

# Safe Transport of Dangerous Goods by Air

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# Safe Transport of Dangerous Goods by Air

## Part 8 - Provisions concerning passengers & crew



Doc 9284

Technical Instructions for the Safe  
Transport of Dangerous Goods by Air

2019-2020 Edition



Approved and published by decision of the Council of ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

# SAFE TRANSPORT OF DANGEROUS GOODS BY AIR



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➤ **Part 8 = Provisions concerning passengers and crew**

✓ **Chapter 1 - Provisions for dangerous goods carried by passengers or crew**

# PROVISIONS CONCERNING PASSENGERS AND CREW

- **DG may only be carried by passengers or crew members, as described in Part 8 and Table 8-1** (Section 2 & Table 2.3.A)
- In addition, the provisions of the Instructions **do not apply to baggage** that has been **separated from its owner** during **transit** (e.g. **lost baggage** or **improperly routed baggage**) or in **excess baggage** carried as **cargo** as permitted by **1;1.1.5.1 g)**
- It applies either as or in **carry-on baggage** or **checked baggage** or on their **person**
- Depending of the authorized items:
  - an **approval** could be required by the **operator**
  - **pilot-in-command** must be **informed**
- Any **organization** or **enterprise** other than an operator (such as a travel agent), involved in the air transport of passengers, **should provide passengers** with **information** about the types of DG which they are forbidden to transport aboard an aircraft (**notices, internet, ...**)

# PROVISIONS CONCERNING PASSENGERS AND CREW

- The regulation provide two Tables concerning DG carried by passengers:
  - ✓ **Table 8-1** for those carried by **passengers** and to be used **for personal use only**
  - ✓ **Tableau 8-2** for those carried by **staff members** of the Organization for the Prohibition of Chemical Weapons (**OPCW**) and **government agencies**, when they are on **official travel**
- Four columns are shown for the listed types or kind of DG according some items:
  - ✓ **checked baggage**
  - ✓ **carry-on baggage**
  - ✓ **approval of the operator(s) required**
  - ✓ **restrictions**

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		

# PROVISIONS CONCERNING PASSENGERS AND CREW

- **Table 8-1** contains 23 items, divided in **6 categories of danger**:
- ✓ **Batteries**
- ✓ **Flames and fuel sources**
- ✓ **Gases in cylinders and cartridges**
- ✓ **Radioactive material**
- ✓ **Mercury**
- ✓ **Other dangerous goods**

Table 8-1. Provisions for dangerous goods carried by passengers or crew

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Batteries</b>				
1) Lithium batteries (including portable electronic devices)	Yes (except for g) and h))	Yes	(see c) and d))	a) each battery must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i> , Part III, subsection 38.3;

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# PROVISIONS CONCERNING PASSENGERS AND CREW

➤ **Table 8-2** concerns only provisions for instruments carried by **OPCW** and **government agencies** and contains only 2 items:

Table 8-2. Provisions for instruments carried by OPCW and government agencies

	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<i>Dangerous goods</i>				
1) Instruments containing radioactive material (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M))	Yes	Yes	Yes	<p>→ Table 2-14 = Activity limits for excepted packages !</p> <p>a) the instruments must not exceed the activity limits specified in Table 2-14 of these Instructions;</p> <p>b) must be securely packed; and</p> <p>c) must be carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.</p>
2) A mercurial barometer or mercurial thermometer	No	Yes	Yes	<p>a) must be carried by a representative of a government weather bureau or similar official agency;</p> <p>b) must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position; and</p> <p>c) the pilot-in-command must be informed of the barometer or thermometer.</p>

## PROVISIONS CONCERNING PASSENGERS AND CREW

➤ The entry in Table 8-1 that **most appropriately describes** the item or article **must be selected**

✓ *Note.*— For instance, electronic cigarettes must meet the requirements of the entry for “Battery-powered portable electronic smoking devices” not the entry for lithium batteries or non-spillable batteries

➤ An article that contains **multiple dangerous goods must meet all applicable entries:**

✓ *Note.*— For instance, the restrictions and conditions for entries 1) and 14) of Table 8-1 apply to an avalanche backpack that contains lithium batteries and gas cartridges

➤ Baggage intended to be carried in the cabin that is **placed** in the cargo hold:

➤ When baggage **intended as carry-on is taken** by the **operator** and **placed** into the **cargo compartment** for carriage, the operator **must confirm** with the passenger that DG which are only permitted in carry-on baggage have been.

→ « Passenger Questionnaire » is officially integrated in the TI !!

# PROVISIONS CONCERNING PASSENGERS AND CREW

- **DG may be carried out by passengers and crew members, if:**
  - ✓ they are permitted in accordance with **Table 8-1**
  - ✓ they are for **personal use only**
- **Consequently, (except for the reporting provisions) the provisions of the TI do not apply to the DG permitted by Table 8-1 (and 8-2) if they are:**
  - ✓ carried out by **Passengers or Crew only** for their **personal use** (*by OPCW or government staffs or for 8-2*)
  - ✓ contained in baggage that has been **separated** from its **owner** during **transit** (e.g. **lost** baggage or **improperly routed**)
  - ✓ contained within items of **excess baggage** sent as **cargo** as permitted by **1;1.1.5.1 h)**

→ in clear words, we have to apply **Part 8 only** for DG carried out by **Pax/Crew**, while all the **other Parts 1 à 7** are made for **cargo packages !!**

## PROVISIONS CONCERNING PASSENGERS AND CREW

- Any **organization** or **enterprise** other than an operator (such as a travel agent), involved in the air transport of passengers, **should provide passengers** with **information** about the types of dangerous goods which they are forbidden to carry aboard an aircraft (**as a minimum**, notices at those locations where there is an interface with the passengers, ...)
- Where provision is made for the purchase of tickets via the **Internet**, information on the types of dangerous goods which a passenger is forbidden to carry aboard an aircraft **should** be provided in either **text** or **pictorial** form and should be such that ticket **purchase cannot be completed** until the passenger, or a person acting on their behalf, has **indicated** that they have **understood** the restrictions on dangerous goods in baggage

# PROVISIONS CONCERNING PASSENGERS AND CREW

➤ Regarding this **Part 8** (DG carried out by passengers and crew members):

☞ **States may implement additional restrictions** in the interests of aviation **security** !!!

➤ Concerning **devices** carried out by passengers and crew members:

☞ **active** devices must meet defined **standards** for **electromagnetic radiation** to ensure that the operation of the devices **does not interfere** with **aircraft systems**

# PROVISIONS CONCERNING PASSENGERS AND CREW

- **Strictly forbidden either in the cabin, cargo hold:**
- ✓ **personal medical oxygen devices that utilize liquid oxygen**
- ➔ **EXCEPT those that utilize gaseous oxygen or air**

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
9) Cylinders of oxygen or air required for medical use	Yes	Yes	Yes	a) no more than 5 kg gross mass per cylinder; b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents; c) advance arrangements recommended; and d) the pilot-in-command must be informed of the number of oxygen or air cylinders loaded on board the aircraft and their loading location(s).

## PROVISIONS CONCERNING PASSENGERS AND CREW

- **Strictly forbidden either in the cabin, cargo hold:**
- ✓ **electroshock weapons** (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc ...



# PROVISIONS CONCERNING PASSENGERS AND CREW

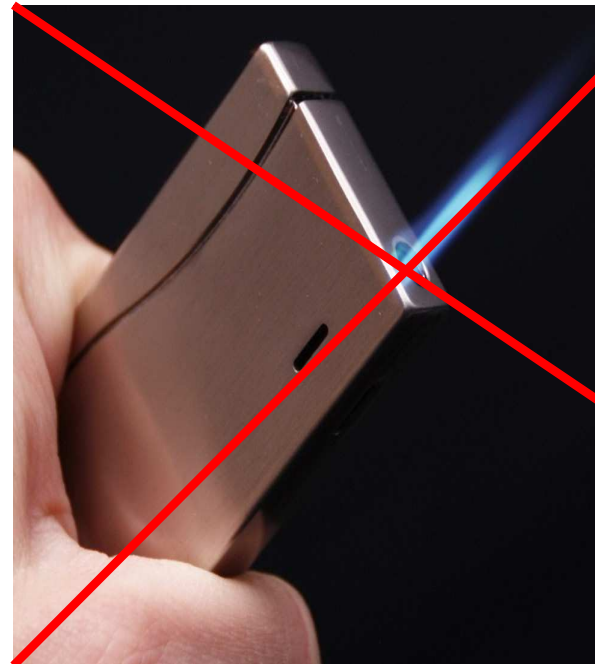
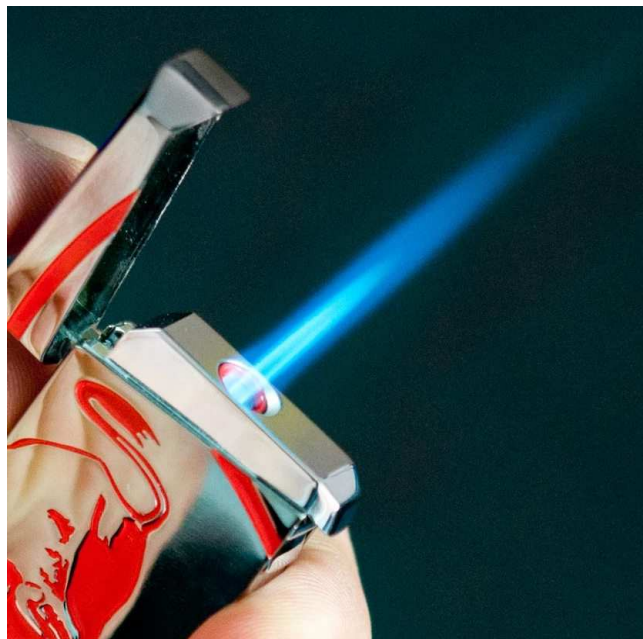
- **Strictly forbidden either in the cabin, cargo hold:**
- ✓ **“strike anywhere” matches (“cow-boy matches”)**
- ➔ **EXCEPT safety matches**

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
5) Cigarette lighter	No	(see b))	No	a) no more than one per person;
Small packet of safety matches				b) must be carried on the person;
				c) must not contain unabsorbed liquid fuel (other than liquefied gas); and
				d) if a cigarette lighter is powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g) and 3) b) and c).



# PROVISIONS CONCERNING PASSENGERS AND CREW

- **Strictly forbidden either in the cabin, cargo hold:**
  - ✓ **premixing burner lighters (blue flame) without a means of protection against unintentional activation, and their lighter fuel and refills**
  - **EXCEPT** lighters **not** containing **unabsorbed liquid fuel** (other than liquefied gas) "type BIC" et "blue flame ones with a lid"



# PROVISIONS CONCERNING PASSENGERS AND CREW

- **Strictly forbidden either in the cabin, cargo hold:**
  - ✓ **lighters** powered by **lithium ion or metal battery** (e.g. laser plasma lighters, tesla coil lighters, flux lighters, arc lighters and double arc lighters) without a safety cap or means of protection against unintentional activation



# PROVISIONS CONCERNING PASSENGERS AND CREW

➤ Regarding the following articles:



✓ **Radio-pharmaceuticals** contained **within the body** of a person as the result of **medical treatment**

✓ **Energy efficient lamps** when in **retail packaging** and intended for **personal or home use** (see Part 1;2.6)

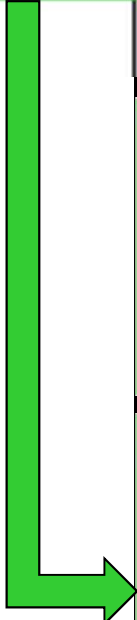


→ These dangerous goods are not subject to these Instructions

# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
1) Lithium batteries (including portable electronic devices)  	Yes (except for g) and h))	Yes	(see c) and d))	a) each battery must be of a type which meets the requirements of each test in the UN <i>Manual of Tests and Criteria</i> , Part III, subsection 38.3; b) each battery must not exceed the following: — for lithium metal batteries, a lithium content of 2 grams; or — for lithium ion batteries, a Watt-hour rating of 100 Wh; c) each battery may exceed 100 Wh but not exceed 160 Wh Watt-hour rating for lithium ion with the approval of the operator; d) each battery may exceed 2 grams but not exceed 8 grams lithium content for lithium metal for portable medical electronic devices with the approval of the operator;

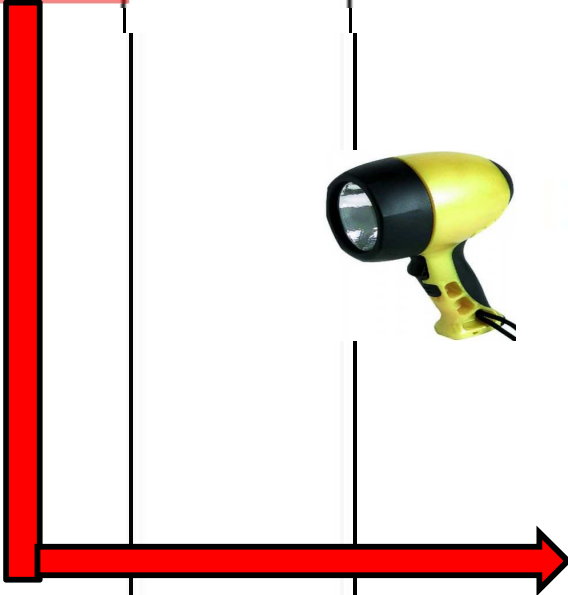
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# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
1) Lithium batteries (including portable electronic devices)	Yes (except for g) and h))	Yes	(see c) and d))	<p>e) batteries contained in portable electronic devices should be carried as carry-on baggage; however, if carried as checked baggage:</p> <ul style="list-style-type: none"> <li>— measures must be taken to prevent unintentional activation and to protect the devices from damage; and</li> <li>— the devices must be completely switched off (not in sleep or hibernation mode);</li> </ul> <p>f) batteries and heating elements must be isolated in portable electronic devices capable of generating extreme heat, which could cause a fire if activated, by removal of the heating element, battery or other components;</p> <p>g) spare batteries, including power banks:</p> <ul style="list-style-type: none"> <li>— must be carried as carry-on baggage; and</li> <li>— must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch);</li> </ul>

... continuous



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
1) Lithium batteries (including portable electronic devices)	Yes (except for g) and h))	Yes	(see c) and d))	<p>h) baggage equipped with a lithium battery(ies) exceeding:</p> <ul style="list-style-type: none"> <li>— for lithium metal batteries, a lithium content of 0.3 grams; or</li> <li>— for lithium ion batteries, a Watt-hour rating of 2.7 Wh</li> </ul> <p>must be carried as carry-on baggage unless the battery(ies) is removed from the baggage, in which case the battery(ies) must be carried in accordance with g);</p> <p>i) no more than two spare batteries meeting the requirements of c) or d) may be carried per person.</p>

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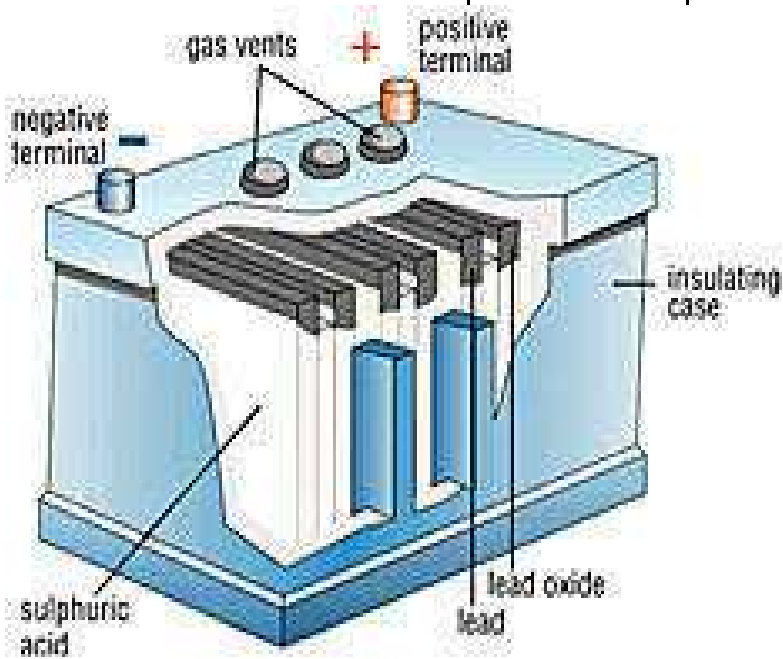
**Maximum two spares if:**

- c) = Li Ion from 100 to 160 Wh
- d) = Li Metal from 2 et 8 g

**with the approval of the operator**

# PROVISIONS CONCERNING PASSENGERS AND CREW

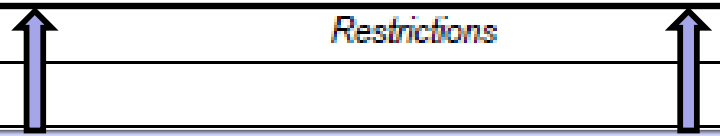
Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
2) Non-spillable batteries	Yes	Yes	No	<ul style="list-style-type: none"> <li>a) must meet the requirements of Special Provision A67;</li> <li>b) each battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh;</li> <li>c) each battery must be protected from short circuit by the effective insulation of exposed terminals;</li> <li>d) no more than two spare batteries per person may be carried; and</li> <li>e) if contained in equipment, the equipment must be either protected from unintentional activation, or each battery must be disconnected and its exposed terminals insulated.</li> </ul>



# PROVISIONS CONCERNING PASSENGERS AND CREW

	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
Dangerous Goods				
<b>Batteries</b>				
3) Battery-powered portable electronic smoking devices (e.g. e-cigarettes, ecigs, ecigars, epipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	<p>a) if powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g);</p> <p>b) the devices and/or batteries must not be recharged on board the aircraft; and</p> <p>c) measures must be taken to prevent unintentional activation of the heating element while on board the aircraft.</p>

→ a) = compliance 38.3 ONU  
 → b) = Max 2 g or 100 Wh  
 → g) = spare batteries in the cabin and protected



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
4) Battery-powered mobility aids (e.g. wheelchairs)	Yes	(see d))	Yes	<p>a) for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg);</p> <p>b) the passenger should make advance arrangements with each operator and provide information on the type of battery installed and on the handling of the mobility aid (including instructions on how to isolate the battery);</p> <p>c) in the case of a non-spillable wet battery:</p> <ul style="list-style-type: none"> <li>i) each battery must comply with Special Provision A67; and</li> <li>ii) a maximum of one spare battery may be carried per passenger;</li> </ul>

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→ Loading conditions of battery-powered mobility aids are defined in Part 7, Chapter 2, Paragraph 2.13

# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Batteries</b>				
4) Battery-powered mobility aids (e.g. wheelchairs)	Yes	(see d))	Yes	<p>d) in the case of a lithium ion battery:</p> <p>i) each battery must be of a type which meets the requirements of each test in the <i>UN Manual of Tests and Criteria</i>, Part III, subsection 38.3;</p> <p>ii) when the mobility aid does not provide adequate protection to the battery:</p> <ul style="list-style-type: none"> <li>— the battery must be removed in accordance with the manufacturer's instructions;</li> <li>— the battery must not exceed 300 Wh;</li> <li>— the battery terminals must be protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals);</li> <li>— the battery must be protected from damage (e.g. by placing each battery in a protective pouch); and</li> <li>— the battery must be carried in the cabin;</li> </ul> <p>iii) a maximum of one spare battery not exceeding 300 Wh or two spare batteries not exceeding 160 Wh each may be carried. Spare batteries must be carried in the cabin.</p>

... continuous



→ Loading conditions of battery-powered mobility aids are defined in Part 7, Chapter 2, Paragraph 2.13

# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		Approval of the operator(s) is required	<i>Restrictions</i>
	Checked baggage	Carry-on baggage		
<b>Flames and fuel sources</b>				
5) Cigarette lighter Small packet of safety matches	No	(see b))	No	<p>a) no more than one per person;</p> <p>b) must be carried on the person;</p> <p>c) must not contain unabsorbed liquid fuel (other than liquefied gas); and</p> <p>d) if a cigarette lighter is powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g) and 3) b) and c).</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Flames and fuel sources</b>				
6) Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	No	<p>a) must be in retail packagings; and</p> <p>b) no more than 5 L total net quantity per person.</p> <p><i>Note.— Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i></p>



→ < 24 % = OK  
 → > 70 % = Forbidden

# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Flames and fuel sources</b>				
7) Internal combustion engines or fuel cell engines	Yes	No	No	Measures must be taken to nullify the hazard. Refer to Special Provision A70 for more information.

A70 Internal combustion or fuel cell engines or machinery being shipped either separately or incorporated into a vehicle, machine or other apparatus, without batteries or other dangerous goods, are not subject to these Instructions when carried as cargo provided that:

a) for flammable liquid powered engines:      ... ..

b) for flammable gas powered internal combustion or fuel cell engines:      ... ..



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Flames and fuel sources</b>				
8) Fuel cells containing fuel	No	Yes	No	a) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride;
Spare fuel cell cartridges	Yes	Yes	No	b) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed;
.....				c) the maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed: <ul style="list-style-type: none"> <li>— for liquids 200 mL;</li> <li>— for solids 200 grams;</li> <li>— for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and</li> <li>— for hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less;</li> </ul>

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# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Flames and fuel sources</b>				
8) Fuel cells containing fuel	No	Yes	No	d) each fuel cell and each fuel cell cartridge must conform to IEC 62282-6-100 Ed. 1, including Amendment 1, and must be marked with a manufacturer's certification that it conforms to the specification. In addition, each fuel cell cartridge must be marked with the maximum quantity and type of fuel in the cartridge; e) fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162; f) no more than two spare fuel cell cartridges may be carried by a passenger; g) fuel cells containing fuel are permitted in carry-on baggage only; h) interaction between fuel cells and integrated batteries in a device must conform to IEC 62282-6-100 Ed. 1, including Amendment 1. Fuel cells whose sole function is to charge a battery in the device are not permitted; i) fuel cells must be of a type that will not charge batteries when the portable electronic device is not in use and must be durably marked by the manufacturer: "APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY" to so indicate; and j) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.
Spare fuel cell cartridges	Yes	Yes	No	

... continuous



+ special provisions to be applied ...

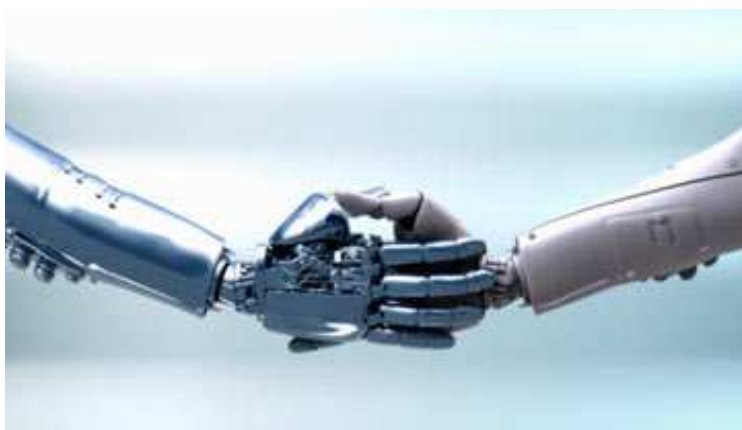
# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Gases in cylinders and cartridges</b>				
9) Cylinders of oxygen or air required for medical use	Yes	Yes	Yes	<p>a) no more than 5 kg gross mass per cylinder;</p> <p>b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents;</p> <p>c) advance arrangements recommended; and</p> <p>d) the pilot-in-command must be informed of the number of oxygen or air cylinders loaded on board the aircraft and their loading location(s).</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Gases in cylinders and cartridges</b>				
10) Cartridges of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.



# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Gases in cylinders and cartridges</b>				
11) Cartridge of hydrocarbon gas contained in hair styling equipment	Yes	Yes	No	<p>a) no more than one per person;</p> <p>b) the safety cover must be securely fitted over the heating element; and</p> <p>c) spare cartridges must not be carried.</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Gases in cylinders and cartridges</b>				
12) Cartridges of Division 2.2 with no subsidiary hazard fitted into a self-inflating personal safety device such as a life-jacket or vest	Yes	Yes	Yes	<ul style="list-style-type: none"> <li>a) no more than one personal safety device per person;</li> <li>b) the personal safety device must be packed in such a manner that it cannot be accidentally activated;</li> <li>c) must be for inflation purposes;</li> <li>d) no more than two cartridges are fitted into the device; and</li> <li>e) no more than two spare cartridges.</li> </ul>
13) Cartridges of Division 2.2 with no subsidiary hazard for other than a self-inflating personal safety device	Yes	Yes	Yes	<ul style="list-style-type: none"> <li>a) no more than four cartridges per person; and</li> <li>b) the water capacity of each cartridge must not exceed 50 mL.</li> </ul> <p><i>Note.— For carbon dioxide, a gas cartridge with a water capacity of 50 mL is equivalent to a 28 g cartridge.</i></p>



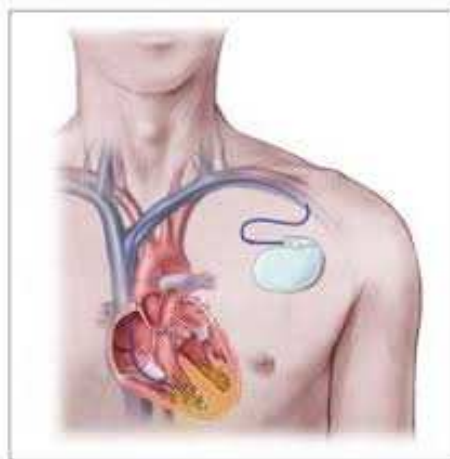
# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Gases in cylinders and cartridges</b>				
14) Cartridges and cylinders of Division 2.2 with no subsidiary hazard contained in an avalanche rescue backpack	Yes	Yes	Yes	<ul style="list-style-type: none"> <li>a) no more than one avalanche rescue backpack per person;</li> <li>b) the backpack must be packed in such a manner that it cannot be accidentally activated;</li> <li>c) may contain a pyrotechnic trigger mechanism which must not contain more than 200 mg net of Division 1.4S; and</li> <li>d) the airbags within the backpack must be fitted with pressure relief valves.</li> </ul>



# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Radioactive material</b>				
15) Radioisotopic cardiac pacemakers or other medical devices	n/a (see restrictions)	n/a (see restrictions)	No	Must be implanted into a person or fitted externally as the result of medical treatment.



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Mercury</b>				
16) Small medical or clinical thermometer which contains mercury	Yes	No	No	a) no more than one per person; and b) must be in its protective case.



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Other dangerous goods</b>				
17) Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols) and aerosols in Division 2.2 with no subsidiary hazard	Yes	Yes	No	<p>a) no more than 0.5 kg or 0.5 L total net quantity per single article;</p> <p>b) no more than 2 kg or 2 L total net quantity of all articles (e.g. four aerosol cans of 0.5 L each) per person;</p> <p>c) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; and</p> <p>d) the release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties.</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
Other dangerous goods				
18) Dry ice	Yes	Yes	Yes	<p>a) no more than 2.5 kg per person;</p> <p>b) used to pack perishables that are not subject to these Instructions;</p> <p>c) the package must permit the release of carbon dioxide gas; and</p> <p>d) when carried as checked baggage, each package must be marked:</p> <p>i) "DRY ICE" or "CARBON DIOXIDE, SOLID"; and</p> <p>ii) the net weight of dry ice or an indication that the net weight is 2.5 kg or less.</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW

<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Other dangerous goods</b>				
19) Cartridges in Division 1.4S (UN 0012 or UN 0014 only)	Yes	No	Yes	<p>a) no more than 5 kg gross mass per person;</p> <p>b) must be securely packaged;</p> <p>c) must not include ammunition with explosive or incendiary projectiles; and</p> <p>d) allowances for more than one person must not be combined into one or more packages.</p>



# PROVISIONS CONCERNING PASSENGERS AND CREW



<i>Dangerous Goods</i>	<i>Location</i>		<i>Approval of the operator(s) is required</i>	<i>Restrictions</i>
	<i>Checked baggage</i>	<i>Carry-on baggage</i>		
<b>Other dangerous goods</b>				
20) Permeation devices	Yes	No	No	Instructions on how to package permeation devices for calibrating air quality monitoring equipment are found in Special Provision A41.

A41 Permeation devices that contain dangerous goods and that are used for calibrating air quality monitoring devices are not subject to these Instructions when carried as cargo provided the following requirements are met:

- a) ... b) ... c) ... d) ... e) ... f) ...



# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Other dangerous goods</b>				
21) Non-infectious specimens in flammable solutions	Yes	Yes	No	Instructions on how to package and mark specimens are found in Special Provision A180.
22) Refrigerated liquid nitrogen	Yes	Yes	No	Must be contained in insulated packagings (e.g. dry shippers) that would not allow the build-up of pressure and be fully absorbed in a porous material so that there is no free liquid that could be released from the packaging.  Refer to Special Provision A152 for more information.
				

- A180** : - specimens are wrapped in paper towel or cheesecloth or alcohol solution + vials or other rigid containers (in both cases, not more than 30 mL of alcohol or an alcohol solution)  
 - each specimens are placed in a heat-sealed plastic bag, then all placed inside a another heat-sealed plastic bag with absorbent material, and the finished bag is then placed in a strong outer packaging with suitable cushioning material  
 - total quantity of flammable liquid per outer packaging < 1 L + dedicated marking
- A152** : design of the insulated packaging would not allow the build-up of pressure within the container and would not permit the release of any refrigerated liquid nitrogen irrespective its orientation

# PROVISIONS CONCERNING PASSENGERS AND CREW

Dangerous Goods	Location		Approval of the operator(s) is required	Restrictions
	Checked baggage	Carry-on baggage		
<b>Other dangerous goods</b>				
23) Dangerous goods incorporated in security-type equipment, such as attaché cases, cash boxes, cash bags, etc.	Yes	No	Yes	The security-type equipment must be equipped with an effective means of preventing accidental activation and the dangerous goods incorporated in the equipment must meet the conditions of Special Provision A178.




**A178** : \* if the equipment contains an explosive or pyrotechnic substance or an explosive article, this article or substance must be excluded from Class 1 by the appropriate national authority of the State of Manufacture  
 \* if the equipment contains lithium cells or batteries:  
 - Compliance 38.3 UN, Li metal cell < 1 g/battery < 2 g, Li Ion, ceel < 20 Wh/battery < 100 Wh  
 \* if the equipment contains gases to expel dye or ink, only small gas cartridges/receptacles of division 2.2, capacity < 50 mL, + all hazardous effects must be confined within the equipment and must not produce extreme noise  
 Any defective equipment or that has been damaged is forbidden for transport

# Thank you for your attention



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