



DANGEROUS GOODS PANEL (DGP)

TWENTIETH MEETING

Agenda Item 2: Development of recommendations for amendments to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) for incorporation in the 2007-2008 Edition

SUPPLEMENTARY INFORMATION FOR THE AD-HOC WORKING GROUP ON PART 8 – PROVISIONS FOR PASSENGERS AND CREW

(Presented by J. Code)

1. INTRODUCTION

1.1 Attached is a series of documents for the consideration of the Working Group proposed in Working Paper 60, Continuation of the Work of the Ad-Hoc Working Group on Part 8 Provisions Concerning Passenger and Crew.



DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE
Montreal, 18 to 22 April 2005

- Agenda Item 6: Resolution, where possible, of the non-recurrent work items identified by the Commission or the panel**
6.3: Review of provisions for dangerous goods carried by passengers and crew

PASSENGER EXCEPTIONS SURVEY

(Presented by J. Code)

1. INTRODUCTION

1.1 During ICAO DGP 19, a member described an incident in which an aerosol can of hairspray had caught fire in a passenger's bag at an airport. This incident generated a number of questions regarding the provisions of Part 8, such as:

- What criteria are used to determine if an item of dangerous goods is suitable for inclusion in Part 8?
- Some of the provisions in Part 8;1.1.2 have been there for an extended period of time. What review process is in place to ensure they continue to be relevant and safe?
- Is there any other way to present the provisions of Part 8 to facilitate their understanding by passengers and crew?

The DGP members decided to create a Working Group in the next biennium to explore these questions further.

1.2 October 3, 2004 the ICAO DGP 'Passenger Exceptions' Working Group met to address the Part 8 issues raised during DGP 19. The group decided to focus initially on the development of criteria that could be used to determine whether a certain dangerous substance or article should be included in Part 8. To facilitate this analysis the group identified five tasks:

1. Identify the broad categories of dangerous goods in Part 8
2. Determine the origin of these exceptions;
3. Evaluate the current safety issues surrounding their transport;
4. Identify any technological developments relevant to the category; and
5. List published State Interpretations as to their application.

1.3 During the meeting twelve (12) broad categories were identified:

1. Alcohol
2. Medicinal
3. Toilet articles
4. Aerosols
5. Cylinders Division 2.2
6. Ammunition
7. Dry Ice
8. Matches and lighters
9. Radioactive pacemaker
10. Thermometers
11. Equipment
12. Avalanche backpack

1.4 To complete the other four tasks, the Working Group requested all ICAO DGP members complete a survey. The results of that survey are contained in Appendix A to this information paper. Additional comments relating to the survey are contained in Appendix B. Appendix C contains two Dangerous Goods Advisory Circulars from the Hong Kong Civil Aviation Department related to the current Part 8 provisions.

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APPENDIX A

RESULTS OF PASSENGER EXCEPTIONS SURVEY

Exemptions	Country	History behind the initial decision to permit these dangerous goods in passenger baggage	Safety issues relevant to the category	Technological developments that may affect a category	State interpretations issued on the current Part 8 provisions
Alcohol	Australia		<p>Believe 5L too much for cabin; would like to see max of around 2L.(not exactly – should allow 2x 1125ml/40 oz bottles)</p> <p>Asia Pacific Cabin Safety Working Group comprised mainly flight-attendant emergency procedure training specialists from the major regional airlines - Qantas, Virgin, Air New Zealand strongly favour reducing the quantity of alcohol allowed and also asked that we include a stipulation along the lines that the DG allowance alcohol can only be consumed when authorized by the Pilot in Command on</p>		

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			the basis that inappropriate consumption of alcohol contributes greatly to unruly passenger behaviour. The group is aware that amending the DG provisions will not help where beer and wine are the culprits, but bringing in that stipulation for the 24-70% range will contribute greatly to addressing the problem.		
	UK	Probably commercial reasons due to duty free shops at airports and in-flight sales, coupled with the minimal risk presented by alcoholic beverages – however, not aware of any many incident involving alcoholic beverages.	Minimal from a dangerous goods perspective.		
	Canada			It is feasible to require bottles containing alcohol be sealed.	
Medicinal	USA				Carbon dioxide cylinders used in medical devices to administer needle free injections. Based on review of information provided by the manufacturer of these medical devices, it is our opinion that the cylinders may

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					be carried aboard passenger-carrying aircraft in checked or carry-on baggage under the provisions of 175.10(a)(4)(i). The devices do not qualify for the exceptions in 175.10(a)(18) and 175.10(a)(25).
	UK	Unreasonable to expect passengers to leave their medicines at home when they present a minimal risk.	Minimal		
	Canada			UN just starting to establish specifications for aerosols	Transport Canada's position is that Aerosol Insect Repellents to be sprayed on the skin to offer protection from insect bites are permitted for transport as a medicinal article in accordance with the provisions of Part 8;1.1.2 b) of the ICAO Technical Instructions, as adopted into law by the Transportation of Dangerous Goods Regulations.
Toilet articles	Canada		Complaints are received concerning passengers using nail varnish remover in flight.		The ICAO TI's allow passenger to carry toiletry articles in carry-on or checked baggage. Security screening and Occupational Safety and Health have regulations in place to investigate complaints from an Air operator employee if the toiletry articles are being used by another employee, but not a passenger unless the Air Operator has a policy in place restricting the use of toiletry article on board.

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	UK	As for medicinal though probably less justifiable	Minimal		
	Australia		Request the banning of nail polish removers from carriage and use in the cabin be looked at closely. These removers are usually acetone based and the smell usually causes great consternation. Spillages in lockers has caused damage to plastic-type fittings. I believe nail polish remover spillages/fume "incidents" make up a fair proportion of incidents filed by our airlines over the years.		
	Belgium		Paradox between aerosols for sporting use which are allowed in checked baggage only, and aerosols as toilet articles (what could be flammable) can be in carry-on and checked baggage	Refillable aerosols are under development	
Aerosols	Australia	Believe practical consideration based on length of journey, which was 7 days or so between Australia to the U.K.	Hydrocarbon content; pressure from Security and public areas due perceived potential usage as a weapon.	While trip times say Aus to UK reduced to around 20 hrs, newer aircraft airborne for around 16 hours, so pax probably still have some needs. (Minimum trip home to Montreal is 28 hrs, with many cheaper flights requiring a stopover enroute, taking to 40 hrs each way)	

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	Canada				<p>Pepper spray: It would appear that the appropriate shipping name for these types of goods is Aerosols, regardless of the classification. The specific exemptions for aerosols found in Part 8 paragraph 1.1.2 (b) pertains to aerosols for 'sporting or home use'. It is the opinion of this office that 'Pepper Spray' does not fit into either category and is therefore not eligible for the passenger/crew baggage exemption.</p> <p>Therefore it can currently only be shipped as cargo, unless a Permit of Equivalent Level of Safety has been issued. In determining whether such a permit should be issued the following criteria will be considered:</p> <ol style="list-style-type: none"> 1. Is the pepper spray to be stored in a cargo hold whose air does not communicate with the crew/passenger area of the aircraft (e.g. the storage space in the float of a float plane); or 2. Are there to be two positive means of preventing actuation and is the pepper spray to be placed in an outer packaging that guarantees there will be no release of the spray should the aerosol be actuated. Is this package to go into a cargo compartment which is inaccessible during flight.

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	USA				<p>Can I pack a can of pepper spray in checked baggage?</p> <p>According to 175.10(a)(4)(ii), a single container of self-defence spray, not exceeding 118 ml (4 on.) by volume, that incorporates a positive means to prevent accidental discharge is not regulated under HMR and may be carried in checked baggage, if permitted by the airline.</p>
	UK	Small risk presented by 2kg of aerosols outweighed by practicalities of removing such items from passengers	Minimal		
Cylinders Division 2.2	Canada		<p>Notwithstanding this information, the oxygen bottle when restrained shall not protrude in such a way as to become an obstacle to the passenger when exiting the seat row.</p> <p>Medical oxygen for use on board an aircraft: In 2001, AARXE, AARXF and AARDD/O coordinated a response (Cabin Safety Hot Desk 2001-04#01) relating to the practice of some air operators who had previously been utilizing seat belt extensions to restrain</p>		<p><i>Cylinder Restraint</i></p> <p>Where an air operator chooses to permit the use of passenger-owned medical oxygen on board the aircraft, or as a service provides medical oxygen for the passenger, the air operator should ensure that the stowage and restraint of the medical oxygen conforms to the following: (1) a means of restraint is provided that has been designed for the restraint of each oxygen cylinder to prevent it from shifting during the taxi, take-off, descent and landing phases of flight, during periods of in-flight turbulence and an emergency landing;</p>

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			<p>portable medical oxygen bottles at the passengers seat. However, seat belt extensions are not designed for the restraint of equipment and as such, shall not be used for the restraint of portable medical oxygen bottles.</p> <p>1. Oxygen cylinders for medical use</p> <p>Questions:</p> <p>Can all types of cylinders be packaged to protect the valves?</p> <p>How are the contents of the cylinder confirmed?</p> <p>2. Spare Gas cartridges/receptacle for artificial limbs</p> <p>Outstanding Issues:</p> <p>How are these cartridges marked?</p> <p>What kinds of gases are used in cartridges?</p>		<p>(2) ensure that the means of restraint referred to in (1) for each oxygen cylinder has been approved by Transport Canada, Aircraft Certification (AARD) and is used to restrain each oxygen cylinder; and (3) ensure the oxygen cylinder for use during flight and any oxygen accessories are stowed under a passenger seat equipped with a forward and sideward means of restraint and restrained using the means referred to in (1).</p> <p>Cylinder Standard</p> <p>In Canada, cylinders are regulated under the Transportation of Dangerous Goods (TDG) Act and Regulations. Subsections 7.32(2) and 8.4.2(2) of the TDG Regulations require that, on or after January 1, 1993, cylinders must be manufactured in accordance with National Standard of Canada CAN/CSA-B339-96. Cylinders manufactured in accordance with CAN/CSA-B339-96 must have a "TC" stamp mark.</p> <p>Subsections 7.32(2) and 8.4.2(2) of the TDG Regulations also grandfathers cylinders that were manufactured and</p>

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			<p>Are certain cartridges re-usable?</p> <p>How are cartridges installed in a limb?</p>		<p>in use in Canada on or before December 31, 1992 and were manufactured in accordance with CTC (old Canadian) or DOT (U.S.) requirements; these cylinders may continue to be used in Canada.</p> <p>The mark DOT-3AA stamped on a cylinder indicates that it was manufactured in accordance with the requirements for DOT Specification 3AA in 178.38 of the U.S. Hazardous Materials Transportation Regulations (49 CFR). The general requirements (and explanations) for marking these cylinders are specified in 178.35(f). Cylinders must meet these requirements in order to be filled and used in Canada.</p> <p>Empty O2 cylinders:</p> <p>When the pressure in the oxygen cylinder is below that prescribed for Division 2.2 gases in the classification requirements of Part 2;2.2(b)of the ICAO Technical Instructions (280kPa at 20°C)it is not subject to the Regulations. Please note that the method of demonstrating that the pressure is below 280 kPa is to have the valve open and ensure that it stays open. This also prevents the build up of pressure should the cylinder</p>

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					inadvertently be involved in a fire. The valve must remain on the cylinder. Removal of the valve will contaminate the inside of the cylinder thereby making it inappropriate for the service for which it is intended.
	UK	So as to assist those passengers with medical problems.	Equal to cylinders shipped as cargo, though not subject to marking, labeling, documentation etc. Does seem illogical that an undeclared cylinder could be subject to enforcement proceedings, whilst the same cylinder in an adjacent suitcase would not.	I understand passengers are increasingly asking to travel with liquid oxygen.	As far as “small” is concerned, in the UK we say this means either a cylinder which will fit under the seat in front or in the overhead locker (though I accept such items can travel as checked baggage.)
	Australia			We allow CO2 cylinders – now seem to be out of step with PI200, which requires pressure relief valves. (WP from IATA at DGP may help)	
	USA				A compressed gas mixture of .08% of nitric oxide with balance of nitrogen is properly classified as Division 2.2. An ambulance that uses compressed gas to treat a patient is not regulated under HMR. It is regulated, however, when transported on board commercial medical helicopters and medical fixed wing aircraft. For your information, as provided by 175.10(a)(14), a transport incubator unit necessary to protect life

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					<p>or an organ preservation unit necessary to protect human organs transported by aircraft is not regulated under HMR as per conditions stipulated in 175.10(a)(14).</p> <p>Section 175.10(a)(25) permits an airline passenger or crew member to carry one small carbon dioxide cylinder fitted in a self-inflating life jacket, together with one spare carbon dioxide cylinder, in checked or carry-on baggage, with the approval of the operator.</p> <p>Section 175.10(a)(7) excepts oxygen and any other hazardous material (e.g. Heliox) used for the generation of oxygen, for medical use by a passenger, which is furnished by the aircraft operator.</p>
Ammunition	UK	No idea, though possibly due to difficulty in acquiring ammunition at destinations	I wonder how many boxes in baggage actually comply with their competent authority documents and as such comply with their classification of 1.4S.		
	Canada	Before the 2003/2004 edition of the ICAO TI's this provision only applied to ammunition	The explosives expert from Natural Resources Canada advised the Canadian Working Group that UN		

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		for sporting purposes. As of the 2003/2004 edition it applies to ammunition for 'own use'. Part of the justification in support of this amendment was to allow the carriage of ammunition by military and police authorities.	marking must appear on the cartridge package for them to be considered Division 1.4S. The Explosive expert noted that all ammunition packed in appropriate UN packaging has a default classification of 1.4S.		
Dry Ice	USA				The wording of 175.10(a)(13)(i), (ii), and (iii) indicates that individual exceptions may be taken in conjunction with one another. Therefore, if passengers fulfill the applicable requirements, they may transport 2.3 kg (5.07 lbs) of dry ice per package in checked baggage under 175.10(a)(13)(i) and 2 kg (4.4 lbs) per passenger in carry-on baggage under 175.10(a)(13)(iii).
	Belgium			New cooling techniques are under development.	
	UK	No idea.	Operator needs to know so as to take account of hold ventilation rates.		
Matches and lighters	Australia	Believe based on practical viewpoint that people will carry matches and lighters and is better to have in the cabin if they accidentally ignite.	Ban from cabin would invariably lead to carriage in checked bags with potential fire risk. Would support		Our instructions allow carriage only on the person; not in carry-on baggage. Our main carrier – Qantas - and many

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			<p>universal ban, but would want assurance from security screening areas that corresponding increase in screening of checked bags will accompany.</p> <p>Additionally, have no idea how security will detect matches carried on the person.</p>		<p>associated domestic carriers prohibit book matches, even on the person.</p>
	UK	<p>Probably due to impracticalities of removing such items from passengers</p>	<p>Unlike the other permitted items, matches and lighters present a far greater risk if carried in baggage. In the UK there have been 44 fires in baggage in the last 30 years caused by matches in baggage. If matches and lighters are to continue to be permitted, they should remain “on the person”; if there were to be an ignition, this would be immediately apparent to those nearby (not least the passenger!) and would occur in close proximity to trained staff (cabin crew) with access to fire extinguishers. If matches and lighters are banned the risk of baggage fires will rise significantly, as passengers will be inclined to conceal them in baggage.</p>		

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	Belgium		See current discussion between US and European Union (Further information required.)		
	Hong Kong		This is one of the key areas of concern in Hong Kong. Carriage of lighters by passengers is very popular in the region. Some of them are for personal use, others for souvenirs or even for trading purpose (we have once encountered a passenger carrying 7000 lighters in his baggage). Although we do not have the exact figures, thousands of lighter are found inside baggage everyday. There were incidents that lighters caught fire inside baggage in the past.		(See Appendix B, which contains Dangerous Goods Advisory Circular (DGAC 1/2001) — “One Lighter on Person Requirement for Passengers”)
Radioactive pacemaker (and others)	USA				49CFR Section 173.422 excepts from the provisions of 175.85 – among others – a package containing Class 7 material that is prepared for shipment under the provisions of 173.421, 173.423, 173.424, 173.426, and 173.428. Therefore, radioactive material that is classed as Class 7 that is prepared for shipment under those provisions may be transported in the cabin of a passenger-carrying aircraft. Section 171.8 defines “research” as the investigation or experimentation aimed

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					at the discovery of new theories or laws and the discovery and interpretation of facts or revision of accepted theories or laws in the light of new facts. However, it does not include the application of existing technology to industrial endeavors. For example, the use of radioactive material to detect cracks in oil field pipelines is not considered research but application of existing scientific knowledge.
	UK	Unreasonable to ban passengers with heart complaints from aircraft!	None – no danger to anyone	We would need to seek guidance from the medical fraternity	
Thermometers	UK	Relatively recent addition – would need to check past papers / DGP reports	Tiny amount of mercury contained in thermometer, coupled with requirement for protective case, means safety risk low, though difficult to justify when so much emphasis is placed on the damage to aircraft which can be caused by mercury.	Battery powered digital thermometers appear more common and may replace mercury, though advice of medical fraternity may be needed.	
Equipment	USA				An air carrier that has elected not to carry hazardous material, may transport hazardous material under Section 175.10(a)(2) required in accordance with applicable airworthiness requirements, and operating regulations under 14CFR which contains limited exceptions to

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					<p>the packaging requirements for COMAT items of replacement (spares) for these hazardous materials. An air carrier who transports COMAT is subject to the training, marking, labelling, shipping paper and certification, package quantity and compartment limitations, discrepancy and incident reporting, and notification to Pilot-in-command requirements of HMR. Under the FAR, an air carrier who transports COMAT must have an FAA approved hazardous material program or it must offer COMAT to another carrier authorized to transport hazardous material.</p> <p>Oxygen generators that are installed in an aircraft to satisfy airworthiness requirements that have been expended in an emergency are excepted by 175.10(a)(2), as they were prior to being expended. However, if the expended oxygen generators are removed as to be considered no longer installed in the aircraft, this exception does not apply.</p>

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	Belgium			The latest types of underwater torches can't separate the light from the battery. Therefore they are not transportable under the conditions of the current regulations	
	Canada		Questions: Batteries Does a total number of batteries per device need to be identified? Should the use of spillable (wet cell) batteries be prohibited? Consumer Electronics Currently it is difficult for acceptance staff to determine if a battery is acceptable for transport in passenger/crew baggage.		
Avalanche Backpack	UK	I missed the meeting when this was agreed!	No knowledge of these items.		

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Batteries	Australia			No bright ideas, but universally have found that everyone, including our Inspectors, has difficulty with the lithium battery provisions.	We are often asked about carriage of lithium battery -powered emergency locator radio beacons; - we call them EPIRBs - as used by sailors, aircrew, remote location workers etc. They are in fact mandatory for many mining industry, surveying, cattle mustering and forestry workers here, as well as being mandatory for most light aircraft. We advise people to check with the airlines they are to travel with and are happy for the airline to include them in the “consumer” area if the airline is happy and the passenger can protect against accidental activation.
	Hong Kong		Carrying of large amount of lithium batteries inside baggage to Middle East & African countries for trading purpose is very common in Hong Kong. With all the packaging removed to save space, the short circuit hazard is very high.		(See Appendix B, which contains Dangerous Goods Advisory Circular (DGAC 2/2004) — “Extreme Hazard of Lithium Battery Fire”)
	USA				<ol style="list-style-type: none"> 1. Is it permissible to transport a wheelchair with an attached nonspillable battery when the wheelchair cannot be loaded in an upright position? Yes, under 175.10(a)(19). 2. In this instance does the battery need to be fully enclosed in a

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					<p>rigid housing (outer packaging) that is plainly and durably marked “Nonspillable” or “Nonspillable Battery”, or is it acceptable for the battery to be simply secured to the wheelchair? The battery must be removed and separately packaged only when the battery is not securely attached to the wheelchair. Even when directly secured to the wheelchair, the battery must be marked “Nonspillable” or “Nonspillable Battery”.</p> <p>3. What is the intent of the packaging and marking requirements? Section 173.159(d) addresses packaging requirements intended to prevent damage to the battery under normal conditions of transportation. The marking requirements are intended to facilitate the easy identification of nonspillable batteries by carriers, reshippers, and compliance enforcement personnel.</p> <p>Section 175.10(a)(19) and (20) permit aircraft operator to accept for carriage on board an aircraft, as checked</p>

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					<p>baggage, a spare battery for a wheelchair which accompanies a qualified handicapped individual. A spare spillable battery must be carried in a strong, rigid outside packaging as described in 175.10(a)(2)(i) to (iii).</p> <p>Are nickel cadmium batteries regulated for transport by aircraft?</p> <p>No, provided certain conditions are met 172.101, special provision 130.</p>
	<p>UK</p>	<p>Impractical to ban mobile phones and lap tops.</p>	<p>Not aware of any incidents involving lap tops or mobile phones in air transport though understand there have been some elsewhere. Perhaps such equipment and spare batteries should be restricted to cabin baggage only because, as with matches and lighters, if there was to be an ignition it would occur in close proximity to trained personnel (cabin crew) equipped with fire extinguishers.</p>	<p>Hydrogen/methanol fuel cells.</p>	

APPENDIX B

PASSENGER EXCEPTIONS SURVEY —ADDITIONAL COMMENTS

Comments from Belgium:

Viewpoint in general: the final aim of this exercise is to reduce, if possible, the list of items and eventually to bring it in line with new technologies. All the items in the current list can be divided into 3 categories:

1. those which are never or infrequently transported by passengers or crew;
2. those which are frequently transported by passengers or crew (such as cartridges, diving lamps, alcohol...);
3. those which are indispensable (such as the wheelchair with battery, mechanical limbs, pacemaker.

Under the category of **never/infrequent carried items** you can list the following: *mercury barometer or thermometer for weather bureau, the life jacket and its spare cartridges, hair curler on gas cartridge, and the avalanche rescue backpack*. Those 4 items could be **deleted** from the existing list. **Instead**, you could create the possibility in the regulations that, in case an operator has a request from a passenger to carry an item not appearing on the list, the operator can ask permission from the State of Origin and/or State of the Operator.

The other items of the list does not need to be changed.

Comments from Canada:

Criteria for including dangerous goods in Part 8 provisions of the ICAO TI's

Dangerous Goods required by passengers/crew for '**medical purposes**'.

Determination of whether dangerous goods are for '**medical purposes**' is assessed through the presence of a prescription issued by a physician or by containment in the original manufacturer's packaging.

Dangerous goods **implanted into** (e.g., cardiac pacemakers), **attached to** (e.g., artificial heart where the battery is attached, to but external to the person, artificial limbs, etc.) or **contained in the body of a person** (e.g., radio-pharmaceutical) as the result of medical treatment.

Dangerous goods for '**personal hygiene and grooming**'

Dangerous Goods in portable equipment designed for personal use (e.g., (watches, calculating machines, cameras, cellular phones, laptop computers, camcorders, etc.)

Dangerous goods that are not readily available at destination (e.g., Ammunition). (The Working Group believed that this criteria needed to be further evaluated.)

Alcohol

Dry Ice used to preserve food during the journey

Matches and lighters for personal use

General Conditions

Only dangerous goods specified in Part 8 of the ICAO TI's are permitted in passenger/crew baggage.

Dangerous goods identified in Part 8 of the ICAO TI's are only permitted in checked baggage, unless otherwise specified

Air operator approval must be obtained prior to carrying dangerous goods on board an aircraft in passenger/crew baggage, unless otherwise specified.

No person may carry more than 2L or 2kg of dangerous goods at any one time. Combining of totals between passengers is not permitted. A single piece of baggage must not contain more than 2L or 2kg.

Under general conditions, "no person may carry more than 2 L or 2 KG of dangerous goods at any one time"....should "unless otherwise specified" be included to allow for oxygen, lithium batteries, etc.?

Under the general conditions, it says that the DG are only permitted as checked baggage unless otherwise specified. There are several instances where, currently, items are allowed as carry on baggage i.e. spare gas cartridges, oxygen, aerosol inhalers, medical substances, consumer electronics, and DG for personal hygiene and grooming, in which this has not been indicated.

Dangerous Goods Package Conditions

Dangerous goods must be contained in the original manufacturer container, unless otherwise specified.

The original manufacturer container must not show signs of damage or leakage and must be securely closed, unless otherwise specified.

The original manufacturer container must be stowed and secured to prevent movement during transport.

The Working Group raised the following general concerns about:

Passengers' ability of to identify dangerous goods and to differentiate between those permitted in baggage and those not permitted.

Government and industry's ability to effectively communicate to the public what dangerous goods may be transported in their luggage.

Security screeners' and air operators' ability to identify dangerous goods and to differentiate between those permitted in baggage and those not permitted

The Working Group raised specific questions as to:

Whether the total quantity per passenger of dangerous goods for medical purposes should be increased for destinations where the passenger may need to bring sufficient supplies for both the outbound and the return flight or for destinations where there is no possibility of cargo flights.

Whether a list of examples of dangerous goods used for medical purposes needs to be developed in order to assign specific criteria for their transport in passenger/crew baggage.

Whether aerosols containing other than Division 2.2 gases, with no subsidiary risk, should be limited to those required for medical purposes

Whether a note should be added to Part 8 of the ICAO TI's that would recommend the use of pump products instead of aerosols.

What the impact on parents traveling with children would be the limit established for the total quantity of dangerous goods in a single piece of baggage.

What would be considered Baggage? One suggestion was: 'Baggage includes cloth, leather, fiberglass, metal sided cases or strong outer packaging (e.g., cardboard box and coolers) that can be securely closed to prevent opening during transport.' This was seen to eliminate the use of plastic bags as baggage.

Whether the pilot-in-command needs to be advised of the presence of the dangerous goods and if he/she does must it in a written/electronic form?

Whether a list of common dangerous goods that are not permitted in passenger baggage should be included at the end of Part 8.

There has been discussion on water capacity and length of time an oxygen cylinder was used for. The most commonly used ones by individuals are D, Jumbo-D and E-cylinders. Below is a chart to assist in clarification of the specs. Steel cylinders are available in the D and E cylinder capacities but are a lot heavier. The chart also indicates how long the cylinders will last at the different flow rates. People are probably not on a commercial aircraft with a cylinder which has a flow rate over 8 litres/min as at that point they should be ambulatory. The cylinders in the picture are meeting the US's CGA colour code and not the rest of the world's which would have a white collar rather than a green collar. Green is still commonly found in Canada due to our proximity to the US.



APPENDIX C

HONG KONG DANGEROUS GOODS ADVISORY CIRCULARS



Dangerous Goods Advisory Circular DGAC 1/2001

One Lighter On Person Requirement for Passengers

In view of a recent cabin fire caused by lighters i.e. Class 2 DG in a passenger carry-on baggage at the Hong Kong International Airport, airlines are reminded to strictly follow the provisions of the Air Navigation (Dangerous Goods) Regulations (AN(DG)R) i.e. Schedule 16 to CAP. 448 sub. leg. C and the ICAO Technical Instructions which permit passengers to carry **only one lighter on person**. The air carriage of any lighter in carry-on or check-in baggage, or in security container when they are also restricted articles e.g. gun-shape lighters, is forbidden.

Moreover, airlines must discontinue the **unsafe** and **wrong** practice to assist or advise passengers to release flammable gas from lighters by pressing the gas refilling valves or flicking repetitively until lighters could not be ignited. Please note that such practice **cannot** nullify the flammable gas hazard and the residual gas remaining in lighters can still haphazardly ignite during flight. Further, it may infringe upon regulations for gas safety and environmental protection.

Failure to comply with the **one lighter on person** requirement may cause airlines and airlines' handling agents to be held liable for contravening the AN(DG)R, in particular, the Regulation 3(2)(a) which states a person must not cause to be taken on board an aircraft any goods which he ought to know to be capable of posing a significant risk to safety when carried by air. For further information, please contact Safety Officers (Dangerous Goods) Miss Yamani CHAN on 2182 1214 or Mr. Allen KWONG on 2182 1221.



Dangerous Goods Advisory Circular DGAC 2/2004

Extreme Hazard of Lithium Battery Fire

A recent laboratory test conducted by the U.S. Department of Transport Federal Aviation Administration revealed that lithium battery, which is commonly used in consumer electronic products, can be extremely dangerous if they catch fire onboard aircraft. In short, a lithium battery fire could burn through a cargo hold and breach all defenses. For general information, some of key findings are listed below: -

- i) A relatively small fire source is sufficient to start a lithium battery fire;
- ii) Once a single lithium battery begins to burn, it is hot enough to ignite adjacent batteries;
- iii) Molten lithium battery burns explosively with peak temperature reaching 1400 °F (as a reference, melting point of aluminum is around 1200 °F);
- iv) Fire suppression agent commonly used in aircraft, such as Halon 1301, proved totally ineffectively in suppressing or extinguishing a lithium battery fire;
- v) Molten lithium could perforates cargo compartment liner material; and
- vi) The ignition of lithium battery could release a pressure pulse strong enough to compromise the integrity of cargo compartments.

This Dangerous Goods Office believes that some lithium batteries (sometimes up to thousands in a consignment) could be wrongly consigned for air transport in Hong Kong as non-restricted cargo under the name “Batteries Dry” or others wrongly carried by passengers inside baggage. Now knowing the extreme hazard of lithium battery fire, we hereby remind operators that: -

- i) Vigilance must be exercised in accepting non-restricted cargo consignment claimed to be “Batteries Dry” and lithium battery carried by passengers;

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- ii) For lithium battery consignment, only those satisfying Special Provisions A45 under ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) can be transported as non-restricted air cargo;
- iii) Lithium battery consignment **NOT** satisfying Special Provisions A45 must be transported as dangerous goods with full compliance of the provisions of ICAO TI especially Packing Instructions PI903; and
- iv) All other lithium battery consignments that are not in compliance with the provisions of ICAO TI are forbidden for air transport.

Should you have any query about this circular, please contact Safety Officers (Dangerous Goods) Ms Cecilia PANG at 2182 1214 or Mr. Eric CHIM at 2182 1221.

- END -



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Failure to comply with the **one lighter on person** requirement may cause airlines and airlines' handling agents to be held liable for contravening the AN(DG)R, in particular, the Regulation 3(2)(a) which states a person must not cause to be taken on board an aircraft any goods which he ought to know to be capable of posing a significant risk to safety when carried by air. For further information, please contact Safety Officers (Dangerous Goods) Miss Yamani CHAN on 2182 1214 or Mr. Allen KWONG on 2182 1221.



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Should you have any query about this circular, please contact Safety Officers (Dangerous Goods) Ms Cecilia PANG at 2182 1214 or Mr. Eric CHIM at 2182 1221.

- END -



DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE
Abu Dhabi, 4 to 8 October 2004

**FORMULATION OF A WORKING GROUP TO EXAMINE THE
PROVISIONS OF ICAO TECHNICAL INSTRUCTION PART 8 –
PROVISIONS CONCERNING PASSENGERS AND CREW**

(Presented by J. Code)

BACKGROUND

The ICAO Dangerous Goods Panel held its final meeting of the biennium in October/November of 2003. During that meeting the amendments to the 2005/2006 edition of the ICAO Technical Instructions were finalized and carry-over business items for the next biennium identified.

One of these carry-over items related to the establishment of an ICAO DGP Working Group tasked with the review of the provisions of 'Part 8 of the Technical Instructions - Provisions for Passenger and Crew'. The Panel agreed that such a Working Group should be established in the next biennium and should be assigned with the following objectives:

1. Develop criteria under which dangerous goods will be considered for inclusion in the list of exemptions;
2. Examine each of the provisions in Part 8;1.1.2 to determine if they should be retained, deleted or modified;
3. Determine if there are other items that should be added to the list of exemptions in Part 8; and
4. Develop recommendations on the user-friendliest way to present this information within Part 8, Provisions concerning passengers and crew.

The Canadian member to the Panel volunteered to create a Discussion Paper on this issue in advance of the next ICAO DGP Working Group of the Whole for the consideration of Panel.

In preparation for drafting this Discussion Paper two Canadian Working Group meetings were convened which involved:

- Members of the Canadian air operator community,
- Canadian Packaging specialists,
- Health Canada,
- The Canadian Nuclear Safety Commission,
- The Explosives Branch of Natural Resources Canada, and
- The Security Directorate, Civil Aviation Directorate and Transport Dangerous Goods Directorate of Transport Canada.

The following text is the product of those deliberations and is submitted to the ICAO DGP for their consideration when addressing the issues affecting the provisions of Part 8 of the ICAO Technical Instructions. It summarizes the recommendations of the Canadian Working Group on the objectives identified in the Canadian Working Paper and provides suggestions on what actions the ICAO DGP may consider taking to further clarify the provisions of Part 8 of the ICAO Technical Instructions.

DISCUSSION PAPER

Objectives:

- 1. Develop criteria under which dangerous goods will be considered for inclusion in the list of exemptions;**
- 2. Examine each of the provisions in Part 8;1.1.2 to determine if they should be retained, deleted or modified;**
- 3. Determine if there are other items that should be added to the list of exemptions in Part 8**

General Conditions

The Canadian Working Group suggested that consideration be given to applying five general conditions to all dangerous goods identified in Part 8 of the ICAO Technical Instructions. They are:

- Dangerous goods must be contained in the original manufacturer's container, unless otherwise specified.
- The original manufacturer's container must not show signs of damage or leakage.
- The original manufacturer's container must be securely closed, unless otherwise specified.
- The original manufacturer's container must be stowed and secured to prevent movement during transport.
- That dangerous goods transported in compliance with Part 8 of the ICAO Technical Instructions must be subject to the reporting provisions of Part 7; 4.4 and 7; 4.5

Categories of Use

The Canadian Working Group also suggested consideration be given to the creation of three categories under which dangerous goods may be considered for carriage in passenger/crew baggage. These categories:

1. **‘Essential’** – includes dangerous goods required to sustain the health and/or mobility of a passenger or crew member. Methods of demonstrating that a dangerous goods is ‘essential’ include pharmaceutical prescriptions; for cylinders, written certification by a qualified/regulated supplier.
2. **‘Necessary, but not essential’** – Dangerous goods used for:
 - a. **Personal hygiene and grooming (e.g., aerosols, flammable liquid/gas, hair grooming devices)**
 - b. **Consumer electronics (e.g., battery powered radios, TV’s, phones, computers, CD players, cameras)**
 - c. ***Commercial tools (e.g., tools of the trade, measuring instruments, medical kits)**
 - d. ***Recreation**
 - e. ***Safety Equipment**

*** The Working Group expressed doubt about whether dangerous goods used in these activities could be transported in passenger/crew baggage safely.**

3. **‘Non-essential, but currently impractical to exclude from Passenger/Crew Baggage’** – Dangerous Goods that are sold at airport retail facilities after the security screening checkpoints (e.g., alcohol, dry ice for food, perfume, matches/lighters, etc.). Ideally this category will eventually be eliminated.

Evaluation Protocol

The Canadian Working Group suggested the ICAO DGP consider implementing an **‘Evaluation Protocol’** to be conducted by each State prior to proposing a new addition to the exemptions for passenger/crew baggage found in Part 8 of the ICAO Technical Instructions. This Protocol would include the following:

- The State must conduct a formal Risk Management Process on the transport of any dangerous goods proposed for inclusion in Part 8. (Copies of Transport Canada’s TP 13905 Risk Management and Decision-Making Type 2A, Short Process document can be obtained at the following website: <http://www.tc.gc.ca/transact>)
- Any Working Paper submitted by a State to the ICAO DGP must include:
 - A description of the passenger’s/crew’s need to have the dangerous goods in their baggage
 - The results of the Risk Management Process, including easy to apply and easy to measure conditions under which the dangerous goods may be transported in passenger/crew baggage.

OUTSTANDING ISSUES FOR ICAO DGP WORKING GROUP DISCUSSION

The Canadian Working Group recommended the following issues be addressed by the ICAO DGP Working Group in an effort to further refine the criteria for the inclusion of dangerous goods in Part 8:

1. Define a measurable/quantifiable risk target

2. Ratify a risk management process(es) acceptable to all States (*Risk management should include consideration of conditions of transport, benefits to passengers, permissible quantities, whether the dangerous goods should be in carry-on or checked baggage, type of containment and their closures, circumstances where dangerous goods may not be available at destination, incident and accident data, etc.*) (*Agencies to be consulted during the Risk Management process should include Security, aviation industry, affected manufactures and stakeholders*)
3. Conduct a Risk Management on all existing entries in Part 8 with the initial focus being on:
 - Compressed gas cylinders, (*Consideration during that process should be given to the types of gases to be contained in the cylinder, Types, Size - length and dimension and water capacity of cylinder, Total number of cylinders permitted on board an aircraft, Valve protection and Stowage*)
 - Batteries, and
 - Aerosols(See Annex 1 – for a summary of the Canadian Working Group Discussions on the Current Part 8 Provisions)
4. Define the acceptable methods for recognizing ‘Essential’ dangerous goods in passenger/crew baggage
5. Conduct research into the types of non-dangerous goods that can be used as an alternative to dangerous goods, e.g., pump vs. aerosol and their availability.
6. Work with AVSEC to further identify and harmonize passenger/crew baggage restrictions.
7. Based on information about what is currently being seized at security check points, establish a list of items passengers are prohibited to take in their baggage and include this list of prohibited items in Part 8.
8. Publish a duplicate ‘tear out’ sheet of the Part 8 provisions in the ICAO Technical Instructions document that can be removed from the document for ease of reference.

The Canadian Working Group suggested the ICAO DGP Working Group address the following corresponding work items:

- Design public awareness material that will assist passengers, security screeners, and air operators to identify dangerous goods and to differentiate between those permitted in baggage and those not permitted.
- Decide whether the total quantity per passenger of ‘essential’ dangerous goods should take into account travel to destinations where the passenger may need to bring sufficient supplies for both the outbound and the return flight or to destinations where there is no possibility of cargo flights.
- Determine how to restrict the selling of dangerous goods at airport retail outlets located after security checkpoints to those that would be permitted in the ‘Necessary, but not Essential’ category.
- Decide whether aerosols of Division 2.1 should be limited to those required for medical purposes, ‘Essential’

- Decide whether a Note should be added to Part 8 of the ICAO Technical Instructions that would recommend the use of pump products instead of aerosols.
- Decide whether establishing a limit on the total quantity of dangerous goods in a single piece of baggage will have an impact on parents traveling with children who combine the family dangerous goods related material into one piece of baggage.
- Decide whether a definition is needed for the word 'baggage'.
- Decide, in those cases where the air operator is advised of the presence of dangerous goods, whether the pilot-in-command needs to be advised as well and if yes, must it in a written/electronic form?

Objective:

4. Develop recommendations on how the information in Part 8 can be made more user-friendly

The Canadian Working Group proposed consideration be given to the following format for the presentation of the provisions of Part 8, ICAO Technical Instructions:

General Conditions

- 1.1.1 Except as otherwise provided in 1.1.2 below, dangerous goods must not be carried by passengers or crew members, either as or in carry-on baggage or checked baggage or on their person. Security type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, for example lithium batteries or pyrotechnic material, are totally forbidden; see entry in Table 3-1.
- 1.1.2 Dangerous goods in accompanied passengers or crew member baggage, or in baggage transported by the operator, that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage) may be carried provided the following conditions are met:

General Conditions

- a) Dangerous goods must be contained in the original manufacturer's container, unless otherwise specified.
- b) The original manufacturer's container must not show signs of damage or leakage
- c) The original manufacturer's container must be securely closed, unless otherwise specified.
- d) The original manufacturer's container must be stowed and secured to prevent movement during transport.
- e) Dangerous Goods permitted in passenger or crew baggage and the conditions associated with their safe transport are listed in Table 8-1 - **List of Dangerous Goods Permitted in Passenger and Crew Baggage**. Passengers and crew must comply with the provisions of Table 8-1.

Table 8-1 – List of Dangerous Goods Permitted in Passenger and Crew Baggage

Dangerous Goods	Checked Baggage Quantity Limit per package	Carry-on Baggage Quantity Limit per package	Air Operator Approval Required	Conditions	Example
Ammunition	5 kg gross mass per person	X	√	A 1	Cartridges for sporting purposes
Aerosols					
Compressed gas cylinders					

Note: √ means yes X means no

A 1 - securely boxed cartridges for sporting purposes, in Division 1.4S, for that person's own use, excluding ammunition with explosive or incendiary projectiles. Allowances for more than one person must not be combined into one or more packages.

A 2 -

A 3 -

1.1.3 Dangerous goods transported in compliance with Part 8 of the ICAO Technical Instructions must be subject to the reporting provisions of Part 7;4.4 and 7;4.5.

Annex 1

Summary of the Canadian Working Group Discussions on the Current Part 8 Provisions

<p>Medical Devices, Battery Operated, e.g., Mobility Aids (e.g., wheelchairs), Ventilators, CPAC's</p>	<p>Conditions</p> <ul style="list-style-type: none"> ○ Only non-spillable, Dry Cell, lithium or lithium ion batteries are permitted ○ Batteries must be protected from short circuiting during transport ○ Mobility Devices must be protected from accidental activation. ○ Mobility Devices containing batteries must be secured during transport. ○ Only the number of batteries necessary for the operation of the Mobility Aid is permitted. ○ Mobility Aids, not used during flight must be transported as checked baggage only. <p>Outstanding Issues The Working Group questioned whether:</p> <ul style="list-style-type: none"> ● a total number of batteries per device should be stipulated; ● consideration should be given to prohibiting the use of spillable (wet cell) batteries; and ● the exemption for batteries used in mobility aids such as wheelchairs should be extended to spares and consideration given to the application of A67.
<p>Medical or Clinical thermometers containing mercury</p> <p>Other measuring devices such as Blood Pressures Devices containing mercury are prohibited from transport in passenger carry-on or checked baggage</p>	<p>Conditions</p> <ul style="list-style-type: none"> ● For personal use, ● No air operator approval required ● One per person ● In its protective case.
<p>Spare Gas cartridges/receptacle for artificial limbs</p>	<p>Conditions</p> <ul style="list-style-type: none"> ● Primary hazard of the dangerous goods is 2.2 with no subsidiary risk. <p>Outstanding Issues The Working Group questioned:</p> <ul style="list-style-type: none"> ● whether all countries of origin prescribe markings on cartridges; ● what kinds of gases are used in cartridges; ● whether certain cartridges are re-usable; ● how cartridges are installed in a limb; ● whether Security has any requirements governing gas cartridges in artificial limbs;

	<ul style="list-style-type: none"> • Whether there should be a maximum quantity established for these cartridges and suggested the following be considered: <ul style="list-style-type: none"> • Maximum size per cylinder should be 250ml water capacity (This may prove impossible if the water capacity is not indicated on the cartridge.) • Maximum quantity should depend on the artificial limb requirement; and • whether a maximum working pressure limit for the cartridge should be established. Without marking it will be difficult to determine if a cartridge was in compliance with a working pressure limit.
Oxygen cylinders for medical use	<p>Conditions</p> <ul style="list-style-type: none"> • Cylinder is as approved by the competent authority of the country of origin and maintained in accordance with that country's standards • Maximum quantity per cylinder does not exceed 5 litres water capacity • Spare cylinders are packaged in such a way to protect the valves when transported as checked baggage <p>Outstanding issue The Working Group questioned:</p> <ul style="list-style-type: none"> • whether the designator 'Medical E' for cylinders was used worldwide; • whether all types of cylinders can be packaged to protect the valves; • what impact would State legislation have on cylinders arriving from another country; and • how one confirms the contents of the cylinder.
Aerosol Inhalers or sprays of more than 50 ml (see A 98) Note: UN just starting to establish specifications for aerosols	<p>Conditions</p> <ul style="list-style-type: none"> • Maximum size per container is 0.5 litre water capacity • Valve must be protected by a firmly secured cap <p>Outstanding issue The Working Group questioned whether aerosols containing oxygen for breathing be permitted in passenger/crew baggage.</p>
<p>Flammable liquids/solids (e.g., Rubbing alcohol, Alcohol swabs, acne pads) Corrosive Liquids/solids (e.g., wart remover) Toxic Substances, (e.g., medicine, toxic, n.o.s.) in plastic, glass or metal containers</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Maximum quantity per means of containment 0.5l water capacity or 0.5 kg • No air operator approval required • Regular screw cap closure or friction type closure such as a cork or rubber stopper held in place by a positive means

<p>Ammunition</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Securely packaged cartridges of Division 1.4S with UN number UN0012 or UN 0014 only • In quantities not exceeding 5 kg gross mass per person for that person’s own use <p>Outstanding Issues</p> <ul style="list-style-type: none"> • The explosives expert from Natural Resources Canada advised the Canadian Working Group that UN marking must appear on the cartridge package for them to be considered Division 1.4S. • The Explosive expert noted that all ammunition packed in appropriate UN packaging has a default classification of 1.4S.
<p>Alcohol</p>	<p>Conditions</p> <ul style="list-style-type: none"> • No air operator approval • Limited to alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume. • In retail receptacles not exceeding 5 L, with a total net quantity per person of 5 L for such beverages. <p>Outstanding Issue The Working Group questioned whether:</p> <ul style="list-style-type: none"> • consideration should be given to permitting alcohol over 70 per cent but limiting the size of the receptacle to 2L with a maximum of one receptacle per person; and • it was feasible to require bottles containing alcohol to be sealed.
<p>Consumer Electronics</p>	<p>Conditions</p> <ul style="list-style-type: none"> • No air operator approval required • Adopt the provisions of 8;1.1.2 (q) <p>Outstanding Issue The Working Group questioned:</p> <ul style="list-style-type: none"> • whether there was another method to determine if a spare battery is acceptable for transport in passenger/crew baggage, other than specifying a quantity limit for lithium; • whether consideration should be given to limiting the number of spare batteries that can be transported by a passenger/crew; and • whether a Note should be included into Part 8 to clearly exclude those transporting film industry related dangerous goods in their baggage.
<p>Dry Ice</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Adopt the provisions of 8; 1.1.2 f

	Outstanding Issue The Working Group recommended that any Security provisions regarding the transport of dry ice be considered when finalizing this provision.
Matches & Lighters	Conditions Outstanding Issue The Working Group questioned: <ul style="list-style-type: none">• why there was no limit to the number of matches permitted per person and recommended that a limit be set at one book per person; and• the meaning of the term ‘on the person’, wondering if it included a purse.

— END —

Dangerous articles not permitted in baggage

Corrosives
such as mercury, acids, alkalis
and wet cell batteries

Oxidizing Materials & Organic
Peroxides
such as bleaches and floor glass
repair kits

Compressed Gases
(deeply refrigerated, flammable,
non-flammable and poisonous)
such as butane, oxygen, propane
and acetylene cylinders

Flammable Liquids and Solids
such as lighter or burner fuels,
paint and all matches, are
unacceptable in baggage

Explosives
such as fireworks, flares,
ammunition and firecrackers

Sporting Ammunition
up to 7 kgs may be carried
properly boxed in checked
baggage



Corrosives



Infectious Substances
such as bacteria, viruses



Poisons such as insecticides,
weedkillers, arsenic and cyanides



Radioactive Material

Medicinal and Toilet Articles in small quantities may be carried

Safety Matches may be carried on the person

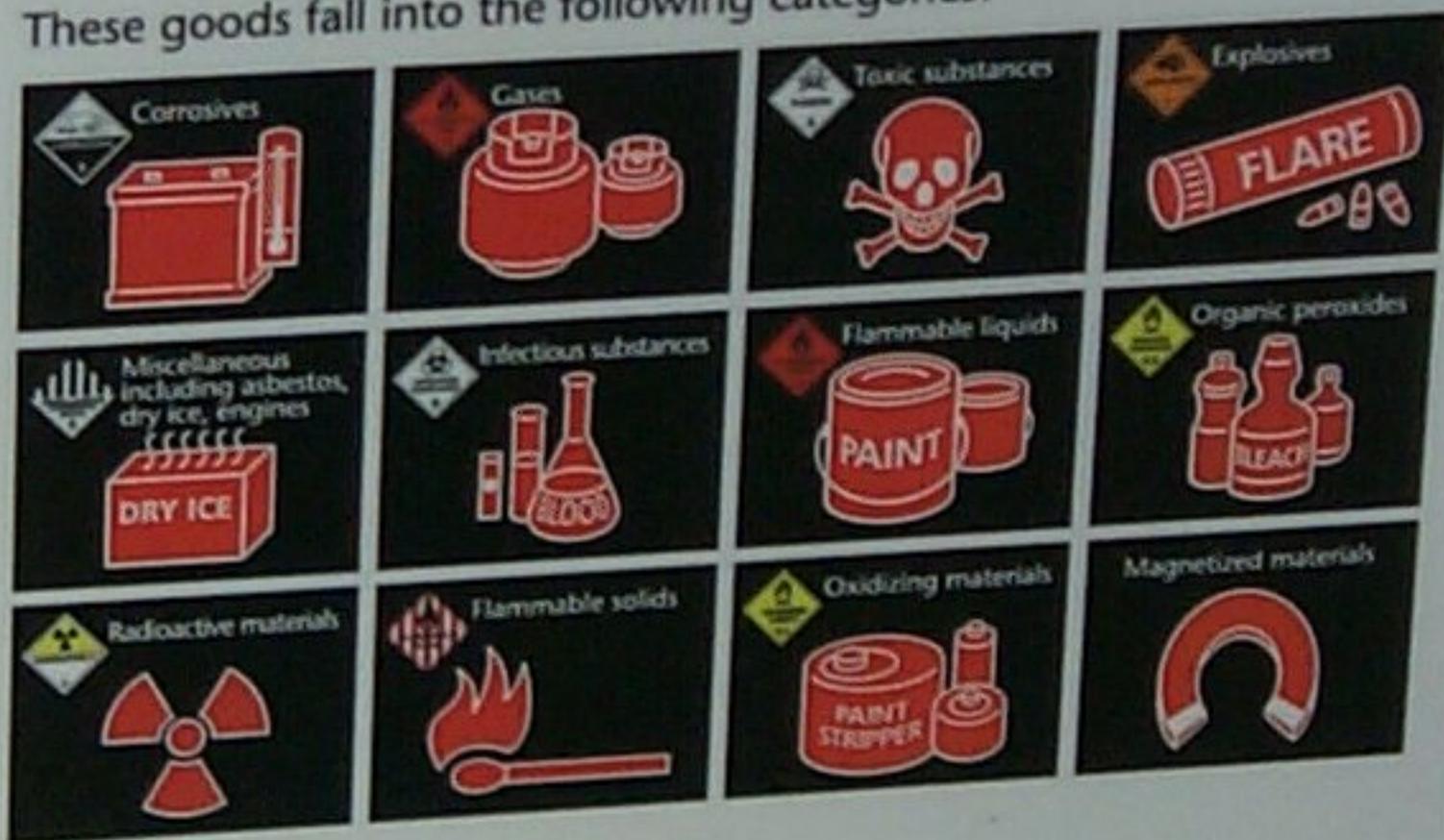
THE ABOVE ITEMS MAY BE CARRIED AS CARGO SUBJECT TO CERTAIN RESTRICTIONS

Dangerous Goods

Notice to Passengers

If you have packed any of the following goods in your baggage you must declare them now.

These goods fall into the following categories:



Failure to declare dangerous goods or comply with Civil Aviation Safety Regulations is a serious offence.