标签时，如果包装件尺寸足够大，电池标记必须置于与危险性标签相同的表面。

2.4.16.4-2.4.16.5 符合包装说明965或968第IB节要求的锂电池包装件，必须同时贴有电池标记（图5-3）和锂电池或钠离子电池第9类危险性标签（图5-26）。

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图 5-3 电池标记

注：在 2021-2022 版《技术细则》图 5-3 中所示的标记可继续适用至 2026 年 12 月 31 日。

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第 3 章

标签

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为与联合国协调一致的修订

DGP-WG/25会议报告第4.1.2.1段:

《联合国规章范本》第5.2章5.2.2.2.1 (见ST/SG/AC.10/50/Add.1)

3.5 标签规格

3.5.1 类别危险性标签的规格

3.5.1.1 标签必须满足本节的规定，并在颜色、符号和一般格式方面符合图5-4至图5-26所示的标签样本。各种运输方式所需的相应式样，如略有改动但不影响标签的明显含义，也可以接受。

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第 4 章 文件

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4.1 危险物品运输的资料

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4.1.5 除危险物品说明之外所要求的其他资料

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为管理航空特定风险和处理异常情况的修订

DGP-WG/25 会议报告第 4.2.2.3 段和 DGP/30 报告第 1.2.1.5 段：

4.1.5.1 ~~危险物品数量、包装件数目、和包装种类~~和危险物品数量

4.1.5.1.1 除 4.1.5.2 至 4.1.5.1.7 所述例外，对具有不同的运输专用名称、联合国编号或包装等级的每项危险物品，必须列出包括包装件数目、包装类型（例如钢桶、纤维板箱等）以及每个包装件中危险物品的净数量（酌情按体积或质量计算）。可以用缩写表示数量的度量单位。

从5;4.1.5.1末尾移至此处并用“包括”取代“列出”：

注：组合包装外包装内每个内容器的数量、类型和容量无需包括在内。

如果包装件装有同样的危险物品且每个包装件所装的危险物品数量相同，则可以使用包括数量的乘积。例如：

（UN 1263，涂料，第 3 类，II 级包装，5 个纤维板箱×5 L）

必须明确指明含有不同数量的同一危险物品的包装件的托运货物。例如：

UN 1263，涂料，第 3 类，II 级包装，5 个纤维板箱×5 L，10 个纤维板箱×10 L

联合国包装代码只可用来补充说明包装件类型（例如，一个纤维板箱（4G））。

4.1.5.1.2 对于存在数量限制的情况，即在表 3-1 第 11 栏的数量后带字母“G”的情况：

- a) 必须指出包括每个包装件的毛重，~~而非其净数量~~；~~。~~
- b) 对于数量有限的 ID 8000（消费品）的多个包装件，必须包括每个包装件的实际毛重或这些包装件的平均毛重。例如：如果有 10 个包装件，其总毛重为 100 千克，则危险物品运输文件可将其显示为“每个包装件平均毛重 10 千克”；或
- c) 如果不同的危险物品一起装在同一外包装内，则必须包括每件危险物品的净数量以及完整包装件的毛重。必须按照 e) 段所述指明其净数量；~~。~~

4.1.5.1.3-a) 对于 4.1.4.3 b) 所述的未清洗的空包装而言，只需要列出包括包装数目和类型~~。~~

4.1.5.1.4 b) 对于化学品箱和急救箱，~~列出~~**必须包括**危险物品的总净重。如果箱内装有固体和/或液体，则箱内的液体净重用其体积 1 比 1 为基础计算，即 1 升相当于 1 公斤。~~。~~

4.1.5.1.5 e) 对于**机器或设备**、**物品或机器**中的危险物品，**机器或设备必须包括在该物品**中装有的固态、液态或气态危险物品各自的总数量。~~。~~

4.1.5.1.6 d) 对于用补救包装运输的危险物品，必须**包括估计出**危险物品的**估计**数量。~~。~~

e) ~~对于表 3-1 标明 30 kg G 限制的有限数量危险物品，以及根据《包装说明》965 第 IB 节规定装运的货物（UN 3480，锂离子蓄电池）和 968（UN 3090，锂金属蓄电池）。如将不同的危险物品一起装在同一外包装内，则必须标示每一危险物品的净数量，随后列出完整包装件的毛重；~~

DGP-WG/25 会议报告第 4.2.2.3 段和 DGP/30 报告第 1.2.1.5 段：

4.1.5.1.7 对于第 1 类爆炸性物品，**所列的**每个包装件的**标明**净数量必须附有包装件所含的净爆炸质量（见 1.3.1.1 净爆炸质量的定义），随后加上计量单位。可以连同所提供的数值**标明包括**“NEQ”、“NEM”或“**NEWNEC**”等缩略语。

移至5;4.1.5.1第一段下：

~~注：不要求指明组合包装的外包装当中每个内包装的数量、类型和容量。~~

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第 6 部分

包装术语、标记、要求和试验

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第 3 章

包装要求

3.1 除内包装之外的包装要求

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.1 章, 6.1.4.12.1 (参见 ST/SG/AC.10/52/Add.1)

3.1.11 纤维板箱 (包括瓦楞纸板箱)

4G

3.1.11.1 须使用与箱子的容量和用途相适应、坚固优质的实心或双面波纹纤维板 (单层或多层)。外表面的抗水性须是: 当使用科布 (Cobb) 法确定吸水性时, 在 30 分钟的试验期内, 质量增加值不大于 155 g/m²— 见 [ISO 535: 2014](#) [ISO 535: 2023](#)。纤维板须有适当的弯曲强度, 在切割、压折时无裂缝, 并须开槽, 以便装配时不会裂开、表面破裂或者不应有的弯曲。波纹纤维板的槽部须牢固地胶合在面板上。

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第 4 章

包装性能试验

4.1 试验的进行与次数

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为与联合国保持一致而进行的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.1 章, 6.1.5.1.3 (参见 ST/SG/AC.10/52/Add.1)

4.1.3 对生产的包装样品, 须按国家有关当局规定的时间间隔重复进行 适当的 试验。对纸或纤维板包装所进行的这类试验, 在环境条件下进行准备视为与 4.2.3 的规定等效。

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第 5 章

气瓶和密闭式低温容器、气溶胶喷雾器、 小型气体容器（蓄气筒）和装有液化易燃气体的 燃料电池盒的构造和试验要求

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5.1 一般要求

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5.1.5 初次检查和试验

5.1.5.1 除密闭式低温容器和金属氢贮存系统以外，新气瓶在制造期间和之后都必须按照适用的设计标准或公认的技术规范进行检查和试验，包括下列检查和实验：

对足够数量的气瓶壳体试样：

- a) 对其制造材料的机械性能进行试验；
- b) 确认其最小壁厚；
- c) 检验每批生产材料的同质性；
- d) 检查内外部状况；
- e) 检查用于安装封闭装置的螺纹；
- f) 确认与设计标准一致。

对所有气瓶壳体：

为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.1.5.1（参见 ST/SG/AC.10/52/Add.1）

- g) 液压试验。气瓶壳体必须达到设计和制造技术标准或公认的技术规范所规定的验收标准。

注：经国家有关当局同意，只要不发生任何危险，可以用气体试验代替液压试验。

- h) 检查和评估制造缺陷，对之加以修理或规定气瓶壳体不能投入使用。如果是焊接的气瓶壳体，特别要注意焊接的质量；
- i) 检查气瓶壳体上的标记；
- j) 另外，必须对准备运输 UN 1001 — Acetylene, dissolved,（溶解乙炔）和 UN 3374 — Acetylene, solvent free（乙炔，无溶剂）的气瓶壳体进行检查以确保多孔物质的适当放置和状况，如适用，还须检查溶剂的数量。

对足够数量的封闭装置试样：

- k) 检验材料；

- l) 检验尺寸；
- m) 检验洁净度；
- n) 检查已完成的组件；
- o) 检验有无标记。

对所有封闭装置：

- p) 测试防漏性。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.1.5.2（参见 ST/SG/AC.10/52/Add.1）

5.1.5.2 密闭式低温容器在制造期间和之后必须按照适用的设计标准或公认的技术规范进行试验和检查，包括下列试验和检查：

对足够数量的内容器试样：

- a) 测试制造材料的机械特点；
- b) 检验最小壁厚；
- c) 检查外部和内部状况；
- d) 检验是否符合设计标准或公认的技术规范。
- e) 根据适用的设计和制造标准或公认的技术规范，用放射线照像、超声波或其他适当的非破坏性试验方法对焊接处进行检查。

对所有内容器：

- f) 液压试验。内容器必须达到设计和制造的技术标准或公认的技术规范所规定的接受标准。

注：在主管部门同意的情况下，液压试验可以使用气体试验替代但这项操作不得带来任何危险。

- g) 检查和评估制造缺陷，对之加以修理或者规定该内容器不能投入使用；
- h) 检查标记；

对一足够数量的封闭装置试样：

- i) 检验材料；
- j) 检验尺寸；
- k) 检验洁净度；
- l) 检查已完成的组件；
- m) 检验有无标记。

对所有封闭装置：

- n) 测试防漏性。

对足够数量的密闭式低温容器成品试样：

- o) 测试辅助设备运行情况是否令人满意；
- p) 检验是否符合设计标准或公认的技术规范。

对所有已完成的密闭式低温容器：

- q) 测试防漏性。

注：按照本细则 2021-2022 年版中适用的 5.1.5.2 首次检查和试验要求制造的封闭式低温容器，但不符合本细则 2023-2024 年版中适用的 5.1.5.2 与首次检查和试验有关的要求的，可继续使用。

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.1.6.1（参见 ST/SG/AC.10/52/Add.1）

5.1.6 定期检查和试验

5.1.6.1 密闭式低温容器之外的可再充装气瓶必须由经国家有关当局授权的单位按如下要求进行定期检查和试验：

- a) 检查气瓶的外部状况，核实设备和外部标记；
- b) 检查气瓶内部状况（如内部检查、最小壁厚检验）；
- c) 检查螺纹是否有下述现象之一：
 - i) 存在腐蚀迹象；或
 - ii) 封闭装置或其他辅助设备被移除；
- d) 进行气瓶壳体液压试验，如有必要，通过适当试验核实材料性能。

注 1：经国家有关当局同意，只要不发生任何危险，可以用气压试验代替液压试验。

注 2：对于无缝钢气瓶壳体和圆筒，5.1.6.1 b)所述的检查和 5.1.6.1 d)所述的液压试验可替换为 ISO 16148:2016 + Amd 1:2020 “气瓶—可再充装无缝钢气瓶和圆筒—声波发射检查（AT）以及定期检查和试验的后续超声波检查（UT）”。

注 3：5.1.6.1 b) 中的内部状况检查和 5.1.6.1 d)中的液压试验可由超声波检查替代，无缝钢和无缝铝合金气瓶壳体按 ISO 18119:2018 + Amd 1:2021+Amd 2:2024 进行。在 2026 年 12 月 31 日之前的过渡期内，可继续为此目的使用 ISO 18119:2018 标准。在 2028 年 12 月 31 日之前的过渡期内，可继续为此目的使用 ISO 18119:2018 标准 + Amd 1:2021。在 2024 年 12 月 31 日之前的过渡期内，无缝铝合金气瓶可采用 ISO 10461:2005 +Amd 1:2006 标准，无缝钢气瓶壳体可采用 ISO 6406:2005 标准，以达到同样的目的。

- e) 如重新投入使用，应检查辅助设备。这项检查可以与气瓶壳体的检查分开进行。

注：有关定期检查及试验的间隔，见包装说明 200，如是加压化学品则见包装说明 218。

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5.2 对联合国气瓶和密闭式低温容器的要求

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.2 章, 6.2.2.1.1 (参见 ST/SG/AC.10/52/Add.1)

5.2.1 设计、制造和初次检查及试验

5.2.1.1 以下标准适用于可再充装联合国气瓶壳体的设计、制造和初次检查及试验, 但是与合格评定系统和核准有关的检查要求必须符合 5.2.5 的规定:

参考	标题	适用的制造日期
.....		
ISO 4706:2008	气瓶 — 可再充装焊接钢气瓶 — 试验压力 60 巴及以下	至进一步通知 至 2030 年 12 月 31 日
ISO 4706:2023	气瓶 — 可再充装焊接钢气瓶 — 试验压力 60 巴及以下	至进一步通知
.....		

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.2 章, 6.2.1.3 (参见 ST/SG/AC.10/52/Add.1)

5.2.1.3 以下标准适用于盛装乙炔的联合国气瓶的设计、构造和初次检查及试验, 但是与合格评定系统和核准有关的检查要求必须符合 5.2.5。

注: 国际标准化组织标准 ISO 21029-1:2004 “低温容器” 所述最大 1000 L 体积, 不适用于安装在设备 (例如 MRI 或冷却机器) 上的密闭式低温容器内的冷冻液化气体。

气瓶外壳:

参考	标题	适用的制造日期
.....		
ISO 4706:2008	气瓶 — 可再充装焊接钢气瓶 — 试验压力 60 巴及以下	至进一步通知 至 2030 年 12 月 31 日
ISO 4706:2023	气瓶 — 可再充装焊接钢气瓶 — 试验压力 60 巴及以下	至进一步通知
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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.2（参见 ST/SG/AC.10/52/Add.1）

5.2.2 材料

除了设计和制造标准所规定的材料要求，以及拟运气体的适用包装说明（如包装说明 200、包装说明 202 或包装说明 214）规定的任何限制，以下标准也适用于材料的兼容性：

参考	标题	适用的制造日期
.....		
ISO 11114-1:2020 + Amd 1:2023	气瓶 — 瓶以及阀的材料与内装气体的兼容性 — 第 1 部分：金属材料。	至进一步通知

为与联合国保持一致而进行的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.3（参见 ST/SG/AC.10/52/Add.1）

5.2.3 封闭装置及其保护

以下标准适用于封闭装置的设计、制造及首次检查和试验及其保护：

参考	标题	适用的制造日期
.....		
ISO 10297:2014 + Amd 1:2017	气瓶 — 气瓶阀门 — 规格和型号试验	至进一步通知 至 2028 年 12 月 31 日
ISO 10297:2024	气瓶 — 气瓶阀门 — 规格和型号试验	至进一步通知
.....		
ISO 14246:2014 + Amd 1:2017	气瓶 — 气瓶阀门 — 制造试验和检查	至进一步通知 至 2030 年 12 月 31 日
ISO 14246:2022	气瓶 — 气瓶阀门 — 制造试验和检查	至进一步通知
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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.4（参见 ST/SG/AC.10/52/Add.1）

5.2.4 定期检查和试验

5.2.4.1 以下标准适用于联合国气瓶的定期检查和试验：

参考	标题	适用的制造日期
.....		
ISO 18119:2018 + Amd 1:2021	气瓶 — 无缝钢及无缝铝合金气瓶和气筒 — 定期检查和试验	至进一步通知 至 2028 年 12 月 31 日
ISO 18119:2018 + Amd 1:2021 + Amd 2:2024	气瓶 — 无缝钢及无缝铝合金气瓶和气筒 — 定期检查和试验	至进一步通知
.....		
ISO 11623:2015	气瓶—复合结构 — 定期检查和试验	至进一步通知 至 2028 年 12 月 31 日
ISO 11623:2023	气瓶-复合气瓶和气筒-定期检查和试验 注：不得用无损检测(NDE)方法代替压力试验，尽管此类方法可用于监测目的。	至进一步通知
ISO 22434:2006	可运输的气瓶 — 气瓶阀门的检查和维修 注：可在对联合国气瓶的定期检查和试验以外的时间满足这些要求。	至进一步通知 至 2028 年 12 月 31 日
ISO 22434:2022	气瓶-阀门的检查和维修 注：可在对联合国气瓶的定期检查和试验以外的时间满足这些要求。	至进一步通知
.....		

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.7.3（参见 ST/SG/AC.10/52/Add.1）

5.2.7 联合国可再充装气瓶和密闭式低温容器的标记

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5.2.7.3 必须使用如下操作标记：

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k) 对于盛装 UN 1001 **Acetylene, dissolved**（溶解乙炔）的气瓶：

- i) 以千克为单位的皮重包括空瓶壳体、充装过程中未去除的辅助设备（包括多孔材料）、任何涂层、溶剂和饱和气体的质量总和，用四舍五入至最后一位数的三位有效数字表示，后加字母“KG”。小数点后应该至少有一位数字。少于 1 千克的气瓶，质量应该用四舍五入至最后一位数的两位有效数字表示；
- ii) 多孔材料的识别标记（例如：名称或商标）；和
- iii) 已充装的乙炔气瓶总质量（以千克为单位），后加字母“KG”。

根据 2021-2022 版《技术细则》制造的乙炔气瓶，如果标记既无法标在气瓶的肩部也无法标在任何颈圈上，则可以继续使用，而无需使用 ii)和 iii)中所述的标记。

- l) 对于盛装 UN 3374 **Acetylene, solvent free**（乙炔，无溶剂）的气瓶：

- i) 以千克为单位的皮重包括空瓶壳体、充装过程中未去除的辅助设备（包括多孔材料）和任何涂层的质量总和，用四舍五入至最后一位数的三位有效数字表示，后加字母“KG”。小数点后应该至少有一位数字。少于 1 千克的气瓶，质量应该用四舍五入至最后一位数的两位有效数字表示；
- ii) 多孔材料的识别标记（例如名称或商标）；和
- iii) 已充装的乙炔气瓶总质量（以千克为单位），后加字母“KG”。

根据 2021-2022 版《技术细则》制造的乙炔气瓶，如果标记既无法标在气瓶的肩部也无法标在任何颈圈上，则可以继续使用，而无需使用 ii)和 iii)中所述的标记。

~~注：按照本细则 2021-2022 年版制造的乙炔气瓶，如果没有按照本细则 2023-2024 年版中适用的 6.5.2.7.3 k) 或 l) 进行标记，可继续使用，直到本细则本版本生效两年后的下一次定期检查和试验，届时必须按照上述规定进行标记或停止使用。~~

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.7.4（参见 ST/SG/AC.10/52/Add.1）

5.2.7.4 必须使用如下制造标记：

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- p) 准备装运气体的钢气瓶和密闭式低温容器，以及钢内衬的复合气瓶和密闭式低温容器，如果有氢脆变的危险性，就要用字母“H”来表示钢的兼容性（参见 ISO 11114-1: 2020 + [Amd 1:2023](#)）。

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.2 章，6.2.2.8.1（参见 ST/SG/AC.10/52/Add.1）

5.2.8 不可再充装的联合国气瓶的标记

5.2.8.1 不可再充装的联合国气瓶必须标有清晰易辨的认证标记和气体或气瓶特定标记。这些标记必须永久地固定（如喷印、冲压、雕刻或蚀刻）在气瓶上。除了喷印，这些标记必须永久地固定在气瓶壳体的肩部、顶端或颈部或一个永久的附件（如焊环）上。除了“UN”（联合国）标记和“DO NOT REFILL”（不可再充）标记，直径大于或等于 140 mm 的气瓶的标记的最小尺寸须为 5 mm，直径小于 140 mm 的气瓶的标记的最小尺寸须为 2.5 mm。直径大于或等于 140 mm 的气瓶的“UN”（联合国）标记的最小尺寸须为 10 mm，直径小于 140 mm 的气瓶的“UN”（联合国）标记的最小尺寸须为 5 mm。“DO NOT REFILL”（不可再充）标记的最小尺寸须为 5 mm。

5.2.8.2 对于直径为 40 毫米或不到 40 毫米的不可再充装的无缝结构联合国气瓶，可在其侧壁耐久地标上标记（例如型板喷印、冲压、雕刻或蚀刻），前提是不造成有害的应力集中，且保持最小的圆柱形罐壁厚度。标记的最小尺寸必须为 1.5 毫米。UN 包装符号的最小尺寸必须为 3 毫米。“不得再充装”标记的最小尺寸必须为 3 毫米。

5.2.8.2³ 5.2.7.2 到 5.2.7.4 列出的标记，除 g)、h)和 m)之外，都要应用。序号 o) 可以用批号代替。另外，“DO NOT REFILL”（不可再充）的字样至少要求 5 mm 高。

5.2.8.3⁴ 必须适用 5.2.7.5 的要求。

注：考虑到不可再充装气瓶可因其尺寸而以标签取代这些永久标记。

5.2.8.4⁵ 可以采用其他标记，但须标在侧壁以外的低应力区并且其尺寸和深度不会造成有害的应力集中。这些标记不得和要求的标记相矛盾。

为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6 章，6.2.2.9.2（参见 ST/SG/AC.10/52/Add.1）

5.2.9 联合国金属氢贮存系统的标记

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5.2.9.2 必须使用下列标记：

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- j) 如果是钢气瓶和带钢衬里的复合气瓶，字母“H”表示钢的相容性（见 ISO 11114-1: 2020 + [Amd 1:2023](#)）；和

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第 6 章

A 类感染性物质（UN 2814 和 UN 2900）的包装

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6.5 包装的试验要求

6.5.1 试验的进行和频率

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.3 章，6.3.5.1.3（参见 ST/SG/AC.10/52/Add.1）

6.5.1.3 对生产的包装样品，必须按主管当局规定的时间间隔重复进行适当的试验。

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第 7 章

放射性物质包装件的制造、试验和批准要求以及此类物质的批准要求

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7.2 对空运包装件的附加要求

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为管理航空特定风险和处理异常情况的修订

DGP/30 报告第 3.3 段：

7.2.3 装有放射性物质的包装件必须能经受产生不低于最大标称使用压力加 95 kPa 之后所得压差的内部压力而放射性内装物不从容器系统中漏失或弥散。

注：对于固体材料，为了符合 7.2.3 的规定，可以使用除耐压之外的其他方法来证明符合规定。如果能证明，当包装件受到飞行过程中预期的压差时，放射性内装物不会从封存系统中漏失或弥散，则包装件设计可视为符合要求，即使未维持内部压力。

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7.10 对盛装易裂变材料的包装件的要求

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为与联合国协调一致的修订

DGP-WG/25 会议报告第 4.1.2.1 段：

《联合国规章范本》第 6.3 章，6.4.11.2（参见 ST/SG/AC.10/52/Add.1）

7.10.2 盛装满足下文 d) 分段中规定和下文 a) 至 c) 分段中任一规定的易裂变材料的包装件可免于遵守 7.10.4 至 7.10.14 中的要求。

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- d) 单个包装件内铍、富含氘的含氢材料、石墨和碳的其他同素异形体的总质量不得超过包装件中易裂变核素的质量，除非这些材料的总浓度在每 1 000 克材料中不超过 1 克。纳入铜合金的铍，如果重量质量至多为合金重量的 4%，则无需考虑。

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第 8 章

关于中型散货集装箱的要求

8.1 中型散货集装箱的包装标记

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为与联合国保持一致而进行的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.5 章, 6.5.2.1.1 (参见 ST/SG/AC.10/52/Add.1)

8.1.2 包装标记包括:

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- g) 以千克表示的堆码试验负荷叠加堆码试验质量。对于不是设计用于堆叠的中型散货集装箱, 必须用数字“0”标明;

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为与联合国保持一致而进行的修订

DGP-WG/25 会议报告第 4.1.2.1 段:

《联合国规章范本》第 6.5 章, 6.5.2.2.2 (参见 ST/SG/AC.10/52/Add.1)

8.1.3 中型散货集装箱在使用中允许堆放的最大承重的最大叠加堆码质量, 必须用图 6-2 或图 6-3 中所示符号显示。符号必须耐久且清晰可见。

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第 7 部分

运营人的责任

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为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段:

第 1 章

收运程序

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1.7 开展安全风险评估

运营人必须将锂电池和电池芯等危险物品的货运:

- a) 根据附件 19 纳入其安全管理体系 (SMS) 中; 和
- b) 根据附件 6 — 《航空器的运行》第 I 部分 — 《国际商业航空运输 — 飞机》和第 IV 部分 — 《国际运行 — 遥控驾驶航空器系统》, 纳入到针对物品货运的具体安全风险评估中。

注 1: 安全管理体系的实施指南, 见《安全管理手册》(SMM) (Doc 9859 号文件)。

注 2: 关于就物品货运进行具体安全风险评估的指导, 见《货舱操作安全手册》(Doc 10102 号文件)。

注 3: 有关就含有 COVID-19 医药用品的托运货物进行安全风险评估的具体指南, 载于 www.icao.int/safety/OPS/OPS-Normal/Pages/Safety-transport-vaccines.aspx。

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为管理航空特定风险和处理异常情况的修订

DGP/30 报告第 2.2.1 段:

第 2 章**仓储、~~仓储和~~装载和积载**

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为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段:

2.1 驾驶舱和客机的装载限制

2.1.1 危险物品不得装入驾驶舱或载有旅客的航空器客舱，1;2.2.1 和 8;1 所允许的危险物品及 2;7.2.4.1.1 所述的放射性物质例外包装件除外。客机的上货舱如果符合 B 级或 C 级航空器货舱的全部认证要求，可以载运危险物品。粘贴“Cargo aircraft only” (仅限货机) 标签的危险物品不得装入客机。

2.1.2 在补篇 S-7;2.2 规定的条件下，始发国和运营人所属国可以批准危险物品在不符合 2.1.1 中要求的客机上货舱中载运。

注：货舱分类说明载于国际民航组织文件《与危险物品有关的航空器事故征候应急响应指南》(Doc 9481 号文件)。

2.1.3 关于用直升机运载的危险物品的补充装载要求，参见 7;7。

2.1.4 关于用遥控驾驶航空器运载危险物品的补充装载要求，参见 7;8。

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为管理航空特定风险和处理异常情况的修订

DGP-WG/24 报告第 4.2.2.2 段：

表 7-2 爆炸性物质和物品的分隔

项别和配装组	1.3C	1.3G	1.4B	1.4C	1.4D	1.4E	1.4G	1.4S
1.3C		x	x				x	
1.3G	x		x	x	x	x		
1.4B	x	x		x	x	x	x	
1.4C		x	x				x	
1.4D		x	x				x	
1.4E		x	x				x	
1.4G	x		x	x	x	x		
1.4S								

横栏和竖栏交接处的“X”表示，属于这些项别和配装组的爆炸品必须各自装入单独的集装器，并且在航空器上码放时，这些集装器必须用其他货物隔开，其最低间隔距离为 2 m。如果没有装入集装器内，这些爆炸品必须放在互不相邻的不同装载位置，并用其他货物隔开，其最低间隔距离为 2 m。

为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段：

2.4 危险物品的装载与固定

2.4.1 货机的装载

2.4.1.1 粘贴“Cargo aircraft only”（仅限货机）标签的危险物品包装件或合成包装件，必须按照下述一条规定进行装载，以使用货机运输：

- a) 装入 C 级航空器货舱；或
- b) 装在配有火情探测/扑灭系统的集装器中，该系统与国家有关当局决定的 C 级航空器货舱认证要求所规定的系统相等同（凡由国家有关当局确定符合 C 级航空器货舱标准的集装器，必须在集装器挂牌上标明“C 级货舱（Class C compartment）”）；或
- c) 其装载方式使得在发生涉及这些包装件或合成包装件的紧急情况下，机组人员或其他经授权的人员能够接近并搬运这些包装件或合成包装件，并能在其大小及质量允许的条件下，把这样的包装件或合成包装件与其他货物隔开；或
- d) 用直升机或遥控驾驶直升机进行外部运载；或
- e) 经运营人所属国批准，如果是直升机运行，装入机舱内。（见补篇 S-7;2.4 部分）。

注：货舱分类说明载于国际民航组织文件《与危险物品有关的航空器事故征候应急响应指南》（Doc 9481 号文件）。

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2.9.6 分隔

2.9.6.1 与人员的分隔

II级 — 黄色与 III级 — 黄色的包装件、合成包装件或专用货箱必须与人员分隔开来。采用的最小间隔距离如表 7-3 和表 7-4 中所示。该距离从包装件、合成包装件或专用货箱的外表面算起至客舱或驾驶舱的墙板或地板的最近内表面止，不考虑载运放射性物质的持续时间。表 7-4 只适用于货机载运放射性物质的情况。在这种情况下，必须采用如上所述的最小间隔距离，这也适用于任何其他的人员所处区域。

注：若机上无人，表 7-3 和表 7-4 的规定对在遥控驾驶航空器中运载放射性物质的情况不适用。

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为管理航空特定风险和处理异常情况的修订

DGP-WG/24 报告第 4.1.2.2 段：

2.15 中型散货集装箱（IBCs）的操作和装载

在操作和装载中型散货集装箱（IBCs）时，必须虑及 6;2.4.38.1.3 中规定的中型散货集装箱的标记(如有)。

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为管理航空特定风险和处理异常情况的修订

为支持遥控驾驶航空器系统运行的修订

DGP-WG/24 报告第 4.2.2.3 段和 DGP/30 报告第 6.1 段：

第 4 章

通报情况

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4.1 向机长或遥控机长通报的信息

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4.1.1.1 除非另有规定，否则 4.1.1 中要求的该信息必须包括如下内容：

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f) 包装件的数目以及确切装载位置。放射性物质见下文 e) h)；

.....

j) 包装件的预定卸载机场或地点:

为管理储能装置规定带来的安全风险

DGP-WG/24 报告第 4.2.2.5 段:

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4.1.3 对于 UN 3480 (锂离子电池) 和 UN 3090 (锂金属电池) 和 UN3551 (钠离子电池), 可以用联合国编号、运输专用名称、类别、在每个具体装载位置的总数量, 包装件卸载的机场以及包装件是否必须用仅限货机运载来代替 4.1.1 所要求的信息。按照国家豁免条款运载的 UN 3480 (锂离子电池) 和 UN 3090 (锂金属电池) 和 UN3551 (钠离子电池), 必须符合 4.1 的全部要求。

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为管理航空特定风险和处理异常情况的修订

DGP-WG/24 报告第 8.3 段:

4.2 向雇员通报的信息

运营人必须在操作手册和其他相关手册中提供使飞行机组和其他雇员在危险物品运输中能履行其负责的职能的信息。操作手册和其他相关手册必须根据需要进行修订或修改, 以确保其中包含的信息保持最新。这些信息必须包括出现危险物品紧急情况时应采取的措施以及货舱的位置和编号系统, 连同:

- a) 每一货舱允许的最大数量的干冰;
- b) 如果载运放射性物质, 以 7.2.9 的要求为基础的装载这种危险物品的说明。

在适用情况下, 这些信息还须提供给地面服务代理人。

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为支持遥控驾驶航空器系统运行的修订

DGP/30 报告第 6.1 段:

第 8 章

遥控驾驶航空器系统运行

注 1: 本章的要求系对适用于所有运营人的本细则其他规定（如 1; 4 和第 7 部分）的补充。

注 2: 就本章的目的而言, 除运营人所在国外, 相关国家还可指: 运行所在国、遥控驾驶员所在国, 或遥控站所在国（当有别于运营人所在国时）。

8.1 遥控驾驶航空器仅可在下列其一条件下运输危险物品:

- a) 在满足 C 级、D 级或 E 级航空器货舱所有合格审定要求的货舱内; 或
- b) 对于遥控驾驶直升机, 作为外部负载。

注: 贴有“仅限货机”标签的危险物品包装件或合成包装件, 另有限制规定, 详见 7:2.4.1。

8.2 若遥控驾驶航空器货舱不符合 C 级、D 级或 E 级航空器货舱的所有合格审定要求, 运营人所在国和始发国可依据《补篇》S-7:2.3 为运输这些危险物品给予批准。运营人必须通过具体安全风险评估处理相关危险源。

8.3 鉴于遥控驾驶航空器（RPA）所执行运行的性质或类型, 在某些情况下, 可能不适于或者不必要采用技术细则的全套规定。此类情形包括: 遥控驾驶航空器机上不运载人员、遥控驾驶航空器往返于无人地点进行运行、以及在偏远地区或山区进行运行等情况。在此类情形下, 运营人所在国可酌情给予批准, 允许在没有满足《技术细则》所有正常要求的情况下运载危险物品。如果非运营人所在国的其他国家已通知国际民航组织它们要求事先批准此类运行, 则还必须视情获得始发国和目的地国家或其他相关国家的批准。

注 1: Doc 9859 号文件载有关于附件 19 的实施, 包括进行安全风险评估的一般性指导。

注 2: Doc 10102 号文件针对在遥控驾驶航空器货舱内运输物品, 包括危险物品等的具体安全风险评估提供了指导。

8.4 在装载危险物品以供遥控驾驶直升机外部负载时, 除了 7:2 的一般装载规定外, 还应考虑所用包装类型以及在必要情况下对这些包装的保护, 使其免受气流和天气的影响（例如因雨水或极端温度而受损）。如果这种装载物包括悬挂于遥控驾驶直升机的危险物品, 运营人则必须确保考虑在着陆或释放装载物时静电放电的危险。

第 8 部分 有关旅客和机组成员的规定

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第 1 章 旅客或机组成员携带危险物品的规定

.....

1.1 旅客或机组成员携带的危险物品

为便利运输或国家监督的修订

DGP-WG/25 报告第 4.3.1 段和 DGP/30 报告第 3.1 段：

1.1.1 旅客和机组成员禁止携带危险物品，不论该危险物品是作为随身行李还是放在随身行李中，也不论是作为交运行李还是放在交运行李中，或者随身携带，除非该危险物品：

- a) 根据表 8-1 允许携带；和
- b) 仅供个人使用。

注 1：除旅客本人拥有或使用的物品外，“个人使用”还可能包括供他人使用的物品，例如礼品；雇主为员工提供用于其工作相关活动的便携式电子装置；或由装置供应商或医疗专业人员携带用于紧急患者护理的医疗装置。

注 2：个人使用不包括为销售或配送而携带的物品。

注 43：在其他运输方式中，旅客通常可以携带以下危险物品，但是，它们不得作为随身行李或放在随身行李中，也不得作为交运行李或放在交运行李中或者随身携带：

- a) 含有液态氧的个人医用氧气装置；
- b) 含有诸如爆炸品、压缩气体、锂电池等危险物品的电击武器（例如泰瑟枪）；
- c) 摩擦火柴；
- d) 打火机燃料和打火机充气储筒；
- e) 没有防止意外启动保护装置的预混燃烧打火机（见附录 2 的术语汇编）；和
- f) 没有安全帽或防止意外启动保护装置的、由锂离子或锂金属电池供电的电池动力打火机（例如激光等离子打火机、特斯拉线圈打火机、助熔打火机、电弧打火机和双电弧打火机）。

注 24：本细则所列的例外情况不在表 8-1 中重新列出。以下危险物品不受本细则的约束：

- a) 作为治疗结果在人体内含有的放射性药物；和
- b) 供个人或家庭使用的装在零售包装内的节能灯具。（见 1;2.6）

注 35：各国可以实施符合航空安保利益的额外限制。

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为管理储能装置规定带来的安全风险修订

DGP/30 报告第 4.3 段:

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表 8-1. 关于旅客和机组成员携带危险物品的规定

危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
电池				
1) 锂电池（包括 充电宝 和便携式电子装置）	是 (g)和 h) 除外)	是	(见 c)和 d)	<p>a) 每一电池所属类型必须符合联合国《试验和标准手册》第 III 部分第 38.3 小节规定的每项试验的要求；</p> <p>b) 每一电池不得超过以下限制：</p> <ul style="list-style-type: none"> — 对于锂金属电池，锂含量不超过 2 克；或 — 对于锂离子电池，瓦时额定值不得超过 100Wh； <p>c) 经运营人批准，每一锂离子电池的瓦时额定值可超过 100Wh 但不超过 160Wh；</p> <p>d) 经运营人批准，便携式医疗电子装置每一锂金属电池的锂含量可超过 2 克但不超过 8 克；</p> <p>e) 每人最多可携带两块符合 c) 或 d) 要求的备用电池；</p> <p>f) 装有电池的便携式电子装置：</p> <ul style="list-style-type: none"> — 必须采取措施防止意外启动并保护装置不受损坏； — 装置应作为随身行李携带；但是，如果作为托运行李交运，装置必须完全关闭（不在睡眠或休眠模式），倘若电池超过： <ul style="list-style-type: none"> — 对于锂金属电池，每个装置锂含量 0.3 克；或 — 对于锂离子电池，每个装置瓦时额定值 2.7 Wh； <p>g) 在能够产生极高热量的便携式电子装置（如启动可能会引起火灾）中的，一电池和加热元件，必须通过拆卸该加热元件、电池或其他部件进行隔离，一电子装置如因取出加热元件、电池或其他部件而启动，一可能会引起火灾；</p>

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危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
				<p>g h) 备用电池 (包括充电宝)：</p> <ul style="list-style-type: none"> — 必须作为随身行李携带；和 — 必须单个做好保护以防短路（放入原零售包装或以其他方式将电极绝缘，如在暴露的电极上贴胶带，或将每个电池放入单独的塑料袋或保护盒当中）； <p>i) 充电宝：</p> <ul style="list-style-type: none"> — 必须作为随身行李携带； — 不得在机上对其充电； — 不应在机上用于给便携式电子装置充电； — 每人最多可携带两个充电宝； <p>k j) 行李中配备的锂电池若超过：</p> <ul style="list-style-type: none"> — 对于锂金属电池，锂含量0.3克；或 — 对于锂离子电池，瓦时额定值2.7 Wh <p>则必须作为手提行李载运，除非将电池从行李上拆卸下来，该情况下拆卸的电池必须按照 g h) 段的要求载运；</p> <p>i) 每人不得携带两个以上符合 e) 或 d) 的要求的备用电池。</p> <p>注：a) 中的限制以及 b)、c)、d) 或 e) 中的适用限制适用于此物品的所有电池，即便便携式电子装置中所含的电池、备用电池、充电宝和配备锂电池的行李中所含的电池。</p>

附篇 1

运输专用名称表

编辑注：附录 1 第 1 章中的联合国编号及相应运输专用名称表，将依据国际民航组织理事会批准的表 3-1 修订内容，自动生成并纳入《技术细则》2027 — 2028 年版。

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第 2 章

未另作规定的和类属运输专用名称表

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务必使用最明确的适用名称

为与联合国协调一致的修订

DGP-WG/25 报告第 4.1.2.1 段：

联合国规章范本，附录 A（参见 ST/SG/AC.10/52/Add.1）

类别或项别	次要危险性	UN 编号	运输专用名称
第 6 类			
6.1 项			
特定条目			
6.1		3140	Alkaloids salts, liquid, n.o.s.* 液态生物碱盐类，未另作规定的
6.1		3140	Alkaloid, liquid, n.o.s.* 液态生物碱类，未另作规定的*
6.1		1544	Alkaloid salts, solid, n.o.s.* 固态生物碱盐类，未另作规定的*
6.1		1544	Alkaloids, solid, n.o.s.* 固态生物碱类，未另作规定的*
6.1		3141	Antimony compound, inorganic, liquid, n.o.s.* 液态无机锑化合物，未另作规定的*
6.1		1549	Antimony compound, inorganic, solid, n.o.s.* 固态无机锑化合物，未另作规定的*
6.1		1556	Arsenic compound, liquid, n.o.s.* 液态砷化合物，未另作规定的*
6.1		1557	Arsenic compound, solid, n.o.s.* 固态砷化合物，未另作规定的*

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类别或项 别	次要危险性	UN 编号	运输专用名称
6.1		1564	Barium compound, n.o.s.* 钡化合物, 未另作规定的*
6.1		1566	Beryllium compound, n.o.s.* 铍化合物, 未另作规定的*
6.1		2570	Cadmium compound 镉化合物
6.1	8	3277	Chloroformates, toxic, corrosive, n.o.s.* 氯甲酸酯类, 毒性, 腐蚀性, 未另作规定的*
6.1	3 和 8	2742	Chloroformates, toxic, corrosive, flammable, n.o.s.* 氯甲酸酯类, 毒性, 腐蚀性, 易燃, 未另作规定的*
<u>6.1</u>		<u>2020</u>	<u>Chlorophenols, toxic, solid, n.o.s.*</u> <u>固态氯苯酚类, 毒性, 未另作规定的*</u>
<u>6.1</u>		<u>2021</u>	<u>Chlorophenols, toxic, liquid, n.o.s.*</u> <u>液态氯苯酚类, 毒性, 未另作规定的*</u>
.....			
第 8 类			
特定条目			
8		3145	Alkylphenols, liquid, n.o.s. (including C ₂ -C ₁₂ homologues) 液态烷基苯酚类, 未另作规定的 (包括 C ₂ -C ₁₂ 同系物)
8		2430	Alkylphenols, solid, n.o.s. (including C ₂ -C ₁₂ homologues) 固态烷基苯酚类, 未另作规定的 (包括 C ₂ -C ₁₂ 同系物)
8		2735	Amines, liquid, corrosive, n.o.s.* 液态胺类, 腐蚀性, 未另作规定的*
8	3	2734	Amines, liquid, corrosive, flammable, n.o.s.* 液态胺类, 腐蚀性, 易燃, 未另作规定的*
8		3259	Amines, solid, corrosive, n.o.s.* 固态胺类, 腐蚀性, 未另作规定的
8		2837	Bisulphates, aqueous solution 硫酸氢盐水溶液
8		2693	Bisulphites, aqueous solution, n.o.s. 酸式亚硫酸盐水溶液, 未另作规定的
8		1719	Caustic alkali liquid, n.o.s.* 苛性碱液体, 未另作规定的*
<u>8</u>	<u>6.1</u>	<u>3561</u>	<u>Chlorophenols, corrosive, toxic, solid, n.o.s.*</u> <u>固态氯苯酚类, 腐蚀性, 毒性, 未另作规定的*</u>
<u>8</u>		<u>3562</u>	<u>Chlorophenols, corrosive, solid, n.o.s.</u> <u>固态氯苯酚类, 腐蚀性, 未另作规定的</u>
.....			

附篇

对表 3-1 的拟议修订

DG PANEL 表3-1 危险物品表

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机		
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量	
1	2	3	4	5	6	7	8	9	10	11	12	13	
A													
Proposed amendment													
≠ Alkaloid salts, liquid, n.o.s.* 液态生物碱盐类, 未另作规定的*	3140	6.1		Toxic 毒性物质			A3	I	E5	652	1 L	658	30 L
							A4	II	E4	654	5 L	662	60 L
							A6			Y641	1 L		
							A239	III	E1	655	60 L	663	220 L
									Y642	2 L			
2025-2026 Edition													
≠ Alkaloid salts, liquid, n.o.s.* 液态生物碱盐类, 未另作规定的*	3140	6.1		Toxic 毒性物质			A3	I	E5	652	1 L	658	30 L
							A4	II	E4	654	5 L	662	60 L
							A6			Y641	1 L		
								III	E1	655	60 L	663	220 L
									Y642	2 L			
Proposed amendment													
≠ Alkaloid salts, solid, n.o.s.* 固态生物碱盐类, 未另作规定的*	1544	6.1		Toxic 毒性物质			A3	I	E5	666	5 kg	673	50 kg
							A5	II	E4	669	25 kg	676	100 kg
							A6			Y644	1 kg		
							A239	III	E1	670	100 kg	677	200 kg
									Y645	10 kg			
2025-2026 Edition													
≠ Alkaloid salts, solid, n.o.s.* 固态生物碱盐类, 未另作规定的*	1544	6.1		Toxic 毒性物质			A3	I	E5	666	5 kg	673	50 kg
							A5	II	E4	669	25 kg	676	100 kg
							A6			Y644	1 kg		
								III	E1	670	100 kg	677	200 kg
									Y645	10 kg			
Proposed amendment													
≠ Alkaloids, liquid, n.o.s.* 液态生物碱类, 未另作规定的*	3140	6.1		Toxic 毒性物质			A3	I	E5	652	1 L	658	30 L
							A4	II	E4	654	5 L	662	60 L
							A6			Y641	1 L		
							A239	III	E1	655	60 L	663	220 L
									Y642	2 L			
2025-2026 Edition													
≠ Alkaloids, liquid, n.o.s.* 液态生物碱类, 未另作规定的*	3140	6.1		Toxic 毒性物质			A3	I	E5	652	1 L	658	30 L
							A4	II	E4	654	5 L	662	60 L
							A6			Y641	1 L		
								III	E1	655	60 L	663	220 L
									Y642	2 L			

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机		
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量	
1	2	3	4	5	6	7	8	9	10	11	12	13	
Proposed amendment													
≠ Alkaloids, solid, n.o.s.* 固态生物碱类, 未另作规定的*	1544	6.1		Toxic 毒性物质			A3	I	E5	666	5 kg	673	50 kg
							A5	II	E4	669	25 kg	676	100 kg
							A6			Y644	1 kg		
							A239	III	E1	670	100 kg	677	200 kg
									Y645	10 kg			
2025-2026 Edition													
≠ Alkaloids, solid, n.o.s.* 固态生物碱类, 未另作规定的*	1544	6.1		Toxic 毒性物质			A3	I	E5	666	5 kg	673	50 kg
							A5	II	E4	669	25 kg	676	100 kg
							A6			Y644	1 kg		
								III	E1	670	100 kg	677	200 kg
									Y645	10 kg			
Proposed amendment													
≠ Ammonium hydrogendifluoride, solid 固态氟化氢铵	1727	8	6.1	Corrosive & Toxic 腐蚀性物质和 毒性物质	US 4		II	E2	859	15 kg	863	50 kg	
									Y844	5 kg			
2025-2026 Edition													
≠ Ammonium hydrogendifluoride, solid 固态氟化氢铵	1727	8		Corrosive 腐蚀性物质	US 4		II	E2	859	15 kg	863	50 kg	
									Y844	5 kg			
Proposed amendment													
≠ Articles containing non-flammable, non toxic gas, n.o.s.* 含有非易燃、非毒性气体的物品, 未 另作规定的*	3538	2.2	见2;0.6						A2	FORBIDDEN 禁运	FORBIDDEN 禁运		
									A88				
									A225				
									A236				
2025-2026 Edition													
≠ Articles containing non-flammable, non toxic gas, n.o.s.* 含有非易燃、非毒性气体的物品, 未 另作规定的*	3538	2.2	见2;0.6						A2	FORBIDDEN 禁运	FORBIDDEN 禁运		
									A88				
									A225				
B													
Proposed amendment													
≠ Battery-powered equipment 电池供电设备	3171	9		Miscellaneous 杂项危险物品				E0	952	No limit 不限	952	No limit 不限	
													A67
													A87
													A94
													A154
													A182
													A199
A214													
2025-2026 Edition													
≠ Battery-powered equipment 电池供电设备	3171	9		Miscellaneous 杂项危险物品				E0	952	No limit 不限	952	No limit 不限	
													A67
													A87
													A94
													A154
													A164
													A182
A214													

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed amendment												
≠ Battery-powered vehicle 电池供电车辆	3171	9		Miscellaneous 杂项危险物品		A67 A87 A94 A154 A199 A214		E0	952	No limit 不限	952	No limit 不限
2025-2026 Edition												
≠ Battery-powered vehicle 电池供电车辆	3171	9		Miscellaneous 杂项危险物品		A67 A87 A94 A154		E0	952	No limit 不限	952	No limit 不限
Proposed amendment												
≠ Butyl acrylates, stabilized 丙烯酸丁酯, 稳定化的	2348	3		Liquid flammable 易燃液体		A209	II	E2	353 Y341	5 L 1 L	364	60 L
							III	E1	355 Y344	60 L 10 L	366	220 L
2025-2026 Edition												
≠ Butyl acrylates, stabilized 丙烯酸丁酯, 稳定化的	2348	3		Liquid flammable 易燃液体		A209	III	E1	355 Y344	60 L 10 L	366	220 L
C												
Proposed new entry												
+ Chlorophenols, corrosive, solid, n.o.s. 固态氯苯酚类, 腐蚀性, 未另作规定的	3562	8		Corrosive 腐蚀性物质			II	E2	859 Y844	15 kg 5 kg	863	50 kg
Proposed new entry												
+ Chlorophenols, corrosive, toxic, solid, n.o.s.* 固态氯苯酚类, 腐蚀性, 毒性, 未另作规定的*	3561	8	6.1	Corrosive & Toxic 腐蚀性物质和 毒性物质			II	E2	859 Y844	15 kg 5 kg	863	50 kg
Proposed amendment												
≠ Chlorophenols, toxic, liquid, n.o.s.* 液态氯苯酚类, 毒性, 未另作规定的*	2021	6.1		Toxic 毒性物质	US 4		III	E1	655 Y642	60 L 2 L	663	220 L
2025-2026 Edition												
≠ Chlorophenols, liquid 液态氯苯酚类	2021	6.1		Toxic 毒性物质	US 4		III	E1	655 Y642	60 L 2 L	663	220 L
Proposed amendment												
≠ Chlorophenols, toxic, solid, n.o.s.* 固态氯苯酚类, 毒性, 未另作规定的*	2020	6.1		Toxic 毒性物质	US 4	A25	III	E1	670 Y645	100 kg 10 kg	677	200 kg
2025-2026 Edition												
≠ Chlorophenols, solid 固态氯苯酚类	2020	6.1		Toxic 毒性物质	US 4	A25	III	E1	670 Y645	100 kg 10 kg	677	200 kg

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机和货机		仅限于货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
D												
Proposed amendment												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0030	1.1B							FORBIDDEN 禁运		FORBIDDEN 禁运	
2025-2026 Edition												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0030	1.1B				A226			FORBIDDEN 禁运		FORBIDDEN 禁运	
Proposed amendment												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0255	1.4B		Explosive 1.4 爆炸品1.4				E0	FORBIDDEN 禁运		131	75 kg
2025-2026 Edition												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0255	1.4B		Explosive 1.4 爆炸品1.4		A226		E0	FORBIDDEN 禁运		131	75 kg
Proposed amendment												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0456	1.4S		Explosive 1.4 爆炸品1.4		A165		E0	131	25 kg	131	100 kg
2025-2026 Edition												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0456	1.4S		Explosive 1.4 爆炸品1.4		A165 A226		E0	131	25 kg	131	100 kg
Proposed amendment												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0511	1.1B						E0	FORBIDDEN 禁运		FORBIDDEN 禁运	
2025-2026 Edition												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0511	1.1B				A226		E0	FORBIDDEN 禁运		FORBIDDEN 禁运	
Proposed amendment												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0512	1.4B		Explosive 1.4 爆炸品1.4				E0	FORBIDDEN 禁运		131	75 kg
2025-2026 Edition												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0512	1.4B		Explosive 1.4 爆炸品1.4		A226		E0	FORBIDDEN 禁运		131	75 kg
Proposed amendment												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0513	1.4S		Explosive 1.4 爆炸品1.4		A165		E0	131	25 kg	131	100 kg
2025-2026 Edition												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0513	1.4S		Explosive 1.4 爆炸品1.4		A165 A226		E0	131	25 kg	131	100 kg

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed amendment												
≠ 1,2-Di-(dimethylamino) ethane 1,2-双(二甲氨基)乙烷	2372	3	6.1 8	Liquid flammable & Toxic & Corrosive 易燃液体和 毒性物质和 腐蚀性物质			II	E2	353 Y341	5 L 1 L	364	60 L
2025-2026 Edition												
≠ 1,2-Di-(dimethylamino) ethane 1,2-双(二甲氨基)乙烷	2372	3		Liquid flammable 易燃液体			II	E2	353 Y341	5 L 1 L	364	60 L
Proposed amendment												
≠ 2,4-Difluoroaniline, see Toxic liquid, organic, n.o.s.* (UN No. 2810) 2,4-二氟苯胺, 见有机毒性液体, 未另作规定的* (UN No. 2810)												
2025-2026 Edition												
≠ 2,4-Difluoroaniline, see Fluoroanilines 2,4-二氟苯胺, 见氟苯胺类												
E												
Proposed amendment												
≠ Environmentally hazardous substance, liquid, n.o.s.* 危害环境的液态物质, 未另作规定的*	3082	9		Miscellaneous 杂项危险物品	DE 5 US 4	A97 A158 A197 A215 A238	III	E1	964 Y964	450 L 30 kg G	964	450 L
2025-2026 Edition												
≠ Environmentally hazardous substance, liquid, n.o.s.* 危害环境的液态物质, 未另作规定的*	3082	9		Miscellaneous 杂项危险物品	DE 5 US 4	A97 A158 A197 A215	III	E1	964 Y964	450 L 30 kg G	964	450 L
Proposed amendment												
≠ Ethylene oxide 环氧乙烷	1040	2.3	2.1 8		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			FORBIDDEN 禁运		FORBIDDEN 禁运	
2025-2026 Edition												
≠ Ethylene oxide 环氧乙烷	1040	2.3	2.1		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			FORBIDDEN 禁运		FORBIDDEN 禁运	

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
F												
Proposed amendment												
≠												
p-Fluoroaniline, see Corrosive liquid, basic, organic, n.o.s.* (UN No. 3267) 对-氟苯胺, 见有机碱性腐蚀性液体, 未另作规定的* (UN No. 3267)												
2025–2026 Edition												
≠												
p-Fluoroaniline, see Fluoroanilines 对-氟苯胺, 见氟苯胺类												
Proposed amendment												
≠												
o-Fluoroaniline, see Flammable liquid, toxic, n.o.s.* (UN No. 1992) 邻-氟苯胺, 见易燃液体, 毒性, 未另作规定的* (UN No. 1992)												
2025–2026 Edition												
≠												
o-Fluoroaniline, see Fluoroanilines 邻-氟苯胺, 见氟苯胺类												
Proposed amendment												
≠												
2-Fluoroaniline, see Flammable liquid, toxic, n.o.s.* (UN No. 1992) 2-氟苯胺, 见易燃液体, 毒性, 未另作规定的* (UN No. 1992)												
2025–2026 Edition												
≠												
2-Fluoroaniline, see Fluoroanilines 2-氟苯胺, 见氟苯胺类												
Proposed amendment												
≠												
4-Fluoroaniline, see Corrosive liquid, basic, organic, n.o.s.* (UN No. 3267) 4-氟苯胺, 见有机碱性腐蚀性液体, 未另作规定的* (UN No. 3267)												
2025–2026 Edition												
≠												
4-Fluoroaniline, see Fluoroanilines 4-氟苯胺, 见氟苯胺类												
Proposed amendment												
>												
2025–2026 Edition												
>												
Fluoroanilines 氟苯胺类	2941	6.1		Toxic 毒性物质			III	E1	655 Y642	60 L 2 L	663	220 L

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
H												
Proposed new entry												
+ Heating machines containing flammable, non - toxic, liquefied gas 加热设备, 含有易燃、无毒液化气体的	3358	2.1					A103			FORBIDDEN 禁运	FORBIDDEN 禁运	
Proposed new entry												
+ Heating machines containing non - flammable, non - toxic gases or ammonia solutions (UN 2672) 加热设备, 含有非易燃、无毒气体或氨溶液的 (UN 2672)	2857	2.2		Gas non-flammable 非易燃气体			A26	E0	见211		见211	
Proposed amendment												
≠ Hydrocarbon gas mixture, liquefied, n.o.s.* 液化烃类气体混合物, 未另作规定的*	1965	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	FORBIDDEN 禁运		200	150 kg
2025-2026 Edition												
≠ Hydrocarbon gas mixture, liquefied, n.o.s.* 液化烃类气体混合物, 未另作规定的*	1965	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	FORBIDDEN 禁运		200	150 kg
L												
Proposed amendment												
≠ Lithium ion batteries (including lithium ion polymer batteries) 锂离子电池, (包括锂离子聚合物电池)	3480	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A88 A99 A154 A183 A201 A213 A235		E0	FORBIDDEN 禁运		见965	
2025-2026 Edition												
≠ Lithium ion batteries (including lithium ion polymer batteries) 锂离子电池, (包括锂离子聚合物电池)	3480	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A88 A99 A154 A183 A201 A213		E0	FORBIDDEN 禁运		见965	

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed amendment												
≠ Lithium ion batteries contained in equipment (including lithium ion polymer batteries) 装在设备中的锂离子电池, (包括锂离子聚合物电池)	3481	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A48 A88 A99 A154 A181 A185 A213 A220 A235		E0	967	5 kg	967	35 kg
2025–2026 Edition												
≠ Lithium ion batteries contained in equipment (including lithium ion polymer batteries) 装在设备中的锂离子电池, (包括锂离子聚合物电池)	3481	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A48 A88 A99 A154 A181 A185 A213 A220		E0	967	5 kg	967	35 kg
Proposed amendment												
≠ Lithium ion batteries installed in cargo transport unit 装在货运装置中的锂离子电池组	3536	9							FORBIDDEN 禁运		FORBIDDEN 禁运	
2025–2026 Edition												
≠ Lithium batteries installed in cargo transport unit lithium ion batteries or lithium metal batteries 装在货运装置中的锂电池组锂离子电池组或锂金属电池组	3536	9							FORBIDDEN 禁运		FORBIDDEN 禁运	
Proposed amendment												
≠ Lithium ion batteries packed with equipment (including lithium ion polymer batteries) 与设备包装在一起的锂离子电池, (包 括锂离子聚合物电池)	3481	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A88 A99 A154 A181 A185 A213 A235		E0	966	5 kg	966	35 kg
2025–2026 Edition												
≠ Lithium ion batteries packed with equipment (including lithium ion polymer batteries) 与设备包装在一起的锂离子电池, (包 括锂离子聚合物电池)	3481	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池	US 3	A88 A99 A154 A181 A185 A213		E0	966	5 kg	966	35 kg
Proposed new entry												
+ Lithium metal batteries installed in cargo transport unit 安装在货运单元中的锂金属电池组	3563	9							FORBIDDEN 禁运		FORBIDDEN 禁运	

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机和货机		仅限于货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
P												
Proposed amendment												
≠ Petroleum gases, liquefied 液化石油气	1075	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	FORBIDDEN 禁运		200	150 kg
2025-2026 Edition												
≠ Petroleum gases, liquefied 液化石油气	1075	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	FORBIDDEN 禁运		200	150 kg
S												
Proposed amendment												
≠ Sodium ion batteries with organic electrolyte 含有机电解质的钠离子电池	3551	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池		A88 A99 A154 A183 A201 A228 A235		E0	FORBIDDEN 禁运		见976	
2025-2026 Edition												
≠ Sodium ion batteries with organic electrolyte 含有机电解质的钠离子电池	3551	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池		A88 A99 A154 A183 A201 A228		E0	FORBIDDEN 禁运		见976	
Proposed amendment												
≠ Sodium ion batteries contained in equipment with organic electrolyte 含有机电解质的装在设备中的钠离子电池	3552	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池		A48 A88 A99 A154 A185 A228 A235		E0	978	5 kg	978	35 kg
2025-2026 Edition												
≠ Sodium ion batteries contained in equipment with organic electrolyte 含有机电解质的装在设备中的钠离子电池	3552	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池		A48 A88 A99 A154 A185 A228		E0	978	5 kg	978	35 kg

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed new entry												
+	Sodium ion batteries installed in cargo transport unit 安装在货运单元中的钠离子电池组	3564	9							FORBIDDEN 禁运	FORBIDDEN 禁运	
Proposed amendment												
≠	Sodium ion batteries packed with equipment with organic electrolyte 含有机电解质的与设备包装在一起的钠离子电池	3552	9	Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电池		A88 A99 A154 A185 A228 A235		E0	977	5 kg	977	35 kg
2025–2026 Edition												
≠	Sodium ion batteries packed with equipment with organic electrolyte 含有机电解质的与设备包装在一起的钠离子电池	3552	9	Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电池		A48 A88 A99 A154 A185 A228		E0	977	5 kg	977	35 kg
V												
Proposed amendment												
≠	Vanadium pentoxide, non-fused form, containing less than 10% respirable particles 五氧化二钒，非熔融状态，含有不到10%的可吸入颗粒	2862	6.1	Toxic 毒性物质			III	E1	670 Y645	100 kg 10 kg	677	200 kg
2025–2026 Edition												
≠	Vanadium pentoxide, non-fused form 五氧化二钒，非熔融状态	2862	6.1	Toxic 毒性物质			III	E1	670 Y645	100 kg 10 kg	677	200 kg
Proposed new entry												
+	Vanadium pentoxide, non - fused form, containing not less than 10% respirable particles 五氧化二钒，非熔融状态，含有不到10%的可吸入颗粒	2862	6.1	Toxic 毒性物质			II	E4	669 Y644	25 kg 1 kg	676	100 kg

附录 B**《技术细则补篇》的合并修订****第 S-3 部分****危险物品表、特殊规定和数量限制**

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表S-3-1的拟议修订见本附录的附篇。

第 6 章**特殊规定**

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为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.3.1 段：

《联合国规章范本》第 3.3 章，SP 379（见 ST/SG/AC.10/52/Add.1）：

A329(379) 氨配送系统中或打算成为此类系统组成部分的气瓶中所装固体上吸附或吸收的无水氨，只有在获得始发国和运营人所属国主管当局事先批准的情况下，方可按照这些主管当局确定的书面条件及下列条件在货机上运输：

- a) 吸附或吸收具有以下特性：
 - 1) 气瓶内温度在 20°C 时，压力小于 0.6 巴；
 - 2) 气瓶内温度在 35°C 时，压力小于 1 巴；
 - 3) 气瓶内温度在 85°C 时，压力小于 12 巴。
- b) 吸附或吸收材料不得具有第 1 至第 8 类所列的危险性；
- c) 气瓶内装物的最大重量为 10 千克氨；和
- d) 装有吸附或吸收氨的气瓶必须满足以下条件：
 - 1) 气瓶的制作材料必须是 ISO 11114-1: [2012+A1](#); [2017](#) [2020 + Amd 1:2023](#) 中规定的与氨匹配的材料；
 - 2) 气瓶及其关闭装置必须气密，并能够不让所产生的氨泄露；
 - 3) 每个气瓶必须能够承受 85°C 时产生的压力，体积膨胀不得大于 0.1%；

- 4) 每个气瓶都必须安装一个装置，可在压力超过 15 巴时释放气体，而不至发生剧烈的破裂、爆炸或崩射；和
- 5) 每个气瓶都必须能够在压力释放装置停止工作的情况下承受 20 巴的压力而不出现泄漏。

当装在氨配送器上交由运输时，气瓶与配送器的连接必须保证整体装配具有与单个气瓶同样的强度。

必须对本特殊规定中提到的机械强度的特性进行试验，试验时使用气瓶和/或配送器样型，将样型装载至额定容量，然后增加温度直至达到规定压力。

试验结果必须记录存档，可随时查阅，并在有关当局要求时提供。

为与联合国保持一致的修订

管理航空特定风险和处理异常情况的修订

DGP-WG/25 会议报告第 4.1.3.1 段和 DGP/30 报告第 1.3.1.1 a) 段（亦见《技术细则》特殊规定 A235）：

《联合国规章范本》第 3.3 章，SP 379（见 ST/SG/AC.10/52/Add.1）：

A336 安装在货运单元中符合《技术细则》2:9.3h)的含有锂离子电池芯和钠离子电池芯的混合电池，必须划入联合国编号 3536。

第 S-4 部分

包装说明

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第 4 章

第 2 类 — 气体

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4.1 第 2 类危险物品的特殊包装规定

4.1.1 一般要求

4.1.1.1 本部分提出了第 2 类气体（例如 UN 1072 **Oxygen, compressed**（压缩氧气））运输中气瓶和密闭式低温容器使用的一般要求。气瓶和密闭式低温容器的构造和密封必须保证在正常运输条件下，包括振动、温度变化、湿度变化或压力变化（例如由高度引起），无气体漏失。

为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.3.1 段：

《联合国规章范本》第 4.1 章，4.1.6.1.2（见 ST/SG/AC.10/52/Add.1）：

4.1.1.2 气瓶和密闭式低温容器直接与危险物品接触的部位不得受危险物品影响或被削弱，并且不得引起危险性反应（例如对危险物品起催化作用或与危险物品反应）。必须优先满足有关包装说明当中规定的要求，此外还必须符合 ~~ISO 11114-1:2012 + A 1:2017 和 ISO 11114-2:2013~~[ISO 11114-1:2020 + Amd 1:2023 和 ISO 11114-2:2021](#) 中的相应规定。

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为与联合国保持一致的修订

危险品专家组联合国协调统一工作组确定需要对 S-4; 4.1.1.8 做进一步修订，以便与《技术细则》4; 4.1.1.8 和《联合国规章范本》保持一致。

《联合国规章范本》第 4.1 章，4.1.6.1.8（见 ST/SG/AC.10/52/Add.1）：

4.1.1.8 阀门的设计和构造必须使其本身耐损而不会释放内装的气体，或者必须采取如下方法之一，防止阀门损坏，造成气瓶和密闭式低温容器内气体意外释放：

- a) 阀门位于气瓶和密闭式低温容器颈部内，有螺栓或护帽保护；
- b) 用护帽或**防护装置**保护阀门。护帽必须有足够横截面积的排气孔，以便在阀门发生泄漏时排气；
- c) 阀门可用护罩或**防护装置耐久保护性附加装置**；
- d) 未用过；或

- e) 气瓶和密闭式低温容器装入外包装中运输。该外包装必须达到《技术细则》6;4.3 规定的 I 级包装性能水平跌落试验的要求。

装有 b) 和 e) 中描述的阀门的气瓶和密闭式低温容器，必须符合 ISO 11117:1998、ISO 11117:2008 + Cor 1:2009 或 ISO 11117:2019 的要求。~~。c) 段下用于阀门保护的护罩和耐久保护性附加装置的要求载于相关的压力容器壳体设计标准，参见 6;5.2.1。用于可再充装气瓶的本身具有保护装置的阀门，必须符合 ISO 10297:2006 附件 A 第 4.6.2 条、ISO 10297:2014 附件 A 第 5.5.2 条或 ISO 10297+A1: 2014+ Amd 1:2017 第 5.5.2 条或 ISO 10297:2024 第 5.4.2 条，或附件 A 的要求。对于装有带保护装置的自闭阀来说，必须符合 ISO 17879:2017 第 5.4.2 条的要求。用于不可再充装气瓶的本身具有保护装置的阀门，必须符合 ISO 11118:2015 第 9.2.5 条或 ISO 11118:2015 + Amd 1:2019 第 9.2.5 条的要求。气瓶和密闭式低温容器，必须符合 ISO 17879:2017 附件 A 的要求。金属氢贮存系统的阀门则必须符合 ISO 16111:2008 或 ISO 16111:2018 规定的阀门保护要求。~~

包装说明 200

气瓶必须符合 4;1.1 和 4;4.1.1 的一般包装要求。

按第 6;5 规定制造的气瓶准予运输下面表（表 1 和表 2）中所规定的具体物质。如果气瓶的设计、制造、试验、批准和标记符合批准和充装气瓶的国家有关当局的要求，这种非联合国标记和规格的气瓶可以使用。内装物质必须是按照本细则规定允许盛装于气瓶和允许进行空运的。定期试验到期的气瓶要等到成功地通过了再试验才可充装和交付运输。阀门必须得到适当的保护或按照 ISO 10297:1999 附件 B 的规定设计和制造得耐损而不泄漏。容量为 1 L 或更小的气瓶必须盛放在外包装内并进行固定或衬垫，以防止在正常运输条件下容器在外包装内明显移动。该外包装应使用适当材料，其强度和设计应考虑到包装的容量和用途。对于某些物质，特殊包装规定可能禁止某种气瓶的使用。必须符合下列要求：

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为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.3.1 段：

《联合国规章范本》第 4.1 章，4.1.4.1（见 ST/SG/AC.10/52/Add.1）：

5) 气瓶必须由合格人员使用适当的设备和程序来充装。程序应包括检查：

- a) 气瓶和配件是否符合本细则；
- b) 气瓶是否与所运产品相匹配；
- c) 不存在可能影响安全的损坏；
- d) 酌情检查是否满足充装~~速率~~或充装压力要求；
- e) 标记和识别标志。

如果适用以下标准，可认为上述要求得以满足：

ISO 10691:2004	气瓶 — 用于液化石油气（LPG）的可再充装焊接钢瓶 — 充装前后及充装期间的检查程序
ISO 11372:2011	气瓶 — 乙炔气瓶 — 充装条件和充装检查
ISO 11755:2005	气瓶 — 用于压缩气体和液化气体（乙炔除外）的气瓶组 — 充装时检查
ISO 13088:2011+AMD. 1: 2020	气瓶 — 乙炔气瓶组 — 充装条件和充装检查
ISO 24431:2016	气瓶 — 用于压缩气体和液化气体（乙炔除外）的无缝、焊接和复合气瓶 — 充装时检查

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包装说明 221

仅限于 UN3537 和 UN3538 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订

DGP-WG/24 会议报告第 4.3.6 段：

本条目适用于没有现有运输专用名称、仅含有《技术细则》第 3 部分 4.1.2 所允许的危险化学品并且超过特殊规定 A107 中规定的 UN 3363 的数量限制以及《联合国规章范本》的特殊规定 301 所允许的数量限制且不符合第 2 部分引言章节 6.0.a) 或 6.0.b) 规定条件的物品。

为便利运输或国家监管的修订

DGP-WG/25 会议报告第 4.2.3.2 段：

下表提供了在一个包装件中或在一个未包装的物品中所含单个物质的建议最大数量。

UN 编号和名称	每包装件净量
UN3537 Articles containing flammable gas, n.o.s.* 含有易燃气体的物品, 未另作规定的*	150kg
UN3538 Articles containing non-flammable, non toxic gas, n.o.s.* 含有非易燃非毒性气体的物品, 未另作规定的*	150kg

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包装说明 379

仅限于 UN3540 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订

DGP-WG/24 会议报告第 4.3.6 段：

本条目适用于没有现有运输专用名称、~~仅含有《技术细则》第 3 部分 4.1.2 所允许的~~危险物品并且超过特殊规定 ~~A107~~ 中规定的 ~~UN 3363~~ 的数量限制以及《联合国规章范本》的特殊规定 ~~301~~ 所允许的数量限制且不符合第 2 部分引言章节 ~~6.0.a) 或 6.0.b) 规定条件~~ 的物品。

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为便利运输或国家监管的修订

DGP-WG/25 会议报告第 4.2.3.2 段：

下表提供了 在一个包装件中或在一个未包装的物品中所含单个物质的建议最大数量。

UN 编号和名称	每包装件净量
UN 3540 Articles containing flammable liquid, n.o.s.* 含有易燃液体的物品，未另作规定的*	60 L

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包装说明 400

仅限于 UN 3541 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订**DGP-WG/24 会议报告第 4.3.6 段：**

本条目适用于没有现有运输专用名称、仅含有《技术细则》第 3 部分 4.1.2 所允许的危险物品并且超过特殊规定 A107 中规定的 UN 3363 的数量限制以及《联合国规章范本》的特殊规定 301 所允许的数量限制且不符合第 2 部分引言章节 6.0.a) 或 6.0.b) 规定条件的物品。

为便利运输或国家监管的修订**DGP-WG/25 会议报告第 4.2.3.2 段：**

下表提供了 在一个包装件中或在一个未包装的物品中所含单个物质的建议最大数量。

UN 编号和名称	每包装件净量
UN 3541 Articles containing flammable solid, n.o.s.* 含有易燃固体的物品, 未另作规定的*	50 kg

.....

.....

包装说明 600

仅限于 UN 3546 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订

DGP-WG/24 会议报告第 4.3.6 段：

本条目适用于没有现有运输专用名称、~~仅含有《技术细则》第 3 部分 4.1.2 所允许的~~危险物品并且超过特殊规定 ~~A107~~ 中规定的 ~~UN 3363~~ 的数量限制以及《联合国规章范本》的特殊规定 ~~301~~ 所允许的数量限制且不符合第 2 部分引言章节 6.0.a) 或 6.0.b) 规定条件的物品。

为便利运输或国家监管的修订

DGP-WG/25 会议报告第 4.2.3.2 段：

下表提供了 在一个包装件中或在一个未包装的物品中所含单个物质的建议最大数量。

UN 编号和名称	包装件净量	
	液体	固体
UN 3546 Articles containing toxic substance, n.o.s.* 含有毒性物质的物品，未另作规定的*	60 L	100 kg

.....

.....

包装说明 854 – 856

仅限货机运输

组合包装的补充包装要求

I 级包装

— 内包装在放入外包装之前，必须用足够的吸附材料包好以便吸附内包装的全部内装物，并装入硬质的防漏容器。

III 级包装

— 包装必须符合 II 级包装的性能要求。

为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.3.1 段：

《联合国规章范本》第 4.1 章，4.1.4.1，P001（见 ST/SG/AC.10/52/Add.1）：

单一包装的补充包装要求

对于 UN 2029

当使用气瓶时，65°C 时的内部压力不得超过试验压力。

.....

包装说明 877

仅限于 UN 3547 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订

DGP-WG/24 会议报告第 4.3.6 段：

本条目适用于没有现有运输专用名称、~~仅含有《技术细则》第 3 部分 4.1.2 所允许的危险物品并且超过特殊规定 A107 中规定的 UN 3363 的数量限制以及《联合国规章范本》的特殊规定 301 所允许的数量限制且不符合第 2 部分引言章节 6.0.a) 或 6.0.b) 规定条件~~的物品。

为便利运输或国家监管的修订

DGP-WG/25 会议报告第 4.2.3.2 段：

下表提供了在在一个包装件中或在一个未包装的物品中所含单个物质的建议最大数量。

UN 编号和名称	每包装件净量	
	液体	固体
UN 3547 Articles containing corrosive substance, n.o.s.* 含有腐蚀性物质的物品，未另作规定的*	30 L	50 kg

.....

.....

包装说明 973

仅限于 UN 3548 的仅限货机运输

一般要求

必须符合第4部分1.1.1、1.1.3、1.1.12和第4部分第2章的要求。

为便利运输或国家监管的修订

DGP-WG/24 会议报告第 4.3.6 段：

本条目适用于没有现有运输专用名称、仅含有《技术细则》第 3 部分 4.1.2 所允许的危险化学品并且超过特殊规定 A107 中规定的 UN 3363 的数量限制以及《联合国规章范本》的特殊规定 301 所允许的数量限制且不符合第 2 部分引言章节 6.0.a) 或 6.0.b) 规定条件的物品。

为便利运输或国家监管的修订

DGP-WG/25 会议报告第 4.2.3.2 段：

下表提供了在一个包装件中或在一个未包装的物品中所含单个物质的推荐最大数量。

UN 编号和名称	包装件净量
UN 3548 Articles containing miscellaneous dangerous goods, n.o.s.* 含有杂项危险物品的物品，未另作规定的*	按《技术细则》表 3-1 中为该物质所标示的

.....

第 13 章

大型包装

注：本章在《技术细则》中没有对应的章节。

13.1 概述

为与联合国保持一致的修订

危险物品专家组联合国协调统一工作组建议增加以下条款，以便与《联合国规章范本》保持一致并应对潜在的安全风险。

《联合国规章范本》第 4.1 章，4.1.3.4 和 4;2.5（见 ST/SG/AC.10/52/Add.1）：

13.1.1 只有在满足以下条件时，方可按本章的规定使用大型包装运输物品：

- a) 仅在货机上运输；
- b) 得到始发国和运营人所属国主管局的批准；和
- c) 具体允许使用第 S-4 部分所规定的大型包装或者技术细则表 3-1 第 13 栏中显示的值表明“无限制”。

13.1.2 如所运物质在运输过程中可能变成液体，则不得使用下列大型包装：

柔性塑料： 51H（外包装）

.....

第 S-5 部分

国家对托运人的责任

(《技术细则》第 5 部分的补充内容)

.....

第 2 章

标签

2.1 作为联合国编号 3537、3538、3539、3540、3541、3542、3543、3544、3545、3546、3547 和 3548 运输的含有危险物品的物品标签

为与联合国保持一致的修订

DGP-WG/25 会议报告第 4.1.3.1 段:

《联合国规章范本》第 5.2 章, 5.2.2.1.13.1 (见 ST/SG/AC.10/52/Add.1) :

2.1.1 含有危险物品的物品包装件和无包装运输的含危险物品的物品必须按照《技术细则》5.3.1.1 的规定贴上标签, 反映根据《技术细则》第 2 部分引言章第 6 段确定的危险性。如果该物品含有一个或多个锂电池或钠离子电池, 对于锂金属电池, 锂的总含量为 2 克或以下, 对于锂离子电池或钠离子电池, 瓦时额定值为 100Wh 或以下, 则必须在该包装件或无包装物品上贴上锂电池标记(《技术细则》图 5-3)。如果该物品含有一个或多个锂电池或钠离子电池, 对于锂金属电池, 锂的总含量超过 2 克, 对于锂离子电池或钠离子电池, 瓦时额定值超过 100Wh, 则必须在该包装件或无包装物品上贴上第 9 类锂电池或钠离子电池第 9 类标签(《技术细则》图 5-26)。

.....

第 S-7 部分

国家对运营人的责任

(《技术细则》第 7 部分的补充内容)

.....

管理航空特定风险和处理异常情况的修订

DGP/30 报告第 2.2.1 段:

第 2 章

仓储、和装载和积载

.....

2.2 客机装载

.....

为支持遥控驾驶航空器系统运行而做出的修订

DGP/30 报告第 6.1 段:

2.3 遥控驾驶航空器 (RPA) 装载2.3.1 《技术细则》7:8.1 规定遥控驾驶航空器仅可在下列其一条件下运输危险物品:

- a) 在满足 C 级、D 级或 E 级航空器货舱所有合格审定要求的货舱内; 或
- b) 作为外部运载。

对于遥控驾驶航空器运行, 运营人所在国可根据 2.2.5、2.2.6、2.2.7 和 2.2.8 的规定, 批准在不符合所有适用合格审定要求的货舱内运载 2.2.2 和 2.2.3 所列的危险物品。当要给予此类批准时, 各国应考虑以下相关因素, 这些因素可能意味着要求进行内部运载或最好进行内部运载:

- 包装件的大小/质量导致无法将其作为外部负载;
- 所涉危险物品的类型和数量;
- 所用的包装类型;
- 飞行持续时间;
- 运行类型; 和

一 在紧急情况下快速着陆的能力。

2.3.2 当运营人所在国之外的其他国家已通知国际民航组织它们要求事先批准此类运行时，则还必须视情获得始发国和目的地国家的批准。

请对后续段落相应重新编号

管理航空特定风险和处理异常情况的修订

DGP-WG/25 报告第 4.2.2.5 段和 DGP/30 报告第 2.2.1 段：

第 8 章附篇 II

危险物品手册和培训大纲检查单

.....

附篇 B

危险物品培训方案 — 批准检查单

.....				
问题：				
为了实现这一目标，国家应该确定危险物品培训大纲是否含有以下要素：				
.....				
限制	相关引述	是	否	不适用
1. 航空器禁运的危险物品	1;2.1			
2. 豁免危险物品	1;1.1.5, 1;2.2, 1;2.4, 1;2.5			
3. 旅客或机组成员携带的危险物品	8;1.1			
.....				
3. 报告事故和事故征候以及未申报的或错误申报的危险物品	7;4.4, 7;4.5, 7;4.6, 7.4.7			
仓储、存储和、装载和积载程序	相关引述	是	否	不适用
1. 集装箱和包装件的检查	7;2.8, 7;3.1.2			
2. 积载相容性	7;2.2			

3. 包装件的方向	7;2.3, 5;3.5.2			
4. 包装件的固定	7;2.4.2			
5. 装上货机	7;2.4.1			
6. 危险物品运输造成的损害	7;3			
.....				

附篇

表 S-3-1 的拟议修订

DG PANEL 表S-3-1危险物品增补表 (第1类)

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机和货机		仅限于货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
D												
Proposed amendment												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0030	1.1B		Explosive 爆炸品					FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)
2025-2026 Edition												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0030	1.1B		Explosive 爆炸品		A226			FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)
Proposed amendment												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0255	1.4B		Explosive 1.4 爆炸品1.4				E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	131	75 kg
2025-2026 Edition												
≠ Detonators, electric for blasting† 电雷管, 爆破用†	0255	1.4B		Explosive 1.4 爆炸品1.4		A226		E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	131	75 kg
Proposed amendment												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0511	1.1B		Explosive 爆炸品				E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)
2025-2026 Edition												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0511	1.1B		Explosive 爆炸品		A226		E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)
Proposed amendment												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0512	1.4B		Explosive 1.4 爆炸品1.4				E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	131	75 kg
2025-2026 Edition												
≠ Detonators, electronic programmable for blasting† 可编程电子引爆雷管, 爆破用†	0512	1.4B		Explosive 1.4 爆炸品1.4		A226		E0	FORBIDDEN 禁运 (131)	FORBIDDEN 禁运 (131)	131	75 kg

DG PANEL 表S-3-1危险物品增补表 (第2类)

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机和货机		仅限于货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
A												
Proposed amendment												
≠ Articles containing non-flammable, non toxic gas, n.o.s.* 含有非易燃、非毒性气体的物品, 未另作规定的*	3538	2.2	见2;0.6	Gas non-flammable 非易燃气体		A2 A88 A225 A236 A333 A335			FORBIDDEN 禁运		(221)	No limit 不限
2025-2026 Edition												
≠ Articles containing non-flammable, non toxic gas, n.o.s.* 含有非易燃、非毒性气体的物品, 未另作规定的*	3538	2.2	见2;0.6	Gas non-flammable 非易燃气体		A2 A88 A225 A333 A335			FORBIDDEN 禁运		(221)	No limit 不限
E												
Proposed amendment												
≠ Ethylene oxide 环氧乙烷	1040	2.3	2.1 8	Gas toxic & Gas flammable & Corrosive 毒性和易燃气体和腐蚀性物质	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			见210		见210	
2025-2026 Edition												
≠ Ethylene oxide 环氧乙烷	1040	2.3	2.1	Gas toxic & Gas flammable 毒性和易燃气体	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A131			见210		见210	
Proposed amendment												
≠ Ethylene oxide and carbon dioxide mixture with more than 9% but not more than 87% ethylene oxide 环氧乙烷和二氧化碳混合物, 环氧乙烷含量高于9%但不高于87%	1041	2.1	8	Gas flammable & Corrosive 易燃气体和腐蚀性物质	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	(200)	(5 kg)	200	25 kg
2025-2026 Edition												
≠ Ethylene oxide and carbon dioxide mixture with more than 9% but not more than 87% ethylene oxide 环氧乙烷和二氧化碳混合物, 环氧乙烷含量高于9%但不高于87%	1041	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	(200)	(5 kg)	200	25 kg

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed amendment												
≠ Ethylene oxide and carbon dioxide mixture, with more than 87% ethylene oxide 环氧乙烷和二氧化碳混合物, 含环氧乙烷超过87%	3300	2.3	2.1 8	Gas toxic & Gas flammable & Corrosive 毒性气体和易燃气体和腐蚀性物质	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			见210		见210	
2025-2026 Edition												
≠ Ethylene oxide and carbon dioxide mixture, with more than 87% ethylene oxide 环氧乙烷和二氧化碳混合物, 含环氧乙烷超过87%	3300	2.3	2.1	Gas toxic & Gas flammable 毒性气体和易燃气体	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			见210		见210	
Proposed amendment												
≠ Ethylene oxide with nitrogen up to a total pressure of 1 MPa at 50°C 含氮环氧乙烷, 在50°C时最高总压力为 1 MPa	1040	2.3	2.1 8	Gas toxic & Gas flammable & Corrosive 毒性气体和易燃气体和腐蚀性物质	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			FORBIDDEN 禁运		FORBIDDEN 禁运	
2025-2026 Edition												
≠ Ethylene oxide with nitrogen up to a total pressure of 1 MPa at 50°C 含氮环氧乙烷, 在50°C时最高总压力为 1 MPa	1040	2.3	2.1	Gas toxic & Gas flammable 毒性气体和易燃气体	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2			FORBIDDEN 禁运		FORBIDDEN 禁运	
H												
Proposed new entry												
+ Heating machines containing flammable, non - toxic, liquefied gas 加热设备, 含有易燃、无毒液化气体的	3358	2.1		Gas flammable 易燃气体		A103			FORBIDDEN 禁运		FORBIDDEN 禁运	
Proposed amendment												
≠ Hydrocarbon gas mixture, liquefied, n.o.s.* 液化烃类气体混合物, 未另作规定的*	1965	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	(200)	(5 kg)	200	150 kg
2025-2026 Edition												
≠ Hydrocarbon gas mixture, liquefied, n.o.s.* 液化烃类气体混合物, 未另作规定的*	1965	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	(200)	(5 kg)	200	150 kg

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
P												
Proposed amendment												
≠ Petroleum gases, liquefied 液化石油气	1075	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1 A237		E0	(200)	(5 kg)	200	150 kg
2025-2026 Edition												
≠ Petroleum gases, liquefied 液化石油气	1075	2.1		Gas flammable 易燃气体	AU 1 CA 7 IR 3 NL 1 US 3	A1		E0	(200)	(5 kg)	200	150 kg

DG PANEL 表S-3-1危险物品增补表 (第3至9类)

名称	UN 编号	类别或项别	次要危险性	标签	国家差异条款	特殊规定	UN 包装等级	例外数量	客机和货机		仅限于货机	
									包装说明	每个包装件最大净量	包装说明	每个包装件最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
A												
Proposed amendment												
Articles containing flammable liquid, n.o.s.* 含有易燃液体的物品, 未另作规定的*	3540	3	见2;0.6	Liquid flammable 易燃液体		A2 A88 A333			FORBIDDEN 禁运		(379)	(60 L)
2025-2026 Edition												
Articles containing flammable liquid, n.o.s.* 含有易燃液体的物品, 未另作规定的*	3540	3	见2;0.6	Liquid flammable 易燃液体		A2 A88 A333			FORBIDDEN 禁运		(378)	(60 L)
B												
Proposed amendment												
≠ Butyl acrylates, stabilized 丙烯酸丁酯, 稳定化的	2348	3		Liquid flammable 易燃液体		A209 A330	II	E2	353	5 L	364	60 L
							III	E1	Y341	1 L		
									Y344	60 L 10 L		
2025-2026 Edition												
≠ Butyl acrylates, stabilized 丙烯酸丁酯, 稳定化的	2348	3		Liquid flammable 易燃液体		A209 A330	III	E1	355 Y344	60 L 10 L	366	220 L
L												
Proposed amendment												
≠ Lithium ion batteries (including lithium ion polymer batteries) 锂离子电池, (包括锂离子聚合物电池)	3480	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电池	US 3	A88 A99 A154 A183 A201 A213 A235 A331 A334		E0	FORBIDDEN 禁运		见965	
						2025-2026 Edition						
≠ Lithium ion batteries (including lithium ion polymer batteries) 锂离子电池, (包括锂离子聚合物电池)	3480	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电池	US 3	A88 A99 A154 A183 A201 A213 A331 A334		E0	FORBIDDEN 禁运		见965	

名称	UN 编号	类别 或 项别	次要 危险性	标 签	国家差异 条款	特殊 规定	UN 包装 等级	例外数量	客机和货机		仅限于货机	
									包装 说明	每个 包装件 最大净量	包装 说明	每个 包装件 最大净量
1	2	3	4	5	6	7	8	9	10	11	12	13
Proposed amendment												
≠ Lithium ion batteries installed in cargo transport unit 装在货运装置中的锂离子电池组	3536	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池			A336			FORBIDDEN 禁运	FORBIDDEN 禁运	
2025–2026 Edition												
≠ Lithium batteries installed in cargo transport unit lithium ion batteries or lithium metal batteries 装在货运装置中的锂电池组锂离子电池组或锂金属电池组	3536	9		Miscellaneous 杂项危险物品						FORBIDDEN 禁运	FORBIDDEN 禁运	
Proposed new entry												
+ Lithium metal batteries installed in cargo transport unit 安装在货运单元中的锂金属电池组	3563	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池			A336			FORBIDDEN 禁运	FORBIDDEN 禁运	
S												
Proposed amendment												
≠ Sodium ion batteries with organic electrolyte 含有机电解质的钠离子电池	3551	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池			A88 A99 A154 A183 A201 A228 A235 A331 A334	E0		FORBIDDEN 禁运	见976	
2025–2026 Edition												
≠ Sodium ion batteries with organic electrolyte 含有机电解质的钠离子电池	3551	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池			A88 A99 A154 A183 A201 A228 A331 A334	E0		FORBIDDEN 禁运	见976	
Proposed new entry												
+ Sodium ion batteries installed in cargo transport unit 安装在货运单元中的钠离子电池组	3564	9		Miscellaneous — Lithium or sodium ion batteries 杂项 — 锂或钠离子电 池						FORBIDDEN 禁运	FORBIDDEN 禁运	

APPENDIX C

PROPOSED AMENDMENTS TO THE EMERGENCY RESPONSE GUIDANCE FOR AIRCRAFT INCIDENTS INVOLVING DANGEROUS GOODS RECOMMENDED UNDER AGENDA ITEM 2

FOREWORD

Annex 18 to the Convention on International Civil Aviation – *The Safe Transport of Dangerous Goods by Air* – requires that “The operator shall provide such information in the Operations Manual as will enable the flight crew to carry out its responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.” This requirement is also included in the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284). Annex 6, Part I, Appendix 2 also requires that “information and instructions on the carriage of dangerous goods, including action to be taken in the event of an emergency” be included in the operations manual.

This document has been developed with the assistance of the Dangerous Goods Panel to provide guidance to States and operators for developing procedures and policies for ~~dealing crew to deal~~ with dangerous goods incidents on board aircraft. ~~It does not cover incidents which occur while the aircraft is on the ground, since emergency services should be available for such occurrences. The guidance in this document focuses on incidents during flight. It can, however, be adapted to establish procedures to address the unique aspects that may be associated with incidents that occur while the aircraft is on the ground using a risk-based approach.~~

This document contains general information on the factors that may need to be considered when dealing with any dangerous goods incident. Guidance, in the form of ~~checklists~~ procedures, is given for both flight crew and cabin crew, and is intended to be used in association with existing emergency procedures established in the aircraft flight manual. In addition, a list of dangerous goods is presented, both alphabetically and by UN (United Nations) number. The list identifies an appropriate emergency response drill for each item and a chart gives details of the drill and identifies other relevant safety matters. The list of dangerous goods presented in this document is based on the Dangerous Goods List (Table 3-1) contained in the 2025–2026 edition of Doc 9284 and reflects, therefore, all additions, deletions and changes to Table 3-1 introduced in that edition of the Technical Instructions. ~~Operators may wish to develop their own material based on this document or they may include all or part of it, such as the list of dangerous goods and the associated drill chart, in their operations manual. The document may also be used in the required dangerous goods training programme for crew members. Operators should use this document to develop procedures that take into account the type of aircraft, type of operation, and available emergency response equipment. A risk-based approach should be used to support the development of these procedures. The mandatory dangerous programmes for flight crews and other relevant personnel should include the operator’s emergency response procedures.~~

Section 1

GENERAL INFORMATION

1.1 CARGO COMPARTMENT CLASSIFICATION

Cargo compartments are classified in most many national airworthiness requirements ~~(such as FAR 25.857 and JAR 25.857)~~ as follows:

Class A. A Class A cargo or baggage compartment is one in which:

- a) the presence of a fire would be easily discovered by a crew member while at the crew member's station; and
- b) each part of the compartment is easily accessible in flight.

Class B. A Class B cargo or baggage compartment is one in which:

- a) there is sufficient access in flight to enable a crew member, standing at any one access point and without stepping into the compartment, ~~to effectively reach~~ extinguish a fire occurring in any part of the compartment ~~with the contents of~~ using a hand fire extinguisher;
- b) when the access provisions are being used, no hazardous ~~quantity~~ quantities of smoke, flames or extinguishing agent will enter any compartment occupied by the crew or passengers; and
- c) there is a separate approved smoke detector or fire detector system to give warning at ~~the pilot or flight engineer station~~ a flight crew member station.

Class C. A Class C cargo or baggage compartment is one not meeting the requirements for either a Class A or B compartment but in which:

- a) there is a separate approved smoke detector or fire detector system to give warning at ~~the pilot or a flight engineer~~ crew member station;
- b) there is an approved built-in fire-extinguishing or suppression system controllable from the ~~pilot or flight engineer station~~ cockpit;
- c) there are means ~~of excluding~~ to exclude hazardous quantities of smoke, flames, or extinguishing agent from any compartment occupied by the crew or passengers; and
- d) there are means ~~of controlling~~ to control ventilation and ~~draughts~~ drafts within the compartment so that the extinguishing agent used can control any fire that may start within the compartment.

Class D. A Class D cargo or baggage compartment is one in which:

- a) a fire occurring in it will be completely confined without endangering the safety of the aeroplane or the occupants;
- b) there are means ~~of excluding~~ to exclude hazardous quantities of smoke, flames, or other noxious gases from any compartment occupied by the crew or passengers;
- c) ventilation and ~~draughts~~ drafts are controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits; and
- d) ~~consideration is given to the effect of heat within the compartment on adjacent critical parts of the aeroplane~~ the compartment volume does not exceed 28.3 m³ (1 000 ft³).

~~For compartments of 14.2 m³ or less, an airflow of 42.5 m³ per hour is acceptable.~~

Note.— Certain Class D compartments are provided with ventilation, in which case a fire detector is also required. In addition, Class D compartments were historically permitted to be larger, if the volume and the ventilation rate per hour sum to less than 2 000 ft³.

Class E. A Class E cargo compartment is one on aeroplanes used only for the carriage of cargo and in which:

- a) there is a separate approved smoke or fire detector system to give warning at the pilot or flight engineer station;
- b) there are means ~~of shutting~~ to shut off the ventilating airflow to or within the compartment, and the controls for these means are accessible to the flight crew in the crew compartment;
- c) there are means ~~of excluding~~ to exclude hazardous quantities of smoke, flames, or noxious gases, from the flight crew compartment; and
- d) the required crew emergency exits are accessible under any cargo loading conditions.

Class F. A Class F compartment must be located on the main deck and is one in which:

- a) there is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station;
- b) there are means to extinguish or control a fire without requiring a crew member to enter the compartment; and
- c) there are means to exclude hazardous quantities of smoke, flames, or extinguishing agent from any compartment occupied by the crew or passengers.

1.2 CARGO COMPARTMENT LOCATIONS

Typically, Class A cargo compartments are small cargo compartments that may be located between the flight deck and the passenger cabin or adjacent to the galley area or at the back of the aircraft.

A Class B cargo compartment is usually much larger than a Class A cargo compartment and can be located in an area remote from the flight deck. Class B cargo compartments are found on “combi” aircraft between the flight deck and the passenger cabin or behind the passenger cabin at the rear of the aircraft.

Note.— A “combi” aircraft is one in which both cargo and passengers are carried on the main deck.

The volume of a Class C cargo compartment is usually larger than Class A or B and such cargo compartments are generally found under the floor ~~in wide bodied of the~~ aircraft. A Class C cargo compartment may have ~~two fire extinguishing systems~~ more than one suppressant reservoir, enabling a second charge of extinguishant to be fired into the cargo compartment some time after the fire has initially been controlled by the first charge.

Instead of being equipped with fire detection and extinguishing systems, Class D cargo compartments are designed to control a fire by severely restricting the supply of oxygen. Class D cargo compartments are to be found under the passenger cabin floor on most jet transport aircraft. However, it must be appreciated that certain dangerous goods are themselves oxygen producers. Therefore, it cannot be assumed that a fire in a Class D cargo compartment will necessarily self-extinguish.

~~A Class E cargo compartment normally comprises the entire main deck compartment of a cargo aircraft.~~

A Class F cargo compartment is the main deck cargo compartment on a combi aeroplane, i.e. one where the main deck has both a passenger cabin and a cargo compartment.

A conventional passenger aeroplane is usually fitted with either Class C or Class D cargo compartments under the passenger cabin. A cargo aeroplane is usually fitted with a Class E main deck cargo compartment and with Class D ~~and/~~ Class C, or Class ~~C underfloor~~ E lower deck cargo compartments. A “combi” aeroplane is usually fitted with a Class B main deck cargo compartment, either in front or behind the passenger cabin and with a Class C and/or Class D cargo compartment under the floor. ~~The~~ A smaller commuter aeroplane, if not fitted as a conventional passenger aeroplane with a Class D cargo compartment, could be equipped with only a Class A cargo compartment, usually positioned in the area adjacent to the flight deck.

~~Helicopters are capable of carrying freight either in the main cabin (in a Class A cargo compartment) or under the cabin floor. The cargo compartment under the floor has no classification and the compartment is not capable of withstanding fire for any length of time. Some helicopters have cargo compartments which are at the rear of the aircraft and which are inaccessible from inside the helicopter. These cargo compartments are usually small and they are not fitted with any fire detection systems, extinguishing systems or liners.~~

1.3 FIRE EXTINGUISHERS

The most common fire extinguishers found on aircraft are those which have halon (BCF), halon replacement, dry agent, carbon dioxide (CO₂) or water as the firefighting agent. All ~~of~~ these types may not be present on any one aircraft. Guidance on the use of the fire extinguishers is contained in the

operations manual and may also appear on the extinguishers themselves. The emergency response drills, described in Section 4, indicate which firefighting agents should be used and the instances where the use of water is considered dangerous.

1.4 OXYGEN EQUIPMENT

Fixed and portable oxygen equipment is provided in pressurized aircraft for the use of the crew and passengers. The equipment available to the flight crew usually has a gas-tight mask and can supply 100 per cent oxygen. ~~The aircraft may carry portable smoke hoods but, in general, the~~ equipment available to the cabin crew consists of portable oxygen bottles fitted with therapeutic masks. Additional passenger drop-~~outdown~~ masks may be available for use by cabin crew in the passenger cabin and galley/~~toilet or lavatory~~ areas. Both the passenger drop-~~outdown~~ masks and the therapeutic masks are designed to allow a low flow of oxygen supplemented by air drawn in through valves or holes in the side of the mask. These masks are not intended to be gas-tight and, consequently, any toxic fumes or smoke present will be inhaled by passengers or crew using the masks. When smoke or fumes are present, or during firefighting, portable smoke hoods should be used to provide the necessary protection while supplying oxygen to the crew member.

1.5 ACCESSIBILITY OF DANGEROUS GOODS

Most Dangerous goods bearing the “cargo aircraft only” label are required to be accessible in flight, except ~~for these in cases identified in Part 7, Chapter 2 of the Technical Instructions.~~

~~a) loaded:~~

~~1) in a Class C aircraft cargo compartment;~~

~~2) in a unit load device equipped with a fire detection/suppression system equivalent to that required by the certification requirements of a Class C aircraft cargo compartment as determined by the appropriate national authority;~~

~~3) as external carriage by a helicopter; and~~

~~b) classified as:~~

~~1) flammable liquids (Class 3), Packing Group III, other than those with a subsidiary hazard of Class 8;~~

~~2) toxic substances (Division 6.1) with no subsidiary hazard other than Class 3;~~

~~3) infectious substances (Division 6.2);~~

~~4) radioactive materials (Class 7);~~

~~5) miscellaneous dangerous goods (Class 9);~~

~~6) UN 3528 — Engine, internal combustion, flammable liquid powered or Engine, fuel cell,~~

~~flammable liquid powered or Machinery, internal combustion, flammable liquid powered or Machinery, fuel cell, flammable liquid powered; and~~

~~7) UN 3529 Engine, internal combustion, flammable gas powered or Engine, fuel cell, flammable gas powered or Machinery, internal combustion, flammable gas powered or Machinery, fuel cell, flammable gas powered.~~

~~Other dangerous goods (those which do not bear “cargo aircraft only” labels) are not required to be accessible.~~

~~Part 7, Chapter 2 of the Technical Instructions sets out the full requirements on the accessibility of dangerous goods on cargo aircraft.~~

1.6 EMERGENCY RESPONSE KIT

Some operators provide dangerous goods emergency response kits for use aboard aircraft and also provide training to crew members regarding the use of the kit in dangerous goods incidents. Typically, a dangerous goods emergency response kit contains:

- 1) large, good quality polyethylene bags;
- 2) bag ties; and
- 3) long rubber gloves.

When reference is made in this document to an “emergency response kit”, it is intended that the kit should be comprised of at least this equipment.

Note.— The word “polyethylene” as used in this manual has the same meaning as “polythene”.

Section 2

GENERAL CONSIDERATIONS

2.1 GENERAL

The following are considerations which may need to be taken into account in assessing an appropriate course of action to take in the event of an incident involving dangerous goods. These considerations apply whether the aircraft involved is carrying passengers, cargo or both.

- 1) Consideration should always be given to landing as soon as possible. If the situation permits, the relevant air traffic services should be informed of the dangerous goods on board, as indicated in Part 7, Chapter 4 of the Technical Instructions.
- 2) The appropriate fire or smoke removal emergency procedure approved for the aircraft type should always be carried out. Flight crew oxygen mask and regulators must be on and selected to the 100 per cent oxygen position to prevent the inhalation of smoke or fumes. Using the appropriate smoke removal emergency procedures should reduce the concentration of any contamination and help to avoid recirculation of contaminated air. Air conditioning systems should be operated at maximum capacity and all cabin air vented overboard (no recirculation of air) in order to reduce the concentration of any contamination in the air and to avoid recirculation of contaminated air.

~~3) Reducing altitude will reduce the rate of vaporization of liquid and may reduce the rate of leakage, but it may increase the rate of burning. Conversely, increasing altitude may reduce the rate of burning but may increase the rate of vaporization or leaking. If there is structural damage or an explosion hazard, consideration should be given to keeping the differential pressure as low as possible.~~

43) The rate of ventilation should not be reduced in an attempt to extinguish a fire, as this will have an incapacitating effect on the passengers without significantly affecting the fire. Passengers are likely to suffocate through lack of oxygen before a fire is extinguished. Passenger survival chances are greatly enhanced by ensuring maximum cabin ventilation.

54) Gas-tight breathing equipment should always be worn when attending an incident involving fire or fumes. The use of therapeutic masks with portable oxygen bottles or the passenger drop-out oxygen system to assist passengers in a smoke- or fume-filled cabin should not be considered, since considerable quantities of fumes or smoke would be inhaled through the valves or holes in the masks. A more effective aid to passengers in a smoke- or fume-filled environment would be the use of a wet towel or cloth held over the mouth and nose. A wet towel or cloth aids in filtering and is more effective at doing this than a dry towel or cloth. Cabin crew should take prompt action if smoke or fumes develop and move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions to breathe through them.

- 65) In general, water should not be used on a spillage or when fumes are present, since it may spread the spillage or increase the rate of fuming. Consideration should also be given to the possible presence of electrical components when using water extinguishers, but see 10).
- 76) Besides the mandatory emergency equipment that is carried on an aircraft and the emergency response kit provided by some operators, many other items can be found that can be put to good use. These may include; but are not limited to:
- bar or catering boxes;
 - oven gloves/
 - ~~fire-resistant~~fighting gloves;
 - polyethylene bags;
 - blankets;~~and~~
 - towels;~~;~~ and
 - fire containment devices/kits etc.
- 87) Hands should always be protected before touching suspicious packages or bottles. ~~Fire-resistant~~ Rubber gloves or oven gloves covered by polyethylene bags are likely to give suitable protection.
- 8) Throughout this document, the term “fire-fighting gloves” describes gloves that are specifically designed for fire-fighting in the cabin or flight deck, rather than cleaning up spills or handling food. These gloves should be properly tested and rated to address fires likely to occur on an aircraft, such as fires involving lithium batteries.
- 9) Care should always be taken when mopping up any spillage or leakage to ensure there will be no reaction between what is to be used for mopping up and the dangerous goods. If it appears there could be a reaction, mopping up should not be attempted but the spillage should be covered with polyethylene bags. If polyethylene bags are not available, care should be taken to ensure there will be no reaction between whatever is used to contain the item and the item itself.
- 10) In case of a spill of known or suspected dangerous goods in powder form, everything affected should be left undisturbed. This type of spill should not be covered with a fire agent or diluted with water. Passengers should be moved away from the area. Switching off recirculation fans should be considered. The area of the spillage should be covered using polyethylene or other plastic bags and blankets. The area should be kept isolated. After landing, only qualified specialists should deal with the situation.
- 11) If a fire has been dealt with successfully and it is obvious that inner packagings are intact, consideration should be given to using water to cool the packages and thus avoid the possibility of reignition, but see 6).
- 12) ~~A smoking ban~~ Smoking should be ~~introduced~~ prohibited when fumes or vapours are present.
- 13) In any incident in which rescue and firefighting (RFF) personnel come to the aircraft, either when dangerous goods are the cause of the incident or when dangerous goods are being carried on the aircraft and are not directly involved in the incident, a procedure should be established to ensure that the pilot-in-command’s dangerous goods notification form is immediately made available to the RFF services. Such a procedure might require the first flight crew member to

leave the aircraft in the event of an emergency evacuation to deliver the pilot-in-command's notification to the senior member of the RFF personnel.

- 14) If an incident involves a chemical substance which can be identified (by the UN proper shipping name or number, or by any other means), it may be possible, in some circumstances, to obtain helpful information from the various national chemical databanks. These databanks normally maintain 24-hour telephone accessibility and so can be reached by a phone-patch procedure. Examples of such databanks are:

United States – CHEMTREC

www.chemtrec.com

Canada – CANUTEC

www.tc.gc.ca/eng/canutec/menu.htm

2.2 DANGEROUS GOODS IN THE PASSENGER CABIN

Apart from the exceptions listed in Part 8 of the Technical Instructions, dangerous goods are not permitted in the passenger cabin- or on the flight deck. Nevertheless, dangerous goods may be carried into the cabin by passengers who are unaware of, or deliberately ignore, the requirements of the Technical Instructions concerning passengers and their baggage. It is also possible that an item to which a passenger is legitimately entitled (such as an item for medical purposes) may cause an incident.

To enable cabin crew to respond to an incident involving dangerous goods, the operator should equip its aircraft with firefighting and protective equipment, to include an adequate water supply and fire-fighting gloves that are rated to withstand the heat produced by lithium battery thermal runaway events. Some operators provide fire containment equipment for use by crew members as part of the procedures for battery / portable electronic device (PED) fire. The operator should develop detailed procedures for the use of all equipment provided and crews should be trained accordingly. Manufacturer's instructions and guidance should be considered in developing emergency response procedures. Manufacturer's claims of effectiveness should be verified by the airline or third party testing and should meet applicable industry standards.

Firefighting procedures should include precautions for the safety of the crew members involved. These should include the correct use of protective equipment, appropriate and relevant to the immediate risks presented by the stage to which the fire or thermal runaway has progressed. Unprotected firefighting should be minimized where possible.

Equipment should be placed in a suitable location(s) easily accessible by the cabin crew, taking into account the various configurations of the aircraft (such as multi deck, crew rest areas). Cabin crew members should be drilled and capable of using the specific equipment carried on board the operator's aircraft.

Note.— See 3.3— and 3.4 – Cabin crew—checklists procedures for dangerous goods incidents in the passenger cabin during flight.

2.3 DANGEROUS GOODS IN THE FLIGHT DECK

The flight crew's primary responsibility is the safe control of the aircraft. An immediate and decisive response to a dangerous goods incident that could impact the flight crew's ability to safely control the aircraft is therefore essential. The initial response should be to move the item involved in the incident from the flight deck to the cabin, if operationally feasible. This is especially critical for incidents involving a battery or a device containing a battery in thermal runaway because of the amount of smoke produced and the potential for a resulting fire to quickly become uncontrollable in a confined space. At the first signs of malfunction – such as slight bulging, screen discoloration, unusual odor, or excessive heat – priority should be given to the prompt removal of the device from the flight deck, if operationally feasible. Flight crew may act independently or request cabin crew assistance, when available, to manage fire on the flight deck.

2.3.2.4 DANGEROUS GOODS IN THE UNDERFLOOR CARGO COMPARTMENTS

Dangerous goods may be carried as cargo in the underfloor cargo compartments. Spillages or leakages are unlikely to be detected during flight unless they cause noticeable fumes in the passenger cabin or on the flight deck. In the event of leakage, the air in the passenger cabin and on the flight deck may have become flammable, irritating or toxic. Non-essential electrics should be turned off and smoking should be prohibited. Also, the crew should use full face masks, (100 per cent oxygen) or smoke hoods. Wherever possible, the passengers should be provided with wet towels or cloths for use over the nose and mouth.

Smoke or fire in an underfloor cargo compartment may not have originated from any dangerous goods loaded in that compartment. Such goods, however, may be affected by any fire. Standard aircraft emergency procedures should always be followed to deal with the smoke or fire.

In some aircraft there is access from inside the aircraft to underfloor Class D cargo compartments. In general, even if access is possible, an entry should not be made since this will allow air to enter the compartment, which may worsen the situation.

If an incident has arisen in an underfloor cargo compartment, the passengers and crew should be evacuated from the aircraft before any attempt is made to open the cargo compartment doors. The cargo compartment doors should be opened with the emergency services in attendance.

2.4 DANGEROUS GOODS ON THE MAIN DECK OF “COMBI” AIRCRAFT

Note.— A “combi” aircraft is one in which both cargo and passengers are carried on the main deck.

Spillages or leakages of dangerous goods which cause fumes may be detected in the passenger cabin or on the flight deck. Smoke or fire which is detected may not have originated from any dangerous goods which are loaded in the cargo compartment but those goods may be affected by any fire.

The recommended aircraft emergency procedures for smoke and fire should always be followed. However, any action taken to evacuate smoke may not necessarily help to control a fire. Care must be taken to ensure the proper checklists are used since some smoke removal checklists are only for a transient generation of smoke and not for removing smoke from a continuous production source.

Although it may be possible to enter the cargo compartment from inside the aircraft, this should be done with great care so as not to allow smoke or fumes to enter the passenger cabin or flight deck.

However, if the decision is taken to enter the cargo compartment and the cause of the incident is discovered to be dangerous goods, reference should be made to Section 4 of this document, which contains a list of dangerous goods and the relevant emergency response drills and gives guidance for dealing with the incident.

Smoke or fumes may enter the passenger cabin or flight deck. If this happens, the crew should assume that the aircraft’s atmosphere has possibly become contaminated with irritating, flammable or toxic fumes and appropriate action should be taken. This should include the use by the crew of full face masks (100 per cent oxygen) or smoke hoods, as appropriate. Wherever possible, passengers should be provided with wet towels or cloths with instructions to place them over the nose and mouth. All non-essential electrics should be turned off and smoking should be prohibited. Smoke evacuation emergency procedures should be carried out as soon as possible to ventilate the cabin to the maximum extent possible.

If an incident has arisen in a main deck cargo compartment, the passengers and crew should be evacuated from the aircraft before any attempt is made to open the cargo compartment doors. The cargo compartment doors should be opened with the emergency services in attendance.

2.5 DANGEROUS GOODS ON CARGO AIRCRAFT

Dangerous goods may be carried on cargo aircraft in either the underfloor cargo compartments or on the main deck.

Incidents in an underfloor cargo compartment. See 2.3.

Incidents in the main deck cargo compartment. Dangerous goods carried on the main deck of a cargo aircraft fall into two broad categories:

- a) those which are permitted either for carriage on a passenger aircraft, or which are cargo aircraft only (CAO) dangerous goods or quantities not subject to additional loading requirements applicable to other CAO dangerous goods. Depending on the circumstances (position on main deck, types of unit load devices (ULDs) used, etc.), these may be completely inaccessible.

- b) those which may only be carried on a cargo aircraft and are subject to additional loading requirements which are set out in Part 7;2.4.1 of the Technical Instructions. These dangerous goods may be required to be accessible which means they must be loaded so that the crew can handle and, where size and mass permit, separate such packages or overpacks from other cargo. In the event of an incident involving these dangerous goods, an assessment will have to be made of the practicality of attempting direct physical intervention. In any event, both for accessible and non-accessible dangerous goods, standard aircraft emergency procedures should always be followed.

An attempt should be made to establish the cause of an incident occurring on the main deck. The following actions can be considered:

- Attempt to locate the source of the incident and identify whether there are fumes or smoke or evidence of spillage or leakage.
 - Follow the appropriate aircraft emergency procedures for fire or for smoke removal if fumes or smoke are present.
 - Identify the dangerous goods involved and use the notification to pilot-in-command (see Technical Instructions, Part 7, Chapter 4) to ~~confirm~~ determine the proper shipping name and/or UN or ID number of the goods.
 - After establishing the identity of the dangerous goods, refer to Section 4 and from either the alphabetical or numerical list of dangerous goods note the drill assigned to the particular item.
 - Refer to the chart in Section 4 and use the guidance given ~~against~~ according to the appropriate emergency response drill to deal with the incident.
-

Section 3

EXAMPLES OF DANGEROUS GOODS INCIDENT PROCEDURES

Operators should use these example procedures to develop specific procedures that take into account the type of aircraft, type of operation, and available emergency response equipment. A risk-based approach should be used to support the development of the specific procedures.

Note 1.— The terms fire, smoke, fumes and flames are referred to throughout these procedures. When “fire” is referred to on its own, it is intended to capture any of the other events. When “smoke”, “fumes” or “flames” are specifically referred to, it is intended to highlight that specific hazard.

Note 2.— The following procedures are composed of numbered steps. In some cases, the steps are sequential, while in others the steps can occur simultaneously, by one or more crew members, or in a different order. Operators must consider the specifics of their operation before adapting them into their own procedures.

3.1 **FLIGHT CREW** PROCEDURES FOR DANGEROUS GOODS INCIDENTS

Step	<u>Flight crew</u> action
1.	FOLLOW THE APPROPRIATE AIRCRAFT EMERGENCY PROCEDURES FOR <u>FIRE OR SMOKE, FUMES or FLAME</u> REMOVAL
2.	NO SMOKING SIGN ON
3.	CONSIDER LANDING AS SOON AS POSSIBLE
4.	CONSIDER TURNING OFF NON-ESSENTIAL ELECTRICAL POWER
5.	DETERMINE SOURCE OF SMOKE / FUMES / <u>FIRE FLAMES</u>
6.	FOR DANGEROUS GOODS INCIDENTS IN THE PASSENGER CABIN, SEE CABIN CREW PROCEDURES AND COORDINATE COCKPIT / CABIN CREW ACTIONS
7.	DETERMINE EMERGENCY RESPONSE DRILL CODE
8.	USE GUIDANCE FROM AIRCRAFT EMERGENCY RESPONSE DRILLS CHART TO HELP DEAL WITH INCIDENT
9.	IF THE SITUATION PERMITS, NOTIFY ATC OF THE DANGEROUS GOODS BEING CARRIED

Step	<i>Flight crew action</i>
After landing	
1.	DISEMBARK PASSENGERS AND CREW BEFORE OPENING ANY CARGO COMPARTMENT DOORS
2.	INFORM GROUND PERSONNEL / EMERGENCY SERVICES OF NATURE OF ITEM AND WHERE STOWED
3.	MAKE APPROPRIATE ENTRY IN MAINTENANCE LOG

3.2 AMPLIFIED **FLIGHT CREW** PROCEDURES FOR DANGEROUS GOODS INCIDENTS

Amplified flight crew procedures for dangerous goods incidents	
Step	<i>Flight crew Action</i>
1.	FOLLOW THE APPROPRIATE AIRCRAFT EMERGENCY PROCEDURES FOR FIRE OR SMOKE, FUMES, OR FLAMES REMOVAL (self-explanatory)
2.	NO SMOKING SIGN ON A s Smoking ban should be introduced prohibited when fumes or vapours are present and be continued for the remainder of the flight.
3.	CONSIDER LANDING AS SOON AS POSSIBLE Because of the difficulties and possibly disastrous consequences of any dangerous goods incident, consideration should be given to landing as soon as possible. The decision to land at the nearest suitable aerodrome should be made early rather than late, when an incident may have developed to a very critical point, severely restricting operational flexibility.
4.	CONSIDER TURNING OFF NON-ESSENTIAL ELECTRICAL POWER As the incident may be caused by electrical problems or as electrical systems may be affected by any incident, and particularly as firefighting activities, etc., may damage electric systems, turn off all non-essential electrical items. Retain power only to those instruments, systems and controls necessary for the continued safety of the aircraft. Do not restore power until it is positively safe to do so.
5.	DETERMINE SOURCE OF SMOKE / FUMES / FIRE FLAMES The source of any smoke / fumes / fire may be difficult to determine. Effective firefighting or containment procedures can best be accomplished when the source of the incident is identified.

Amplified <u>flight crew</u> procedures for dangerous goods incidents	
<i>Step</i>	<i>Flight crew Action</i>
6.	<p>FOR DANGEROUS GOODS INCIDENTS IN THE PASSENGER CABIN, SEE CABIN CREW PROCEDURES AND COORDINATE COCKPIT / CABIN CREW ACTIONS</p> <p>Incidents in the passenger cabin should be dealt with by the cabin crew using the appropriate procedures. It is essential that the cabin crew and the flight crew coordinate their actions and that each be kept fully informed of the other's actions and intentions.</p>
7.	<p>DETERMINE EMERGENCY RESPONSE DRILL CODE</p> <p>When the item has been identified, the corresponding entry on the pilot-in-command's dangerous goods notification form should be found. The applicable emergency response drill code may be given on the notification form, or if not given, can be found by noting the proper shipping name or the UN number on the notification form and using the alphabetical or numerical list of dangerous goods. If the item causing the incident is not listed on the notification form, an attempt should be made to determine the name or the nature of the substance. The alphabetical list can then be used to determine the emergency response drill code.</p> <p><i>Note.— The alphabetical and numerical lists referred to are those in Section 4 of this document.</i></p>
8.	<p>USE GUIDANCE FROM AIRCRAFT EMERGENCY RESPONSE DRILLS CHART TO HELP DEAL WITH INCIDENT</p> <p>The drill code assigned to an item of dangerous goods consists of a number plus one or two letters. Referring to the chart of emergency response drills, each drill number corresponds to a line of information concerning the hazard posed by that substance and guidance on the preferable action that should be taken. The drill letter is shown separately on the drill chart; it indicates other possible hazards of the substance. In some cases, the guidance given by the drill number may be further refined by the information given by the drill letter.</p>
9.	<p>IF THE SITUATION PERMITS, NOTIFY ATC OF THE DANGEROUS GOODS BEING CARRIED</p> <p>If an in-flight emergency occurs and the situation permits, the pilot-in-command should inform the appropriate air traffic services unit of the dangerous goods on board the aircraft. Wherever possible this information should include the proper shipping name and/or UN number, the class/division and for Class 1 the compatibility group, any identified subsidiary hazard(s), the quantity and the location on board the aircraft. When it is not considered possible to include all the information, those parts thought most relevant in the circumstances should be given.</p>

Amplified <u>flight crew</u> procedures for dangerous goods incidents	
<i>Step</i>	<i>Flight crew Action</i>
<i>After landing</i>	
1.	<p>DISEMBARK PASSENGERS AND CREW BEFORE OPENING ANY CARGO COMPARTMENT DOORS</p> <p>Even if it has not been necessary to complete an emergency evacuation after landing, passengers and crew should disembark before any attempt is made to open the cargo compartment doors and before any further action is taken to deal with a dangerous goods incident. The cargo compartment doors should be opened with the emergency services in attendance.</p>
2.	<p>INFORM GROUND PERSONNEL / EMERGENCY SERVICES OF NATURE OF ITEM AND WHERE STOWED</p> <p>Upon arrival, take the necessary steps to identify to the ground staff where the item is stowed. Pass on by the quickest available means all information about the item including, when appropriate, a copy of the notification to pilot-in-command.</p>
3.	<p>MAKE APPROPRIATE ENTRY IN MAINTENANCE LOG</p> <p>An entry should be made in the maintenance log that a check needs to be carried out to ensure that any leakage or spillage of dangerous goods has not damaged the aircraft structure or systems and that some aircraft equipment (such as fire extinguishers, emergency response kit) may need replenishing or replacing.</p>

3.3 CABIN CREW PROCEDURES FOR DANGEROUS GOODS INCIDENTS IN THE PASSENGER CABIN DURING FLIGHT

This section consists of cabin crew procedures for dangerous goods incidents in the passenger cabin during flight involving:

- a) battery / portable electronic device (PED) fire ~~/smoke~~ (see 3.3.1);
- b) overhead bin battery / portable electronic device (PED) fire ~~/smoke~~ (see 3.3.2);
- c) overheated battery / electrical smell involving a portable electronic device (PED) – no visible ~~fire~~ ~~flame~~ or smoke (see 3.3.3);
- d) PED ~~inadvertently crushed or damaged in electrically adjustable~~ fallen into / trapped in a passenger seat (see 3.3.4);
- e) battery / portable electronic device (PED) fire on the flight deck (see 3.3.5);
- ef) fire involving dangerous goods (see 3.3-~~5~~.6); and
- fg) spillage or leakage of dangerous goods (see 3.3-~~6~~.7)

Note 1.— Although this guidance material presents sequences of tasks, some of these actions occur simultaneously when carried out by crew members in a multi-cabin crew operation.

Note 2.— The operator should ensure its aircraft are equipped with appropriate firefighting and protective equipment for use by crew members.

Note 3.— The operator should ensure the crew is trained to use all firefighting and protective equipment including the donning and removal of protective equipment. Firefighting procedures should include precautions for the safety of the crew member(s) involved. These should include the correct use of protective equipment that is appropriate and relevant to the immediate risks presented by the stage to which the fire or thermal runaway has progressed. Unprotected firefighting should be minimized where possible.

Note 4.— In a single cabin crew member operation, some of the actions listed in this section should be carried out with the assistance of other persons (e.g., able-bodied passengers). The operating cabin crew member should assign those persons to communicate with the flight crew and provide back-up, while the cabin crew member fights the fire.

Note 5.— The terms fire, smoke, fumes and flames are referred to throughout these procedures. When “fire” is referred to on its own, it is intended to capture any of the other events. When “smoke”, “fumes” or “flames” are specifically referred to, it is intended to highlight that specific hazard.

3.3.1 Battery / portable electronic device (PED) fire ~~/smoke~~

Procedures for battery / portable electronic device (PED) fire /smoke	
<i>Step</i>	<i>Cabin crew action</i>
1.	<p>IDENTIFY THE ITEM <u>SOURCE OF THE FIRE</u></p> <p><i>Note.— It may not be possible to identify the item (source of fire) immediately. In this case, apply Step 2 first, and then attempt to identify it.</i></p> <p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames.</p>
<u>2.</u>	<u>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u>
<u>23.</u>	<p>APPLY FIREFIGHTING PROCEDURE <u>TO EXTINGUISH FLAMES</u></p> <p>a) Obtain and use the appropriate fire extinguisher. b) Retrieve and use protective equipment, as applicable to the situation. c) Move passengers away from the area, if possible. d) Notify pilot in command / other cabin crew members.</p> <p><i>Note.— Actions should occur simultaneously in a multi-crew operation.</i></p>
<u>34.</u>	<p>REMOVE POWER</p> <p>a) Disconnect the device from the power supply, if safe to do so. b) Turn off in-seat power, if applicable. c) Verify that power to the remaining electrical outlets remains off, if applicable.</p> <p>Caution: Do not attempt to remove the battery from the device.</p>
<u>45.</u>	<p>DOUSE THE DEVICE WITH <u>POUR</u> WATER (OR OTHER NON-FLAMMABLE LIQUID) <u>ON THE DEVICE</u></p> <p><i>Note.— Liquid may turn to steam when applied to the hot battery.</i></p>
<u>56.</u>	<p>LEAVE THE DEVICE IN ITS PLACE AND MONITOR FOR ANY REIGNITION <u>OBTAIN A SUITABLE EMPTY CONTAINER</u></p> <p>a) If smoke or flames reappear, repeat Steps 2 and 4.</p> <p>Caution: — Do not attempt to pick up or move the device. — Do not cover or enclose the device. — Do not use ice or dry ice to cool the device.</p>

Procedures for battery / portable electronic device (PED) fire /smoke	
<i>Step</i>	<i>Cabin crew action</i>
67.	WHEN THE DEVICE HAS COOLED SUBMERGE THE DEVICE IN WATER (OR OTHER NON-FLAMMABLE LIQUID) IN THE CONTAINER (such as approximately 10 to 15 minutes) a) Obtain a suitable empty container. b) Fill the container with enough water (or other non flammable liquid) to submerge the device. c) Using protective equipment, place the device in the container and completely submerge in water (or other non flammable liquid). d) Stow and secure (if possible) the container to prevent spillage.
8.	STOW AND SECURE (IF POSSIBLE) THE CONTAINER TO PREVENT SPILLAGE
79.	MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT
810.	APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION a) Apply operator's post incident procedures.

3.3.2 Overhead bin battery / portable electronic device (PED) fire ~~/smoke~~

Procedures for oOverhead bin battery / portable electronic device (PED) fire /smoke	
<i>Step</i>	<i>Cabin crew action</i>
1.	NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS
42.	APPLY FIREFIGHTING PROCEDURE TO EXTINGUISH FLAMES a) Obtain and use the appropriate fire extinguisher. b) Retrieve and use protective equipment, as applicable to the situation. c) Move passengers away from the area, if possible. d) Notify pilot in command / other cabin crew members. <i>Note. — Actions should occur simultaneously in a multi-crew operation.</i>

Procedures for oOverhead bin battery / portable electronic device (PED) fire / smoke	
Step	Cabin crew action
23.	<p><u>IDENTIFY THE ITEM SOURCE OF THE FIRE</u></p> <p>If the device is visible and accessible, or, if the device is contained in baggage and flames are visible:</p> <p>a) Re-apply Step 1 to extinguish the flames, if applicable. b) Apply Steps 3 to 5.</p> <p>If smoke is coming from the overhead bin, but the device is not visible or accessible:</p> <p>c) Remove other baggage from the overhead bin to access the affected baggage/item. d) Identify the item. e) Apply Steps 3 to 5.</p> <p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames.</p>
4.	<u>REMOVE POWER</u>
35.	<p><u>DOUSE THE DEVICE (BAGGAGE) WITH POUR WATER (OR OTHER NON-FLAMMABLE LIQUID) <u>ON THE DEVICE (BAGGAGE)</u></u></p> <p><i>Note. — Liquid may turn to steam when applied to the hot battery.</i></p>
6.	<u>OBTAIN A SUITABLE EMPTY CONTAINER</u>
47.	<p><u>WHEN THE DEVICE HAS COOLED SUBMERGE THE DEVICE IN WATER (OR OTHER NON-FLAMMABLE LIQUID), IN THE CONTAINER</u></p> <p>a) Obtain a suitable empty container. b) Fill the container with enough water (or other non-flammable liquid) to submerge the device. c) Using protective equipment, place the device in the container and completely submerge in water (or other non-flammable liquid). d) Stow and secure (if possible) the container to prevent spillage.</p>
8.	<u>STOW AND SECURE (IF POSSIBLE) THE CONTAINER TO PREVENT SPILLAGE</u>
59.	MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT
610.	<p><u>APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION</u></p> <p>a) Apply operator's post-incident procedures.</p>

3.3.3 Overheated battery / electrical smell involving a portable electronic device (PED) – no visible ~~fire~~ flame or smoke

Procedures for overheated battery / electrical smell involving a portable electronic device (PED) – no visible fire <u>flame</u> or smoke	
<i>Step</i>	<i>Cabin crew action</i>
	<u>If there are signs of fire (smoke, fumes, flames), APPLY PROCEDURES FOR BATTERY/PED FIRE (SEE 3.3.1)</u>
1.	IDENTIFY THE ITEM
2.	INSTRUCT THE PASSENGER TO TURN OFF THE DEVICE IMMEDIATELY
3.	<p>REMOVE POWER</p> <p>a) Disconnect the device from the power supply, if safe to do so. b) Turn off in-seat power, if applicable. c) Verify that power to the remaining electrical outlets remains off, if applicable. d) Verify that the device remains off for the remainder of the flight.</p> <p>Caution: Do not attempt to remove the battery from the device.</p>
4.	<p>INSTRUCT THE PASSENGER TO KEEP THE DEVICE VISIBLE AND MONITOR CLOSELY</p> <p>Caution: Unstable batteries may ignite even after the device is turned off.</p>
5.	<p>IF SMOKE OR FLAMES APPEAR</p> <p>a) Apply BATTERY / PED FIRE / SMOKE procedures (see 3.3.1).</p>
6.	<p><u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION</p> <p>a) Apply operator's post-incident procedures.</p>

3.3.4 PORTABLE ELECTRONIC DEVICE (PED) ~~inadvertently crushed or damaged in electrically adjustable~~ fallen into / trapped in a passenger seat – no visible flame or smoke

Procedures for PED inadvertently crushed or damaged in electrically adjustable <u>fallen into / trapped in a passenger seat</u> – no visible flame or smoke	
<i>Step</i>	<i>Cabin crew action</i>
	<u>If there are signs of fire (smoke, fumes, flames), APPLY PROCEDURES FOR BATTERY/PED FIRE (SEE 3.3.1)</u>
1.	NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS

Procedures for PED inadvertently crushed or damaged in electrically adjustable <u>fallen into / trapped in a passenger seat – no visible flame or smoke</u>	
<i>Step</i>	<i>Cabin crew action</i>
2 <u>1</u> .	OBTAIN INFORMATION FROM THE PASSENGER, BY ASKING THE PASSENGER a) To identify the item. b) Where the passenger suspects that the item may have dropped or slipped into. c) If the seat was moved since misplacing the item.
3 <u>2</u> .	RETRIEVE AND USE PROTECTIVE EQUIPMENT, IF AVAILABLE
<u>3</u> .	<u>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u>
4.	RETRIEVE THE ITEM, <u>IF SAFE TO DO SO</u> Caution: Do not move the seat electrically or mechanically when attempting to retrieve the item.
5.	IF SMOKE OR FLAMES APPEAR <u>MONITOR THE SEAT AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT</u> a) Apply BATTERY / PED FIRE / SMOKE procedures (see 3.3.1).
6.	<u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION a) Apply operator's post-incident procedures.

3.3.5 BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE ON THE FLIGHT DECK

<u>Procedures for battery / PED fire on the flight deck</u>	
<i>Step</i>	<i>Cabin crew action</i>
<u>1</u> .	<u>RECOGNIZE SIGNAL FOR FIRE ON THE FLIGHT DECK</u>
<u>2</u> .	<u>APPLY FIREFIGHTING PROCEDURE TO EXTINGUISH FLAMES</u>
<u>3</u> .	<u>POUR WATER (OR OTHER NON-FLAMMABLE LIQUID) ON THE DEVICE</u>
<u>4</u> .	<u>REMOVE THE DEVICE FROM THE FLIGHT DECK</u>
<u>5</u> .	<u>CLOSE THE FLIGHT DECK DOOR</u>
<u>6</u> .	<u>APPLY PROCEDURES FOR BATTERY / PED FIRE (see 3.3.1)</u>
<u>7</u> .	<u>APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION</u>

Note.— Procedures presented in this section are not applicable to incidents involving electronic flight bags (EFBs) that cannot be removed from the flight deck (e.g. installed via airworthiness approval).

3.3.56 Fire involving dangerous goods

Procedures for fire involving dangerous goods	
Step	Cabin crew action
1.	<p>IDENTIFY THE ITEM</p> <p><i>Note.— It may not be possible to identify the item (source of fire) immediately. In this case, apply Step 2 first, and then attempt to identify it.</i></p> <p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames.</p>
2.	<p>APPLY FIREFIGHTING PROCEDURE</p> <p>a) Obtain and use the appropriate fire extinguisher / check use of water. b) Retrieve and use protective equipment, as applicable to the situation. c) Move passengers away from the area, if possible. d) Notify pilot in command / other cabin crew members.</p> <p><i>Note.— Actions should occur simultaneously in a multi-crew operation.</i></p>
3.	<p>MONITOR FOR ANY <u>INDICATION OF</u>-REIGNITION</p> <p>a) If smoke/flames reappear, repeat Step 2.</p>
4.	<p>ONCE THE FIRE HAS BEEN EXTINGUISHED</p> <p>a) Apply APPLY PROCEDURES FOR SPILLAGE OR LEAKAGE OF DANGEROUS GOODS procedures, if required, IF REQUIRED, ONCE THE FIRE HAS BEEN EXTINGUISHED (see 3.3.6.7).</p>
5.	<p><u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION</p> <p>a) Apply operator's post-incident procedures.</p>

3.3.6.7 Spillage or leakage of dangerous goods

Procedures for spillage or leakage of dangerous goods	
Step	Cabin crew action

Procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
1.	NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS
2.	IDENTIFY THE ITEM
3.	COLLECT EMERGENCY RESPONSE KIT OR OTHER USEFUL ITEMS
4.	DON RUBBER GLOVES AND SMOKE HOOD <u>RETRIEVE AND USE PROTECTIVE EQUIPMENT</u>
5.	MOVE PASSENGERS AWAY FROM AREA AND DISTRIBUTE WET TOWELS OR CLOTHS
6.	PLACE DANGEROUS GOODS ITEM IN POLYETHYLENE BAGS
7.	STOW POLYETHYLENE BAGS
8.	TREAT AFFECTED SEAT CUSHIONS / COVERS IN THE SAME MANNER AS DANGEROUS GOODS ITEM
9.	COVER SPILLAGE ON CARPET / FLOOR
10.	REGULARLY INSPECT <u>MONITOR</u> ITEMS STOWED AWAY / CONTAMINATED FURNISHINGS
11.	<u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION a) Apply operator's post-incident procedures.

3.4 AMPLIFIED CABIN CREW PROCEDURES FOR DANGEROUS GOODS INCIDENTS IN THE PASSENGER CABIN DURING FLIGHT

This section consists of amplified cabin crew procedures for dangerous goods incidents in the passenger cabin during flight involving:

- a) battery / portable electronic device (PED) fire ~~/smoke~~ (see 3.4.1);
- b) overhead bin battery / portable electronic device (PED) fire ~~/smoke~~ (see 3.4.2);
- c) overheated battery / electrical smell involving a portable electronic device (PED) – no visible ~~fire flame~~ or smoke (see 3.4.3);
- d) ~~portable electronic device (PED) inadvertently crushed or damaged in electrically adjustable~~ fallen into / trapped in a passenger seat (see 3.4.4);
- e) battery / portable electronic device (PED) fire on the flight deck (see 3.4.5);
- ef) fire involving dangerous goods (see 3.4.5.6); and
- fg) spillage or leakage of dangerous goods (see 3.4.6.7).

~~— Note. — Although this guidance material presents sequences of tasks, some of these actions occur simultaneously when carried out by crew members.~~

3.4.1 Battery / portable electronic device (PED) fire ~~/smoke~~

Amplified procedures for battery / portable electronic device (PED) fire /smoke	
Step	Cabin crew action
1.	<p>IDENTIFY THE ITEM <u>SOURCE OF THE FIRE</u></p> <p>It may not be possible <u>for cabin crew</u> to identify the item (source of fire) right away, especially if the fire has started in a seat pocket or the device is not readily accessible. In this case, firefighting procedures should be applied as a first step. If the item is contained in baggage, the crew's actions would be similar to the actions for a device that is visible or readily accessible <u>passenger bag. Identify the location and any other appropriate details of the hazard. Bring appropriate equipment and protective equipment to the area to assist with finding the source and to prepare for firefighting.</u></p> <p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames. However, in certain situations cabin crew members may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. This should be done with extreme caution and only after donning appropriate protective equipment available on the aircraft.</p>

Amplified procedures for battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
2.	<p>APPLY FIREFIGHTING PROCEDURE <u>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u></p> <p>During A any occurrence concerning a fire in the cabin, the cabin crew should be notified immediately <u>notify</u> to the pilot-in-command who should be kept immediately and keep the flight crew informed of all actions taken and of the effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.</p> <p>Appropriate firefighting and emergency procedures must be used to deal with any fire. In a multi cabin crew operation, the actions detailed in the firefighting procedure should be conducted simultaneously. On aircraft operated with only one cabin crew member, the aid of a passenger should be sought in dealing with the situation.</p> <p>Halon, Halon replacement or water extinguisher should be used to extinguish the fire and prevent its spread to additional flammable materials. It is important to wear available protective equipment (such as protective breathing equipment, fire gloves) when fighting a fire.</p> <p>If fire develops, cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them. Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times. Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication unless the interphone system fails <u>between crew members, unless the interphone system fails.</u></p>

Amplified procedures for battery / portable electronic device (PED) fire /smoke	
<i>Step</i>	<i>Cabin crew action</i>
<u>3.</u>	<p><u>APPLY FIREFIGHTING PROCEDURES TO EXTINGUISH FLAMES</u></p> <p><u>a) use appropriate protective equipment;</u> <u>b) use appropriate firefighting equipment;</u> <u>c) extinguish flames; and</u> <u>d) manage passengers and cabin, as required.</u></p> <p><u>It is important that cabin crew use protective equipment (such as protective breathing equipment and fire-fighting gloves) when fighting a fire.</u></p> <p><u>Cabin crew should use halon, halon replacement, or water to extinguish the flames. This should be accomplished as soon as possible to prevent the flames from spreading to additional flammable materials. Halon and halon replacement fire extinguishers are optimal for the extinguishing of flames or when other nearby materials have become involved in the fire, but do not provide any cooling properties to the battery. It is important to move past this step to the cooling step as soon as possible once flames are gone. If deemed more efficient or expedient, water may be used instead of halon for knocking down small flames and imparting a cooling effect in one step. It is critical that once any flames are extinguished that the cabin crew progress to apply Step 4 (Pour water on the device in place). It is important that cabin crew use protective equipment (such as protective breathing equipment and fire-resistant gloves) when fighting a fire.</u></p> <p><u>Cabin crew should move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.</u></p> <p><u>Caution:</u> <u>In certain firefighting situations cabin crew may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. To avoid injury from a flash fire, cabin crew should use caution when opening the affected baggage when there is any indication of smoke or flames. This should only be done after donning appropriate protective equipment.</u></p>

Amplified procedures for battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
34.	<p>REMOVE POWER</p> <p>a) <u>Disconnect the device from the power supply, if safe to do so.</u> b) <u>Turn off in-seat power, if applicable.</u> c) <u>Verify that power to the remaining electrical outlets remains off, if applicable.</u></p> <p>Caution: <u>Do not attempt to remove the battery from the device.</u></p> <p>It is important to <u>that cabin crew</u> instruct the passenger to disconnect the device from the power supply, if it is deemed safe to do so. A battery has a higher likelihood of catching fire due to overheating during or immediately following a charging cycle, although the effects may be delayed for some period of time. By removing the external power supply from the device, it will be assured that additional energy is not being fed to the battery to promote a fire.</p> <p><u>Cabin crew should turn off the in-seat power to the remaining electrical outlets until it can be assured that a malfunctioning aircraft system does not contribute to additional failures of the passengers' portable electronic devices.</u></p> <p><u>Cabin crew should visually check that power to the remaining electrical outlets remains off until the aircraft's system can be determined to be free of faults, if the device was previously plugged in. The removal of power may occur simultaneously to other cabin crew actions (such as obtaining water to pour on the device). Depending on the aircraft type, in-seat power may have to be turned off by the flight crew.</u></p> <p>Turn off the in-seat power to the remaining electrical outlets until it can be assured that a malfunctioning aircraft system does not contribute to additional failures of the passengers' portable electronic devices.</p> <p>Visually check that power to the remaining electrical outlets remains off until the aircraft's system can be determined to be free of faults, if the device was previously plugged in.</p> <p>The removal of power may occur simultaneously to other cabin crew actions (such as obtaining water to douse the device). Depending on the aircraft type, in-seat power may have to be turned off by the flight crew members.</p> <p>Caution: Do not attempt to remove the battery from the device.</p>

Amplified procedures for battery / portable electronic device (PED) fire /smoke	
<i>Step</i>	<i>Cabin crew action</i>
45.	<p>DOUSE THE DEVICE WITH POUR WATER (OR OTHER NON-FLAMMABLE LIQUID) <u>ON THE DEVICE</u></p> <p><u>If the device is smoking but does not show signs of flame, water needs to be applied to cool the device and prevent flames.</u></p> <p><u>Use Wwater (or other non-flammable liquid) must be used to cool a battery that has ignited to prevent the spread of heat to other cells in the battery. If water is not available, any non-flammable liquid may be used to cool the device. Pour liquid onto the device until signs of steam and crackling have subsided completely.</u></p> <p><u><i>Note.</i>— Liquid may turn to steam when applied to the hot battery. The action of pouring water or non-flammable liquid on the device cools the device and can prevent thermal runaway from propagating to nearby cells. It may also lower the risk of a cell that is venting, but not yet in full thermal runaway, from reacting more violently.</u></p>
5.	<p>LEAVE THE DEVICE IN ITS PLACE AND MONITOR FOR ANY REIGNITION</p> <p>A battery involved in a fire can reignite and emit flames multiple times as heat is transferred to other cells in the battery. Therefore, <u>cabin crew should the device must be monitored the device regularly to identify if there is any indication that a fire hazard may still exist. If there is any smoke or indication of fire, the device must be doused with <u>crew should pour</u> more water (or other non-flammable liquid) <u>on the device.</u></u></p> <p><u>Monitor for any indication of reignition and continue to pour water (or other non-flammable liquid) on the device.</u></p> <p>Caution:</p> <ol style="list-style-type: none"> Do not attempt to pick up or move the device <u>until completing this step</u>; batteries may explode or burst into flames without warning. The device must should not be moved if displaying any of the following: flames/flaring, smoke, unusual sounds (such as crackling), debris, or shards of material separating from the device. Do not cover or enclose the device as it could cause it to overheat. Do not use ice or dry ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.

Amplified procedures for battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
6.	<p><u>WHEN THE DEVICE HAS COOLED (such as APPROXIMATELY 10-15 MINUTES) OBTAIN A SUITABLE EMPTY CONTAINER</u></p> <p>The device can be moved with caution following a certain period, once it has cooled down and if there is no evidence of smoke, heat, or if there is a reduction in the crackling or hissing sound usually associated with a lithium battery fire (such as after approximately 10-15 minutes). The waiting period may vary based on the device and its size. The different circumstances (such as types of devices, phase of flight) should be addressed in the operator's training programme.</p> <p>A suitable empty container, such as <u>may include</u> a pot, jug, galley unit or toilet <u>lavatory</u> waste bin, must <u>or fire containment equipment (only when they are designed to contain water)</u>. When selecting a suitable empty container, cabin crew should consider the size of the device to be submerged in it. Cabin crew should <u>select a container which can</u> be filled with enough water or non-flammable liquid to completely submerge the device. It is important to wear available protective equipment (such as protective breathing equipment, fire gloves), when moving any device involved in a fire. Once the device is completely submerged, the container used must be stowed and, if possible, secured to prevent spillage.</p>
7.	<p><u>PLACE THE DEVICE IN THE CONTAINER AND COMPLETELY SUBMERGE IN WATER (OR OTHER NON-FLAMMABLE LIQUID), USING PROTECTIVE EQUIPMENT</u></p> <p><u>It is important that cabin crew wear protective equipment such as protective breathing equipment and fire-fighting gloves when moving any device involved in a fire.</u></p> <p><u>Place the device in the container and pour water or a non-flammable liquid into the container until the device is completely submerged. It is also possible to put the device in the container once the container already contains water. Efforts should be taken to minimize splashing of water in the aircraft when dropping the device in a container that already contains water.</u></p>
8.	<p><u>STOW AND SECURE (IF POSSIBLE) THE CONTAINER TO PREVENT SPILLAGE</u></p> <p><u>Once the device is completely submerged, cabin crew should stow the container and, if possible, secure it to prevent spillage.</u></p>
79.	<p>MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT</p> <p><u>Cabin crew should M</u>onitor the device and the surrounding area for the remainder of the flight to verify that the device does not pose further hazard.</p>

Amplified procedures for battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
810.	<p><u>APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION</u></p> <p>Upon arrival, <u>cabin crew should</u> apply the operator's post-incident procedures. These may <u>should</u> include identifying to ground personnel where the item is stowed and providing all <u>relevant</u> information about the item.</p> <p><u>Crew need to</u> C complete the required documentation, as per operator procedures, so that the operator is notified of the event <u>able to comply with mandatory reporting requirements and can ensure</u>, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</p>

3.4.2 Overhead bin battery / portable electronic device (PED) fire / smoke

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
1.	<p><u>APPLY FIREFIGHTING PROCEDURE NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u></p> <p><u>During</u> A any occurrence concerning a fire in the cabin, <u>the cabin crew</u> should be notified immediately to <u>notify</u> the pilot-in-command who should be kept immediately and keep the flight crew informed of all actions taken and of the effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.</p> <p>Appropriate firefighting and emergency procedures must be used to deal with an overhead bin fire. In a multi-cabin crew operation, the actions detailed in the firefighting procedure should be conducted simultaneously. On aircraft operated with only one cabin crew member, the aid of a passenger should be sought in dealing with the situation.</p> <p>Halon, Halon replacement or water extinguisher should be used to extinguish the fire and prevent its spread to additional flammable materials. It is important to wear available protective equipment (such as protective breathing equipment, fire gloves) when fighting a fire.</p> <p>If fire develops, cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.</p>

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
	Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times <u>until the hazard is no longer present</u> . Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication <u>between crew members</u> , unless the interphone system fails.

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
2.	<p><u>APPLY FIREFIGHTING PROCEDURE TO EXTINGUISH FLAMES</u></p> <p><u>a) use appropriate protective equipment;</u> <u>b) use appropriate firefighting equipment;</u> <u>c) extinguish flames; and</u> <u>d) manage passengers and cabin, as required.</u></p> <p><u>It is important that cabin crew use protective equipment (such as protective breathing equipment and fire-fighting gloves) when fighting a fire.</u></p> <p><u>Use halon, halon replacement, or water to extinguish the flames. This should be accomplished as soon as possible to prevent the flames from spreading to additional flammable materials. Halon and halon replacement fire extinguishers are optimal for the extinguishing of flames or when other nearby materials have become involved in the fire, but do not provide any cooling properties to the battery. It is important to move past this step to the cooling step as soon as possible once flames are gone. If deemed more efficient or expedient, water may be used instead of halon for knocking down small flames and imparting a cooling effect in one step. It is critical that once any flames are extinguished that the cabin crew progress to apply Step 4 (Pour water on the device in place).</u></p> <p><u>Due to the weight and size of some overhead bins, and their opening movement, the cabin crew member who is fighting the fire may require assistance in opening and controlling the overhead bin. When fighting an overhead bin fire, the cabin crew member should position themselves at the opposite end of the overhead bin, where the smoke / flames are visible. This action prevents further spreading embers due to the force of the extinguishing agent as it is discharged and comes into contact with the overhead bin.</u></p> <p><u>Cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.</u></p> <p><u><i>Note.— If the origin of the fire / smoke cannot be confirmed visually, cabin crew should use the back of the hand to search for hot overhead bin surfaces.</i></u></p> <p><u>Caution:</u></p> <p><u>1) Use the back of the hand and not the palm of the hand to search for hot overhead bin surfaces, because the back of the hand is more sensitive to temperature differences.</u></p> <p><u>2) In certain firefighting situations cabin crew may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. To avoid injury from a flash fire, cabin crew should use caution when opening the affected baggage when there is any indication of smoke or flames. This should only be done after donning appropriate protective equipment.</u></p>

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
23.	<p>IDENTIFY THE ITEM <u>SOURCE OF THE FIRE</u></p> <p>It may not be possible to identify the item right away, especially if the fire has started in the overhead bin and the device is not readily accessible.</p> <p>If the device is visible and accessible or if the device is contained in baggage and flames are visible, the firefighting procedures should be applied as a first step.</p> <p><u>a) reapply Step 2 to extinguish the flames, if applicable; and</u> <u>b) apply Steps 4 to 10.</u></p> <p>If smoke is coming from the overhead bin, but the device is not visible or accessible, or there is no indication of fire, the firefighting procedures should be applied as a first step. Afterwards, all:</p> <p><u>a) remove other</u> baggage should be removed from the overhead bin with caution until to access the affected baggage/item can be identified.</p> <p><u>b) Once the item is identified identify the item.</u></p> <p><u>c) apply Steps 34 to 510.</u></p> <p><u>It may not be possible for cabin crew to identify the item (source of fire or smoke) right away, especially if the fire has started in an overhead bin or the device is not readily accessible.</u></p> <p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames. However, in certain situations cabin crew members may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. This should be done with extreme caution and only after donning appropriate protective equipment available on the aircraft.</p>

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
34.	<p><u>DOUSE THE DEVICE (BAGGAGE) WITH POUR WATER (OR OTHER NON-FLAMMABLE LIQUID) ON THE DEVICE (BAGGAGE)</u></p> <p><u>If the device is smoking but does not show signs of flame, water needs to be applied to cool the device and prevent flames.</u></p> <p><u>Use Wwater (or other non-flammable liquid) must be used to cool a battery that has ignited to prevent the spread of heat to other cells in the battery. If water is not available, any non-flammable liquid may be used to cool the device. Pour liquid onto the baggage or device until signs of steam and crackling have subsided completely.</u></p> <p><u>Note.— Liquid may turn to steam when applied to the hot battery. The action of pouring water or non-flammable liquid on the device cools the device and can prevent thermal runaway from propagating to nearby cells. It may also lower the risk of a cell that is venting, but not yet in full thermal runaway, from reacting more violently.</u></p> <p><u>A battery involved in a fire can reignite and emit flames multiple times as heat is transferred to other cells in the battery. Therefore, cabin crew should monitor the device regularly to identify if there is any indication that a fire hazard may still exist. If there is any smoke or indication of fire, crew should pour more water (or other non-flammable liquid) on the device.</u></p> <p><u>Monitor for any indication of reignition and continue to pour water (or other non-flammable liquid) on the device.</u></p> <p><u>Caution:</u></p> <p><u>a) Do not attempt to pick up or move the device until completing this step; batteries may explode or burst into flames without warning. The device should not be moved if displaying any of the following: flames/flaring, smoke, unusual sounds (such as crackling), debris, or shards of material separating from the device.</u></p> <p><u>b) Do not cover or enclose the device as it could cause it to overheat.</u></p> <p><u>c) Do not use ice or dry ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.</u></p>

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
45.	<p>WHEN THE DEVICE HAS COOLED <u>OBTAIN A SUITABLE EMPTY CONTAINER</u></p> <p>The device should be moved from the overhead bin to prevent a hidden fire from potentially developing. The device can be moved with caution following a certain period, once it has cooled down and if there is no evidence of smoke, heat, or if there is a reduction in the crackling or hissing sound usually associated with a lithium battery fire. The waiting period may vary based on the device and its size. The different circumstances (such as types of devices, phase of flight) should be addressed in the operator's training programme.</p> <p>A suitable empty container, <u>such as may include</u> a pot, jug, galley unit or toiletlavatory waste bin, <u>must</u> or fire containment equipment (only when they are designed to contain water). When selecting a suitable empty container, cabin crew should consider the size of the device to be submerged in it. Cabin crew should <u>select a container which can</u> be filled with enough water or non-flammable liquid to completely submerge the device. It is important to wear available protective equipment (such as protective breathing equipment, fire gloves), when moving any device involved in a fire. Once the device is completely submerged, the container used must be stowed and, if possible, secured to prevent spillage.</p>
6.	<p><u>PLACE THE DEVICE IN THE CONTAINER AND COMPLETELY SUBMERGE IN WATER (OR OTHER NON-FLAMMABLE LIQUID), USING PROTECTIVE EQUIPMENT</u></p> <p>Place device in the container and pour water or a non-flammable liquid in the container until the device is completely submerged. It is also possible to put the device in the container once the device already contains water. Efforts should be taken to minimize splashing of water in the aircraft when dropping the device in a container that already contains water.</p> <p>It is important that cabin crew wear protective equipment (such as protective breathing equipment and firefighting gloves) when moving any device involved in a fire.</p>
7.	<p><u>STOW AND SECURE (IF POSSIBLE) THE CONTAINER TO PREVENT SPILLAGE</u></p> <p>Once the device is completely submerged, cabin crew should stow the container and, if possible, secure it to prevent spillage.</p>
58.	<p>MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT</p> <p>Cabin crew should <u>M</u>onitor the device and the surrounding area for the remainder of the flight to verify that the device does not pose further hazard.</p>

Amplified procedures for overhead bin battery / portable electronic device (PED) fire / smoke	
<i>Step</i>	<i>Cabin crew action</i>
69.	<p><u>APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION</u></p> <p>Upon arrival, <u>cabin crew should</u> apply the operator's post-incident procedures. These <u>may should</u> include identifying to ground personnel where the item is stowed and providing <u>all relevant</u> information about the item.</p> <p><u>Crew need to</u> <u>C</u>omplete the required documentation, as per operator procedures, so that the operator is <u>notified of the event, able to comply with mandatory reporting requirements and can ensure</u> proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</p>

3.4.3 Overheated battery / electrical smell involving a portable electronic device (PED) – no visible ~~fire~~ flame or smoke

Amplified procedures for overheated battery / electrical smell involving a portable electronic device (PED) – no visible fire <u>flame</u> or smoke	
<i>Step</i>	<i>Cabin crew action</i>
	<p><u>If there are signs of fire (smoke, fumes, flames), APPLY PROCEDURES FOR BATTERY/PED FIRE (SEE 3.4.1)</u></p>
1.	<p>IDENTIFY THE ITEM</p> <p><u>Cabin crew should</u> <u>i</u>dentify the source of overheat or electrical smell, <u>or</u> <u>A</u>ask the passenger concerned to identify the item.</p>
2.	<p>INSTRUCT THE PASSENGER TO TURN OFF THE DEVICE IMMEDIATELY</p> <p>It is important <u>to</u> <u>that cabin crew</u> instruct the passenger to turn off the device immediately <u>and, if possible and safe to do so, to remove the power supply to prevent further overheating or a fire.</u></p>

Amplified procedures for overheated battery / electrical smell involving a portable electronic device (PED) – no visible fire flame or smoke	
<i>Step</i>	<i>Cabin crew action</i>
3.	<p>REMOVE POWER</p> <p><u>a) Disconnect the device from the power supply, if safe to do so.</u> <u>b) Turn off in-seat power, if applicable.</u> <u>c) Verify that power to the remaining electrical outlets remains off, if applicable.</u> <u>d) Verify that the device remains off for the remainder of the flight</u></p> <p>Caution: <u>Do not attempt to remove the battery from the device.</u></p> <p>It is important to <u>that cabin crew</u> instruct the passenger or crew member to disconnect the device from the power supply, if it is deemed safe to do so. A battery has a higher likelihood of catching fire due to overheating during or immediately following a charging cycle, although the effects may be delayed for some period of time. By removing the external power supply from the device, it will be assured that additional energy is not being fed to the battery to promote a fire.</p>
	<p><u>Cabin crew should</u> Tturn off the in-seat power to the remaining electrical outlets until it can be assured that a malfunctioning aircraft system does not contribute to additional failures of the passengers' portable electronic devices.</p> <p><u>Cabin crew should</u> Vvisually check that power to the remaining electrical outlets remains off until the aircraft's system can be determined to be free of faults, if the device was previously plugged in. <u>Depending on the aircraft type, in-seat power may have to be turned off by the flight crew.</u></p> <p>The removal of power may occur simultaneously to other cabin crew actions (such as obtaining water to douse the device). Depending on the aircraft type, in-seat power may have to be turned off by the flight crew members.</p> <p>It is important to <u>that cabin crew</u> verify that the device remains turned off for the duration of the flight.</p> <p>Caution: Do not attempt to remove the battery from the device.</p>
4.	<p>INSTRUCT THE PASSENGER TO KEEP THE DEVICE VISIBLE AND MONITOR CLOSELY</p> <p>The device must <u>should</u> remain visible (not stowed such as in baggage or seat pocket or on a person (pocket)) and should be monitored closely. Unstable batteries may ignite even after the device is turned off. <u>Cabin crew should</u> Vverify that the device is stowed <u>only</u> for landing.</p>

Amplified procedures for overheated battery / electrical smell involving a portable electronic device (PED) – no visible fire flame or smoke	
<i>Step</i>	<i>Cabin crew action</i>
5.	<p>IF SMOKE OR FLAMES APPEAR</p> <p>If smoke or flames appear, apply the BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE procedures (see 3.4.1).</p>
6. 5.	<p><u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION</p> <p>Upon arrival, <u>cabin crew should</u> apply the operator's post-incident procedures. These may <u>should</u> include identifying to ground personnel where the item is stowed and providing all <u>relevant</u> information about the item.</p> <p><u>Crew need to</u> C complete the required documentation, as per operator procedures, so that the operator is notified of the event, <u>able to comply with mandatory reporting requirements, and can ensure</u> proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</p>

3.4.4 Portable electronic device (PED) inadvertently crushed or damaged in electrically adjustable fallen into / trapped in a passenger seat – no visible flame or smoke

~~Due to the design of some electrically adjustable passenger seats, a PED can slip under a seat covering and/or cushion, behind an armrest or down the side of a seat. Inadvertent crushing of the device poses a fire hazard.~~

Amplified procedures for <u>portable electronic device (PED) inadvertently crushed or damaged in electrically adjustable fallen into / trapped in a passenger seat – no visible flame or smoke</u>	
<i>Step</i>	<i>Cabin crew action</i>
	<u>If there are signs of flames or smoke, APPLY PROCEDURES FOR BATTERY/PED FIRE (SEE 3.4.1)</u>
1.	<u>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u> Any occurrence concerning a fire hazard in the cabin should be notified immediately to the pilot-in-command who should be kept informed of all actions taken and of the effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.
2.1.	<u>OBTAIN INFORMATION FROM THE PASSENGER</u> a) Ask the passenger concerned to identify the item; b) and Ask where the passenger suspects it that the item may have dropped or slipped into, and if the passenger has moved c) Ask if the seat was moved since misplacing the item. Cabin crew should ask the passenger concerned to identify the item, and where the passenger suspects it may have dropped or slipped into, and if the passenger has moved the seat since misplacing the item.
3.2.	<u>RETRIEVE AND USE PROTECTIVE EQUIPMENT, IF AVAILABLE</u> Due to the design of some passenger seats, a PED can slip under a seat covering and / or cushion, behind an armrest or down the side of a seat. Inadvertent crushing of the device poses a fire hazard. If available, eCabin crew members should don fire-fighting gloves before trying to retrieve the item.
3.	<u>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</u> Any occurrence concerning a fire hazard in the cabin should be notified immediately to the pilot-in-command who should be kept informed of all actions taken and of the effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.

Amplified procedures for <u>portable electronic device (PED) inadvertently crushed or damaged in electrically adjustable</u> <u>fallen into / trapped in a passenger seat – no visible flame or smoke</u>	
Step	Cabin crew action
4.	<p><u>RETRIEVE THE ITEM, IF SAFE TO DO SO</u></p> <p><u>Caution:</u> <u>Do not move the seat electrically or mechanically when attempting to retrieve the item.</u></p> <p>To prevent crushing of the PED and reduce the potential fire hazard to the device and the surrounding area, cabin crew members and/or <u>the</u> passengers must should not use the electrical or mechanical seat functions in an attempt to retrieve the item. <u>Move</u> <u>Cabin crew should move</u> the passenger and, if applicable, the passenger(s) seated next to the affected seat from the area, to facilitate the search. Do <u>Cabin crew should</u> not move the seat. If the cabin crew member is unable to retrieve the item <u>without moving the seat</u>, it may be necessary need <u>to be retrieved by personnel on the ground, after landing at the next destination. If the item cannot be retrieved, cabin crew should</u> move the passenger to another seat, <u>if available.</u></p> <p><u>Cabin crew should turn off the individual in-seat power, if possible to do so. Depending on the aircraft type, in-seat power may have to be turned off by the flight crew.</u></p>
5.	<p><u>IF SMOKE OR FLAMES APPEAR</u></p> <p>If smoke or flames appear, apply the BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE procedures (see 3.4.1). <u>MONITOR THE SEAT AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT</u></p> <p><u>Cabin crew should monitor the seat and the surrounding area for the remainder of the flight to verify that the device does not pose further hazard.</u></p>
6.	<p><u>APPLY POST-INCIDENT PROCEDURES, AFTER LANDING AT THE NEXT DESTINATION</u></p> <p>Upon arrival, <u>cabin crew should</u> apply the operator's post-incident procedures. These may should include identifying to ground personnel where the item is located <u>stowed</u> and providing all <u>relevant</u> information about the item.</p> <p><u>Crew need to</u> Ccomplete the required documentation, as per operator procedures, so that the operator is notified of the event, able to comply with mandatory reporting requirements, and can ensure proper maintenance action is undertaken and <u>the emergency response kit or</u> any aircraft equipment used is replenished or replaced, if applicable.</p>

3.4.5 Battery / portable electronic device (PED) fire on the flight deck

<u>Amplified procedures for battery / portable electronic device (PED) fire on the flight deck</u>	
<i>Step</i>	<i>Cabin crew action</i>
1.	<p><u>RECOGNIZE SIGNAL FOR FIRE ON THE FLIGHT DECK</u></p> <p>a) <u>Receive call out from the flight deck (such as “back up assistance P-E-D!”);</u> b) <u>Retrieve and use protective equipment, as applicable to the situation;</u> c) <u>Obtain the appropriate fire extinguisher; and</u> d) <u>Enter the flight deck.</u></p> <p><u><i>Note.— Given the urgency of incidents in the flight deck, close coordination with the flight crew is essential, and following flight crew directives can be vital.</i></u></p> <p><u>The flight crew’s main responsibility during any occurrence is to maintain control of the aircraft. Therefore, removing an item emitting flames or smoke from the flight deck, as soon as possible, is the priority. To do so, flight crew may call upon the cabin crew to assist in the event of flame / smoke on the flight deck. As notifying the cabin crew of the flame / smoke occurrence on the flight deck by interphone may delay the response, the use of the public address (PA) system is considered the preferred method of notification. The flight crew should use phraseology that clearly explains the type of emergency situation to the cabin crew without creating panic amongst the passengers. The first cabin crew member who is ready to act should enter the flight deck.</u></p>

<u>Amplified procedures for battery / portable electronic device (PED) fire on the flight deck</u>	
Step	Cabin crew action
<u>2.</u>	<p><u>APPLY FIREFIGHTING PROCEDURE TO EXTINGUISH FLAMES</u></p> <p><u>a) If the item is on fire, in coordination with the flight crew, extinguish the fire.</u> <u>b) Once the fire has been extinguished or the device is not on fire (it may emit visible smoke, or show signs of bulging/overheating), remove it from the flight deck, if possible.</u> <u>c) If the device cannot be moved, pour water (or other non-flammable liquid) on it.</u></p> <p><u>The joint action between the flight crew and the cabin crew depends on the location and type of the affected device. The flight crew may have started the appropriate emergency procedures to deal with the fire before the arrival of the cabin crew, including removing the device from any power source. In that case, cabin crew should join the firefighting actions according to the situation. When the decision is taken to fight the fire on the flight deck, in coordination with the flight crew, the cabin crew should use firefighting equipment to extinguish the fire and prevent its spread to additional flammable materials. Halon and halon replacement fire extinguishers are optimal for the extinguishing of flames, but do not provide any cooling properties to the battery. It is critical that once any flames are extinguished that the cabin crew progress to apply Step 4 (Pour water on the device in place). It is important that cabin crew wear protective equipment (such as protective breathing equipment and fire-fighting gloves) when fighting a fire in a confined space, such as the flight deck.</u></p> <p><u>Caution:</u> <u>In certain firefighting situations (such as to prevent flight crew incapacitation or a loss of control in-flight), crew may assess and deem it necessary to remove the device immediately from the flight deck even if it is still emitting smoke or flames are present. In such case, cabin crew should apply the firefighting procedure in 3.4.1, after the device is removed from the flight deck.</u></p>
<u>3.</u>	<p><u>REMOVE THE DEVICE FROM THE FLIGHT DECK</u></p> <p><u>Once the fire has been extinguished or the device is no longer on fire (even if it is still emitting visible smoke or feels overheated), cabin crew should remove it from the flight deck, if possible. Minimizing the spreading of smoke and fumes in the flight deck is critical for the continued safe operation of the aircraft. If it cannot be moved, cabin crew should use water (or other non-flammable liquid) to cool a battery that has ignited to prevent the spread of heat to other cells in the battery.</u></p> <p><u>After the device is removed from the flight deck, the cabin crew should apply the firefighting procedure, as described in 3.4.1, if it is still on fire. Water (or other non-flammable liquid) should be used to cool a battery that has ignited to prevent the spread of heat to other cells in the battery.</u></p>

<u>Amplified procedures for battery / portable electronic device (PED) fire on the flight deck</u>	
<i>Step</i>	<i>Cabin crew action</i>
<u>4.</u>	<p><u>CLOSE THE FLIGHT DECK DOOR</u></p> <p><u>Upon removal of the device, the flight deck door should be maintained closed until the hazard is no longer present. Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication unless that system fails.</u></p>
<u>5.</u>	<p><u>APPLY PROCEDURES FOR BATTERY / PED FIRE</u></p> <p><u>After the device is removed from the flight deck, apply the BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE procedures (see 3.4.1).</u></p>
<u>6.</u>	<p><u>APPLY POST-INCIDENT PROCEDURES, AFTER LANDING AT THE NEXT DESTINATION</u></p> <p><u>Upon arrival, cabin crew should apply the operator's post-incident procedures. These should include identifying to ground personnel where the item is stowed and providing relevant information about the item. Crew need to complete the required documentation, as per operator procedures, so that the operator is able to comply with mandatory reporting requirements, and can ensure proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</u></p>

3.4.56 Fire involving dangerous goods

Amplified procedures for fire involving dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
1.	<p>IDENTIFY THE ITEM</p> <p><u>Cabin crew should Ask the passenger concerned to identify the item. The passenger may be able to give some guidance on the hazard(s) involved and how these could be dealt with. If the passenger can identify the item, refer to Section 4 of this document for the appropriate emergency response drill.</u></p> <p><u>It may not be possible for cabin crew to identify the item right away, especially if the source of the fire is unknown or the item is not readily accessible. In this case, cabin crew should apply firefighting procedures should be applied as a first step (Step 2). Once it is possible to do so, and then attempt to identify the item after the fire is under control (Step 1). If the item is contained in baggage, the crew's actions would be similar to the actions for an item that is visible or readily accessible.</u></p>

Amplified procedures for fire involving dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
	<p>Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames. However, in certain situations cabin crew members may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. This should be done with extreme caution and only after donning appropriate protective equipment available on the aircraft.</p>
2.	<p>THE APPLY THE FIREFIGHTING PROCEDURE</p> <p>a) Apply communication procedures. b) Use appropriate firefighting equipment and protective equipment, as required. c) Fight fire. d) Manage passengers and cabin, as required.</p> <p>During Any occurrence concerning a fire in the cabin, the cabin crew should be notified immediately to notify the pilot-in-command immediately who should be kept and keep the flight crew informed of all actions taken and of the effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.</p> <p style="text-align: center;"><u>The following is moved from the last paragraph of this step</u></p> <p>Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times <u>until the hazard is no longer present</u>. Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication <u>between crew members</u>, unless the interphone system fails.</p> <p>Appropriate firefighting and emergency procedures must <u>should</u> be used to deal with any fire. In a multi-cabin crew operation, the actions detailed in the firefighting procedure should be conducted simultaneously. On aircraft operated with only one cabin crew member, the aid of a passenger should be sought in dealing with the situation. <u>Cabin crew should use firefighting equipment to extinguish the fire and prevent its spread to additional flammable materials.</u></p> <p>In general, <u>Cabin crew should not use</u> water should not be used on a spillage or when fumes are present since it may spread the spillage or increase the rate of fuming. Consideration should also be given to the possible presence of electrical components when using water extinguishers. <u>It is important that cabin crew use protective equipment (such as protective breathing equipment and fire-fighting gloves/oven gloves), as required, when fighting a fire.</u></p>

Amplified procedures for fire involving dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
	<p>If fire develops, cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.</p> <p style="text-align: center;"><u>The following is moved to the end of the first paragraph after the letter list of this step.</u></p> <p>Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times. Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication unless the interphone system fails.</p> <p>Caution: In certain firefighting situations, cabin crew may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. In order to avoid injury from a flash fire, cabin crew should use caution when opening the affected baggage when there is any indication of smoke or flames. This should only be done after donning appropriate protective equipment.</p>
3.	<p>MONITOR FOR ANY <u>INDICATION OF REIGNITION</u></p> <p>Monitor the area regularly to identify if there is any indication that a fire hazard may still exist. If there is any smoke or indication of fire, continue to apply the firefighting procedure. If smoke or flames reappear, cabin crew should repeat Step 2.</p>
4.	<p><u>APPLY PROCEDURES FOR SPILLAGE OR LEAKAGE OF DANGEROUS GOODS, IF REQUIRED, ONCE THE FIRE HAS BEEN EXTINGUISHED</u></p> <p>In the event of a fire involving dangerous goods, cabin crew may need to apply the SPILLAGE OR LEAKAGE INVOLVING DANGEROUS GOODS procedures (see 3.4.67) may need to be applied once the fire has been extinguished.</p>
5.	<p><u>APPLY POST-INCIDENT PROCEDURES AFTER LANDING AT THE NEXT DESTINATION</u></p> <p>Upon arrival, cabin crew should apply the operator's post-incident procedures. These may include identifying to ground personnel where the item is stowed and providing all information about the item.</p> <p>Crew should Ccomplete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</p>

3.4.6.7 Spillage or leakage of dangerous goods

Amplified procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
1.	<p>NOTIFY THE PILOT-IN-COMMAND / OTHER CABIN CREW MEMBERS</p> <p><u>During Aany incident occurrence</u> concerning dangerous goods, <u>the cabin crew</u> should be notified immediately to <u>notify</u> the pilot-in-command immediately who <u>should be kept and keep the flight crew</u> informed of all actions taken and of their <u>the</u> effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each is kept fully informed of the other's actions and intentions.</p> <p>Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times <u>until the hazard is no longer present</u>. Crew communication and coordination are of utmost importance. The use of the interphone is the primary means of communication <u>between crew members</u>, unless the interphone system fails.</p>
2.	<p>IDENTIFY THE ITEM</p> <p><u>Cabin crew should Aask</u> the passenger concerned to identify the item and indicate its potential hazards. The passenger may be able to give some guidance on the hazard(s) involved and how these could be dealt with. If the passenger can identify the item, refer to Section 4 of this document for the appropriate emergency response drill.</p> <p>On aircraft with only one cabin crew member, consult with the pilot in command as to whether the aid of a passenger should be sought in dealing with the incident.</p>
3.	<p>COLLECT EMERGENCY RESPONSE KIT OR OTHER USEFUL ITEMS</p> <p><u>Cabin crew should Ccollect</u> emergency response kit, if provided, or collect for use in dealing with the spillage or leakage:</p> <ul style="list-style-type: none"> a) <u>aA</u> supply of paper towels or newspapers or other absorbent paper or absorbent fabric (e.g. seat cushion covers, head rest protectors);<u>;</u> b) oven <u>Rubber</u> gloves or fire-resistant gloves <u>oven gloves covered by polyethylene bags, if available;</u> c) a <u>At</u> least two large polyethylene waste bin bags; and d) a <u>At</u> least three smaller polyethylene bags, such as those used for duty-free or bar sales or, if none available, airsickness bags.

Amplified procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
4.	<p>DON RUBBER GLOVES AND SMOKE HOOD RETRIEVE AND USE PROTECTIVE EQUIPMENT</p> <p>It is important that cabin crew use protective equipment (such as protective breathing equipment, rubber gloves or fire-resistant gloves/oven gloves covered by polyethylene bags) when handling a spillage or leakage of dangerous goods.</p> <p>The Cabin crew should always protect their hands should always be protected before touching suspicious packages or items. Fire-resistant gloves or oven gloves covered by polyethylene bags are likely to give suitable protection.</p> <p>Gas-tight breathing equipment should always be worn when attending to an incident involving smoke, fumes or fire.</p>
5.	<p>MOVE PASSENGERS AWAY FROM AREA AND DISTRIBUTE WET TOWELS OR CLOTHS</p> <p>The use of therapeutic oxygen bottles or the passenger drop-out oxygen system to assist passengers in a smoke- or fume-filled passenger cabin should not be considered since considerable quantities of fumes or smoke would be inhaled through the valves or holes in the masks. A more effective aid to passengers in a smoke- or fume-filled environment would be the use of a wet towel or cloth held over the mouth and nose. A wet towel or cloth aids in filtering and is more effective at doing this than a dry towel or cloth. Cabin crew should take prompt action if smoke or fumes develop and move passengers away from the area involved and, if possible, provide wet towels or cloths and give instructions to breathe through them.</p>
6.	<p>PLACE DANGEROUS GOODS ITEM IN POLYETHYLENE BAGS</p> <p><i>Note.</i>—In the case of a spill of known or suspected dangerous goods in powder form, <u>cabin crew should:</u></p> <ul style="list-style-type: none"> a) Leave everything undisturbed; b) Do not use fire agent or water; c) Cover area with polyethylene or other plastic bags and blankets; d) Keep area isolated until after landing.

Amplified procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
	<p>With emergency response kit</p> <p>If it is <u>absolutely</u> certain that the item will not create a problem, the decision may be made not to move it. In most circumstances, however, it will be better to move the item, and this should be done as suggested below. <u>Cabin crew should</u> <u>P</u>lace the item in a polyethylene bag as follows:</p> <ul style="list-style-type: none"> <u>a</u>) <u>P</u>repare two bags by rolling up the sides and placing them on the floor; <u>b</u>) <u>P</u>lace the item inside the first bag with the closure of the item, or the point from which it is leaking from its container, at the top; <u>c</u>) <u>T</u>ake off the rubber gloves while avoiding skin contact with any contamination on them; <u>d</u>) <u>P</u>lace the rubber gloves in the second bag; <u>e</u>) <u>C</u>lose the first bag while squeezing out the excess air; <u>f</u>) <u>T</u>wist the open end of the first bag and use a bag tie to tie it sufficiently tight to be secure but not so tight that pressure equalization cannot take place; <u>g</u>) <u>P</u>lace the first bag (containing the item) in the second bag, which already contains the rubber gloves and secure the open end in the same manner as that used for the first bag. <p>With no emergency response kit</p> <p><u>Cabin crew should</u> <u>P</u>ick up the item and place it in a polyethylene bag. <u>They should</u> <u>E</u>nsure the receptacle containing the dangerous goods is kept upright or the area of leakage is at the top. Using paper towels, newspaper, etc., <u>cabin crew should</u> mop up the spillage, after having ascertained there will be no reaction between what is to be used to mop up and the dangerous goods. <u>They should</u> <u>P</u>lace the soiled towels, etc., in another polyethylene bag. <u>Cabin crew should</u> <u>P</u>lace the <u>rubber</u> gloves and bags used to protect the hands either in a separate small polyethylene bag or with the soiled towels. If extra bags are not available, <u>cabin crew should</u> place the towels, <u>rubber</u> gloves, etc., in the same bag as the item. <u>They should</u> <u>E</u>xpel excess air from the bags and close tightly so as to be secure but not so tight that pressure equalization cannot take place.</p>

Amplified procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
7.	<p>STOW POLYETHYLENE BAGS</p> <p>If there is a catering or bar box on board, <u>cabin crew should</u> empty any contents and place the box on the floor, with the door upward. <u>They should</u> Pplace the bag(s) containing the item and any soiled towels, etc., in the box and close the door. <u>Cabin crew should</u> Ttake the box or, if there is no box, the bag(s) to a position as far away as possible from the flight deck and passengers. If a galley or toilet lavatory is fitted, <u>cabin crew should</u> consider taking the box or bag(s) there, unless it is close to the flight deck. <u>Cabin crew should</u> Uuse a rear galley or toilet lavatory wherever possible; but do should not place the box or bag(s) against the pressure bulkhead or fuselage wall. If a galley is used, the box or bag(s) can be stowed in an empty waste bin container. If a toilet lavatory is used, the box can be placed on the floor or the bag(s) stowed in an empty waste container. The toilet lavatory door should be locked from the outside. In a pressurized aircraft, if a toilet is used, any fumes will be vented away from passengers. However, if the aircraft is unpressurized there may not be positive pressure in a toilet to prevent fumes from entering the passenger cabin.</p> <p><u>Cabin crew should</u> Eensure when moving a box that the opening is kept upward or when moving a bag that either the receptacle containing the dangerous goods is kept upright or the area of leakage is kept at the top.</p> <p>Wherever the box or bag(s) have been located, <u>cabin crew should</u> wedge them firmly in place to prevent them from moving and to keep the item upright. <u>They should</u> Eensure that the position of the box or bags will not impede disembarkation from the aircraft.</p>
8.	<p>TREAT AFFECTED SEAT CUSHIONS / COVERS IN THE SAME MANNER AS DANGEROUS GOODS ITEM</p> <p><u>Cabin crew should remove</u> Sseat cushions, seat backs or other furnishings which have been contaminated by a spillage should be removed from their fixtures and placed <u>them</u> in a large bin bag or other polyethylene bag, together with any bags used initially to cover them. They <u>Cabin crew</u> should be stowed <u>them</u> away in the same manner as the dangerous goods item causing the incident.</p>

Amplified procedures for spillage or leakage of dangerous goods	
<i>Step</i>	<i>Cabin crew action</i>
9.	<p>COVER SPILLAGE ON CARPET / FLOOR</p> <p><u>Cabin crew should</u> Ccover any spillage on the carpet or furnishings with a waste bag or other polyethylene bags, if available. If not, <u>cabin crew should</u> use airsickness bags opened out so that the plastic side covers the spillage or use the plastic covered emergency information cards.</p> <p><u>If possible, cabin crew should roll up</u> Ccarpet which has been contaminated by a spillage and which is still causing fumes despite being covered, should be rolled up, if possible, and placed <u>it</u> in a large bin bag or other polyethylene bag. It <u>Cabin crew</u> should be placed <u>it</u> in a waste bin and stowed <u>it</u>, when possible, either in the rear toilet <u>lavatory</u> or rear galley. If the carpet cannot be removed it should remain covered by a large bin bag or polyethylene bags, etc., and additional bags should be used to reduce the fumes.</p>
10.	<p>REGULARLY INSPECT <u>MONITOR</u> ITEMS STOWED AWAY / CONTAMINATED FURNISHINGS</p> <p><u>Cabin crew should monitor</u> Aany dangerous goods, contaminated furnishings or equipment which have been removed and stowed away or covered for safety should be subject to regular inspection.</p>
11.	<p><u>APPLY POST-INCIDENT PROCEDURES</u> AFTER LANDING AT THE NEXT DESTINATION</p> <p>Upon arrival, <u>cabin crew should</u> apply the operator's post-incident procedures. These may include identifying to ground personnel where the item is stowed and providing all information about the item.</p> <p><u>Crew should</u> Ccomplete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.</p>

ATTACHMENT

AMENDMENTS TO THE DRILL CODES IN THE EMERGENCY RESPONSE GUIDANCE

DG PANEL 表 4-2 按字母顺序排列的带有操作方法代号的危险品一览表

联合国 编号	正式运输名称	操作 代号
Proposed amendment		
1727	Ammonium hydrogendifluoride, solid 固态氟化氢铵	8P
2025-2026 Edition		
1727	Ammonium hydrogendifluoride, solid 固态氟化氢铵	8L
Proposed amendment		
3562	Chlorophenols, corrosive, solid, n.o.s. 固态氯苯酚类, 腐蚀性, 未另作规定的	8L
2025-2026 Edition		
—		
Proposed amendment		
3561	Chlorophenols, corrosive, toxic, solid, n.o.s.* 固态氯苯酚类, 腐蚀性, 毒性, 未另作规定的*	8P
2025-2026 Edition		
—		
Proposed amendment		
2021	Chlorophenols, toxic, liquid, n.o.s.* 液态氯苯酚类, 毒性, 未另作规定的*	6L
2025-2026 Edition		
2021	Chlorophenols, liquid 液态氯苯酚类	6L
Proposed amendment		
2020	Chlorophenols, toxic, solid, n.o.s.* 固态氯苯酚类, 毒性, 未另作规定的*	6L
2025-2026 Edition		
2020	Chlorophenols, solid 固态氯苯酚类	6L
Proposed amendment		
2372	1,2-Di-(dimethylamino) ethane 1,2-双(二甲氨基)乙烷	3CP
2025-2026 Edition		
2372	1,2-Di-(dimethylamino) ethane 1,2-双(二甲氨基)乙烷	3L

联合国 编号	正式运输名称	操作 代号
Proposed amendment		
1040	Ethylene oxide 环氧乙烷	10CP
2025-2026 Edition		
1040	Ethylene oxide 环氧乙烷	10P
Proposed amendment		
1041	Ethylene oxide and carbon dioxide mixture 环氧乙烷和二氧化碳混合物	10C
2025-2026 Edition		
1041	Ethylene oxide and carbon dioxide mixture 环氧乙烷和二氧化碳混合物	10L
Proposed amendment		
3300	Ethylene oxide and carbon dioxide mixture 环氧乙烷和二氧化碳混合物	10CP
2025-2026 Edition		
3300	Ethylene oxide and carbon dioxide mixture 环氧乙烷和二氧化碳混合物	10P
Proposed amendment		
1040	Ethylene oxide with nitrogen 含氮环氧乙烷	10CP
2025-2026 Edition		
1040	Ethylene oxide with nitrogen 含氮环氧乙烷	1P
Proposed amendment		
—		
2025-2026 Edition		
2941	Fluoroanilines 氟苯胺类	6L
Proposed amendment		
3358	Heating machines 加热设备	10L
2025-2026 Edition		
—		
Proposed amendment		
2857	Heating machines 加热设备	2L
2025-2026 Edition		
—		

联合国 编号	正式运输名称	操作 代号
Proposed amendment		
3536	Lithium ion batteries installed in cargo transport unit 装在货运装置中的锂离子电池组	12FZ
2025-2026 Edition		
3536	Lithium batteries installed in cargo transport unit 装在货运装置中的锂电池组	12FZ
Proposed amendment		
3563	Lithium metal batteries installed in cargo transport unit 安装在货运单元中的锂金属电池组	12FZ
2025-2026 Edition		
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Proposed amendment		
3564	Sodium ion batteries installed in cargo transport unit 安装在货运单元中的钠离子电池组	12FZ
2025-2026 Edition		
—		
Proposed amendment		
2862	Vanadium pentoxide 五氧化二钒	6L
2025-2026 Edition		
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