



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/16)**

Montreal, 17 to 21 October 2016

Agenda Item 4: Development of recommendations for amendments to the *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481) for incorporation in the 2019-2020 Edition

LITHIUM BATTERY ERG ENTRIES

(Presented by S. Schwartz)

SUMMARY

This working paper proposes changes to lithium battery Emergency Response Guidance entries to better align them with known hazards from lithium batteries.

Action by the DGP-WG: The DGP-WG is invited to consider adopting the changes to the Emergency Response Guidance for lithium batteries as proposed in the appendix of this working paper.

1. INTRODUCTION

1.1 The *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* document (ERG) (Doc 9481) is primarily for use by flight crew to deal with in flight dangerous goods incidents. Because of the high workload during an in flight emergency, it is important that the ERG is clear and concise in describing the hazards of dangerous goods and the procedures to deal with incidents involving dangerous goods.

1.2 The format of the guide assigns drill codes for materials in a format based on a number that is normally the class of the material (and therefore its hazard) and a letter for an action code in the case of an incident. While the use of the class of the material is appropriate for most substances, it conveys no information as to the hazard involved with Class 9 materials, since the hazard associated with Class 9 materials is "no general inherent risk."

1.3 The entry for **Lithium metal batteries** (UN 3090) is drill code 9FZ, and for **Lithium ion batteries** (UN 3480) is drill code 9F. For lithium metal batteries, the drill codes read "no general

inherent risk, flammable, aircraft cargo fire suppression system may not extinguish or contain the fire; consider landing immediately." The statement "no general risk" is associated with Class 9, and might initially lead some flight crew to ignore the rest of the drill code and not treat a lithium battery event with the urgency implied with the drill letter.

1.4 The drill code for lithium ion batteries 9F also repeats the issues discussed above for lithium metal batteries. In addition, recent tests by the FAA demonstrate that aircraft cargo fire suppression systems may not extinguish or contain fires from lithium ion battery fires, and landing at the nearest suitable airport might be an appropriate course of action.

1.5 There is precedence for creating a new drill number for materials whose inherent risk is not well accounted for in the current hazard classification system. There are two additional drill numbers for certain flammable gasses and infectious substances.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider whether an additional drill number should be established for lithium batteries (both ion and metal) that better characterizes their inherent risk for dangerous heat, fire, and smoke evolution, as well as explosive gas generation.

2.2 Additionally, the DGP-WG is invited to consider whether the entry for **Lithium ion batteries** (UN3480 and UN3481) should be amended to include the statement that fires involving these materials can overwhelm aircraft fire suppression systems, and landing at the nearest suitable airport might be an appropriate course of action.

**APPENDIX
PROPOSED AMENDMENT TO THE EMERGENCY RESPONSE GUIDANCE**

1. Amend Table 4-1 to add an entry to be used for lithium batteries.
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Section 4

**CHART OF DRILLS AND
LIST OF DANGEROUS GOODS WITH
DRILL REFERENCE NUMBERS**

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4.3 NUMERICAL LIST OF DANGEROUS GOODS WITH DRILL CODES

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Table 4-1. Aircraft Emergency Response Drills						
DRILL NO.	INHERENT RISK	RISK TO AIRCRAFT	RISK TO OCCUPANTS	SPILL OR LEAK PROCEDURE	FIREFIGHTING PROCEDURE	ADDITIONAL CONSIDERATIONS
	...					
10	Gas, flammable, high fire risk if any ignition source present	Fire and/or explosion	Smoke, fumes and heat, and as indicated by the drill letter	Use 100% oxygen; establish and maintain maximum ventilation; no smoking; minimum electrics	All agents according to availability	Possible abrupt loss of pressurization
11	Infectious substances may affect humans or animals if inhaled, ingested or absorbed through the mucous membrane or an open wound	Contamination with Infectious substances	Delayed infection to humans or animals	Do not touch. Minimum re-circulation and ventilation in affected area	All agents according to availability. No water on "Y" drill letter	Call for a qualified person to meet the aircraft
<u>12</u>	<u>Fire, heat, smoke, flammable vapour, explosion</u>	<u>Fire and/or explosion</u>	<u>Smoke, fumes, heat</u>	<u>Use 100% oxygen; establish and maintain maximum ventilation</u>	<u>All agents according to availability. Use of water if available</u>	<u>Consider landing immediately</u>
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2. Amend the drill code entry in Table 4-2 and Table 4-3 for lithium ion batteries, lithium ion batteries contained in equipment, and lithium ion batteries packed with equipment to 9FZ.

<i>UN No.</i>	<i>Drill Code</i>	<i>Proper shipping name</i>
3480	9F 9FZ	Lithium ion batteries
3481	9F 9FZ	Lithium ion batteries contained in equipment
3481	9F 9FZ	Lithium ion batteries packed with equipment

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