

## Appendix on DANGEROUS GOODS

1. Certain articles or substances are classified as “dangerous goods” by the ICAO *Technical Instructions for the Safe Transport of Dangerous Goods by Air*. The Technical Instructions list over 3 000 dangerous goods, and with the exception of a small number of permitted items, *dangerous goods must not be carried by passengers on their person or in their or carry-on baggage or hold baggage*.

2. Although the primary task of personnel carrying out the duties of airport security screeners will be the detection of prohibited items, they also have a role to play in the safety of aviation by detecting dangerous goods in passengers’ cabin and hold baggage.

3. Examples of *forbidden dangerous goods* are as follows:

| <i>Forbidden Substances</i>                 | <i>Example</i>   |
|---|--|
| Explosives                                  | Grenades, fireworks, flares                              |
| Gases                                       | Propane, butane  |
| Flammable liquids                           | Gasoline, methanol                                       |
| Flammable solids<br>and reactive substances | Magnesium, firelighters                                  |
| Oxidizers/organic peroxides                 | Bleach, car body repair kits                             |
| Toxic/infectious substances                 | Rat poison, infected blood                               |
| Radioactive material                        | Medicinal or commercial isotopes                         |
| Corrosives                                  | Mercury, vehicle batteries                               |
| Miscellaneous                               | Vehicle fuel system components which have contained fuel |

### **Dangerous goods carried by passengers or crew**

*ICAO Technical Instructions 8;1.1.1*

*“Except as otherwise provided in [the ICAO TI’s Part 8] dangerous goods must not be carried by passengers or crew members, either as 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...” (extract from the 2001-2002 edition of the ICAO Technical Instructions).*

4. A list of permitted dangerous goods and items which may be carried by passengers, under certain conditions, is reproduced in Attachment A to this Appendix. This should be used only as a guide to what is permitted and forbidden in passenger or crew baggage. *Dangerous goods not contained in the list are forbidden and must not be carried on the aircraft.*

### **DISCOVERING UNDECLARED DANGEROUS GOODS**

5. When a screener discovers an item that is believed to be dangerous goods which are not permitted for carriage by passengers but have not been declared by the passenger, this must be referred to supervisory staff. (The depth of training of screeners should be commensurate with the responsibilities of the staff.) If suspicions remain or it is confirmed that the item is not permitted, the operator must be notified for

further action, and the item must not be allowed to be loaded on the aircraft. (Additionally, the ICAO Technical Instructions require that when dangerous goods not permitted for carriage are discovered in a passenger's baggage, the aircraft operator must notify the appropriate authority of the State in which the item was discovered.)

### IDENTIFICATION OF DANGEROUS GOODS

6. There are two primary tools that can be used to help identify the presence of dangerous goods:
- *Marking* on the packaging of the proper shipping name, the class number or numbers and/or a unique four-digit United Nations number (e.g. Gasoline, Class 3, UN 1203).
  - *Labels* designed to correspond to the classes and divisions of dangerous goods. (See Attachment B.)

### CARRIAGE OF CERTAIN DANGEROUS GOODS

7. Provisions exist for the carriage of certain dangerous goods after precautions have been taken with regard to the physical handling and proper marking and labelling of the item. For example provisions exist for spillable batteries, which have been removed from a wheelchair or mobility aid accompanying a passenger, to be carried as checked hold baggage. The batteries must be packed in accordance with specified procedures, and packages must be marked "Battery, wet, with wheelchair", or "Battery, wet, with mobility aid". They must bear a "corrosive" hazard warning label and a package orientation label. No other spillable batteries are permitted in a passenger's hold baggage.

### LEAKAGE OR DAMAGE

8. Certain basic actions must be taken when discovering leakage or damage of suspected dangerous goods. These include:
- avoid contact with item;
  - isolate the immediate area;
  - advise supervisory staff who should notify the operator and the aerodrome authority;
  - attempt to determine from the passenger the nature of the item;
  - if necessary, notify emergency services;
  - notify the aircraft operator.

*Note.— This order may change depending on local rules and procedures.*

### REFERENCES FOR FURTHER INFORMATION

9. The current editions of:
- ICAO *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284);

- IATA Dangerous Goods Regulations.

## AID TO THE RECOGNITION OF DANGEROUS GOODS

### Dangerous goods in household items

10. Many common items used every day in the bathroom, kitchen, garage or at work may seem harmless, however, due to their physical and chemical properties they can be very dangerous when transported by air. Check-in staff and security screeners should seek confirmation from a passenger about the contents of any item where there are suspicions that it may contain dangerous goods. The following common articles or substances may contain dangerous goods:

- *Breathing apparatus* — May indicate cylinders of compressed air or oxygen, chemical oxygen generators or refrigerated liquefied oxygen.
- *Camping equipment* — May contain flammable gases (butane, propane, etc.), flammable liquids (kerosene, gasoline, etc.), or flammable solids (hexamine, matches, etc.).
- *Chemicals* — May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.
- *Frozen fruit, vegetables, etc.* — May be packed in dry ice (solid carbon dioxide).
- *Household goods* — May contain items meeting any of the criteria for dangerous goods. Examples include flammable liquids such as solvent-based paint, adhesives, polishes, aerosols, bleach, corrosive oven or drain cleaners, ammunition, matches, etc.
- *Passenger's baggage* — May contain items meeting any of the criteria for dangerous goods. Examples include fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, ammunition, bleach, aerosols, etc.
- *Refrigerators* — May contain liquefied gases or an ammonia solution.
- *Swimming pool chemicals* — May contain oxidizing or corrosive substances.

### Equipment, instruments and tool boxes

- *Automobile parts (car, motor, motorcycle)* — May include engines, carburetors or fuel tanks that contain or have contained fuel, wet batteries, compressed gases in tire inflation devices and fire extinguishers, air bags, etc.
- *Gas cylinders* — May contain compressed or liquefied gases.
- *Diving equipment* — May contain cylinders of compressed gas (e.g. air or oxygen). May also contain high intensity diving lamps that can generate extreme heat when operated in air. In order to be carried safely, the bulb or battery should be disconnected.
- *Drilling and mining equipment* — May contain explosive(s) and/or other dangerous goods.

- *Electrical equipment* — May contain magnetized materials, mercury in switch gear, electron tubes or wet batteries.
- *Electrically powered apparatus (wheelchair, lawn mowers, golf carts, etc.)* — May contain wet batteries.
- *Expeditionary equipment* — May contain explosives (flares), flammable liquids (gasoline), flammable gas (camping gas) or other dangerous goods.
- *Film crew and media equipment* — May contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, fuel, heat-producing items, etc.
- *Hot-air balloon* — May contain cylinders with flammable gas, fire extinguishers, engines, internal combustion, batteries, etc.
- *Scientific instruments* — May conceal barometers, manometers, mercury switches, rectifier tubes, thermometers, etc., containing mercury.
- *Machinery parts* — May include flammable adhesives, paints, sealants and solvents, wet and lithium batteries, mercury, cylinders of compressed or liquefied gas, etc.
- *Photographic supplies* — May contain items meeting any of the criteria for dangerous goods, particularly heat-producing devices, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.
- *Racing car or motorcycle team equipment* — May contain engines, carburetors or fuel tanks that contain fuel or residual fuel, wet batteries, flammable aerosols, nitromethane or other gasoline additives, cylinders of compressed gases, etc.
- *Repair kits* — May contain organic peroxides and flammable adhesives, solvent-based paint, resins, etc.
- *Switches in electrical equipment or instruments* — May contain mercury.
- *Tool boxes* — May contain explosives (power rivets), compressed gases or aerosols, flammable gases (butane cylinders), flammable adhesives or paints, corrosive liquids, etc.

#### **Medical supplies and first-aid articles**

- *Cryogenic (liquid)* — Indicates refrigerated liquefied gases such as argon, helium, neon or nitrogen.
- *Dental apparatus* — May contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material.
- *Diagnostic specimens* — May contain infectious substances.
- *Frozen embryos* — May be packed in refrigerated liquefied gas or dry ice.
- *Laboratory/testing equipment* — May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosives substances.
- *Medical supplies* — May contain items meeting any of the criteria for dangerous goods,

particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.

- *Pharmaceuticals* — May contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.
  - *Samples for testing* — May contain items meeting any of the criteria for dangerous goods, particularly infectious substances, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.
  - *Semen samples* — May be packed with dry ice or refrigerated liquefied gas.
  - *Vaccines* — May be packed in dry ice (solid carbon dioxide).
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## Attachment A to Appendix on DANGEROUS GOODS

| Item  | Allowed   | Forbidden   | Regulatory Text (ICAO TI's Part 8)  |
|---|---|---|---|
| Alcoholic beverages   | <p>Up to 5L of alcoholic beverages with alcohol content of more than 24 % but not more than 70 % in retail bottles.</p>    | <p>Alcoholic beverages with more than 70 % (140 % proof) alcohol content, including 95 % alcohol and 150 % proof rum.</p>          | <p>“when in retail packaging, alcoholic beverages containing more than 24 per cent but no more than 70 per cent alcohol per volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L for such beverages;”</p> <p><i>Note. — Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.</i></p>    |
| Non-radioactive medicinal or toilet articles, including aerosols. | <p>Maximum of 500 ml per container, for example, rubbing alcohol, 3 % hydrogen peroxide, Solarcaine, perfumes, cologne, hair spray, shaving cream, hair mousse etc.</p>  | <p>All other instances, including insect repellent (aerosol), leather conditioner (aerosol), spray paint and pepper spray.</p>  | <p>“Non-radioactive medicinal or toilet articles (including aerosols). Also aerosols in Division 2.2, with no subsidiary risk, for sporting and home use in checked baggage only. The total net quantity of all such articles carried by each person must not exceed 2 kg or 2 L and the net quantity of each single article must not exceed 0.5 kg or 0.5 L.</p> <p>The term “non-medicinal or toilet articles (including the net quantity of each aerosols)” is intended to include such items as hair sprays, perfumes, colognes and medicines containing alcohols;”</p> |

| Item   | Allowed   | Forbidden  | Regulatory Text (ICAO TI's Part 8)   |
|--|---|--|--|
| Oxygen cylinders   | With the approval of the air operator small gaseous oxygen or air cylinders for medical use.  | All other instances, including chemical oxygen generators, liquid oxygen and scuba cylinders.  | "with the approval of the operator(s), small gaseous oxygen or air cylinders required for medical use;"  |
| Carbon dioxide — Cylinders for mechanical limbs            | Small carbon dioxide cylinders and spare cylinders of similar size required during travel for the operation of mechanical limbs.  | All other instances unless allowed in this table.  | "small carbon dioxide gas cylinders worn for the operation of mechanical limbs, also spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey;"  |
| Carbon dioxide — Cylinders for self-inflating life-jackets | With the approval of the air operator, when fitted in a self-inflating life-jacket, small carbon dioxide cylinders or another gas of Division 2.2, and no more than two spares.   | All other instances unless allowed in this table.  | "with the approval of the operator(s), no more than two small carbon dioxide cylinders of carbon dioxide or another suitable gas in Division 2.2 per person fitted into a self-inflating life-jacket for inflation purposes, plus no more than two spare cartridges;"  |
| Cartridges   | <p>With the approval of the air operator, cartridges 5 kg maximum gross weight per person for sporting purposes, in checked baggage only.</p>  | <p>All other instances, including any other ammunition, cartridges, flares, signal devices, and fireworks.</p>  | <p>"with the approval of the operator(s), as checked baggage only, securely boxed cartridges for sporting purposes, in Division 1.4S, in quantities not exceeding 5 kg gross mass per person for that person's own use, excluding ammunition with explosive or incendiary projectiles.</p> <p>Allowances for more than one person must not be combined into one or more packages;"</p> |
| Dry ice  | Maximum of 2 kg per person of dry ice used for packaging perishables in carry-on or, with the approval of air operator, in checked baggage.   | All other instances.   | "dry ice in quantities not exceeding 2 kg per person, when used to pack perishables not subject to these Instructions, provided the package permits the release of carbon dioxide gas: In carry-on baggage; or with the approval of the operator(s), in checked baggage;"  |
| Safety matches or lighters                                 | Safety matches or lighter of which the liquid is contained in an absorbent within the lighter, carried on the person.   | Strike anywhere matches, lighters with unabsorbed liquid fuel and lighter refills.   | "safety matches or a lighter intended for use by an individual when carried on the person. However, lighters containing unabsorbed liquid fuel (other than liquefied gas), lighter fuel and lighter refills are not permitted on one's person  |

| Item   | Allowed   | Forbidden  | Regulatory Text (ICAO TI's Part 8)  |
|--|---|--|---|
|  |    |  | <p>or in checked or carry-on baggage;"</p> <p><i>Note.— Strike anywhere matches are forbidden for air transport.</i></p>  |
| <p>Radioisotopic cardiac pacemakers or other devices and radiopharmaceuticals contained within the body.</p> | <p>Pacemakers or similar devices including those that are lithium-battery-operated, and radiopharmaceuticals contained within the body.</p>   | <p>All other instances.</p>  | <p>"radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person, or radiopharmaceuticals contained within the body of a person as the result of medical treatment;"</p>  |
| <p>Wheelchairs and other powered mobility aid.</p>   | <p>With the approval of the air operator, wheelchairs or other powered mobility aid equipped with spillable and non-spillable battery.</p>  |  | <p>"i) with the approval of the operator(s), wheelchairs or other battery-powered mobility aids with non-spillable batteries (see Packing Instruction 806 and Special Provision A67), as checked baggage provided the battery terminals are protected from short circuits and the battery is securely attached to the wheelchair or mobility aid;</p> <p>j) with the approval of the operator(s), wheelchairs or other battery-powered mobility aids with spillable batteries as checked baggage, provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position and that the battery is disconnected, the battery terminals are protected from short circuits and the battery is securely attached to the wheelchair or mobility aid. If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction. The removed battery must be carried in strong, rigid packagings as follows:</p> <p>these packagings must be leaktight, impervious to battery fluid and be protected against upset by securing to pallets or</p> |

| Item                                    | Allowed  | Forbidden   | Regulatory Text (ICAO TI's Part 8)  |
|---|--|---|---|
|   |  |   | <p>by securing them in cargo compartments using appropriate means of securement (other than by bracing with freight or baggage) such as by use of restraining straps, brackets or holders;<br/>batteries must be protected against short circuits, secured upright in these packagings and surrounded by compatible absorbent material sufficient to absorb their total liquid contents;<br/>and these packagings must be marked 'Battery, wet, with wheelchair' or 'Battery, wet, with mobility aid' and be labelled with a 'Corrosive' label (Figure 5-21) and with a package orientation label (Figure 5-25).</p> <p>The pilot-in-command must be informed of the location of a wheelchair or mobility aid with an installed battery or the location of a packed battery.</p> <p>It is recommended that passengers make advance arrangements with each operator; also unless batteries are non-spillable they should be fitted, where feasible, with spill-resistant vent caps;"</p> |
| <p>Hair curlers</p>                     | <p>One gas operated hair curler per person with the safety cap on.</p>  | <p>Refills.</p>  | <p>"hair curlers containing hydrocarbon gas, no more than one per person, provide that the safety cover is securely fitted over the heating element. Gas refills for such curlers must not be carried;"</p>   |
| <p>Mercury barometer or thermometer</p> | <p>With the approval of the air operator and in the charge of a representative of a government weather bureau or similar agency.</p>                       | <p>All other instances.</p>   | <p>"with the approval of the operator(s), as carry-on baggage only, a mercurial barometer or a mercurial thermometer carried by a representative of a government weather bureau or similar official agency. The barometer or thermometer must</p>   |

| Item                            | Allowed  | Forbidden            | Regulatory Text (ICAO TI's Part 8)  |
|---------------------------------|--|----------------------|---|
|                                 |   |                      | <p>be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leak-proof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position. The pilot-in-command must be informed of the barometer or thermometer;”</p>  |
| Heat-producing articles         | <p>With the approval of the air operator, battery-operated equipment (i.e. underwater torches, soldering equipment) when the heat producing component or energy source (battery) is removed.</p>  | All other instances. | <p>“with the approval of the operator(s), heat producing articles (i.e. battery-operated equipment such as underwater torches and soldering equipment which, if accidentally activated, will generate extreme heat and can cause fire) may be carried in carry-on baggage only. The heat producing component, or the energy source, must be removed so as to prevent unintentional functioning during transport;”</p> |
| Medical or clinical thermometer | <p>One mercury medical or clinical thermometer in a protective case per person.</p>  | All other instances. | <p>“one small medical or clinical thermometer which contains mercury, for personal use, when in its protective case.”</p>   |

## Attachment B to Appendix on DANGEROUS GOODS

### Class 1 — Explosives



- 1.1 — Mass explosion hazard.
- 1.2 — Projection hazard, no mass explosion hazard.
- 1.3 — Fire hazard with either a minor blast hazard, minor projection hazard or both, no mass explosion hazard.
- 1.4 — Small hazard, explosion effects confined to package.
- 1.5 — Mass explosion hazard, very insensitive.
- 1.6 — Extremely insensitive article, no mass explosion hazard.

### Class 2 — Gases



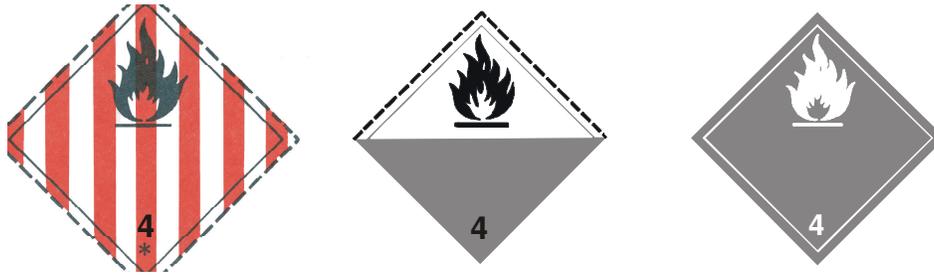
- 2.1 — Flammable gases.
- 2.2 — Non-flammable, non-toxic gases.
- 2.3 — Toxic gases.

### Class 3 — Flammable liquids



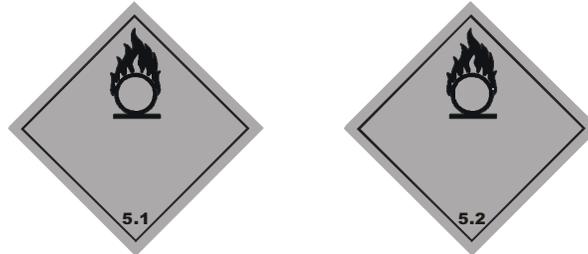
Closed-cup flash point of not greater than 60.5 °C.

**Class 4 — Flammable solids, substances liable to spontaneous combustion; substances that on contact with water emit flammable gases (water reactive substances)**



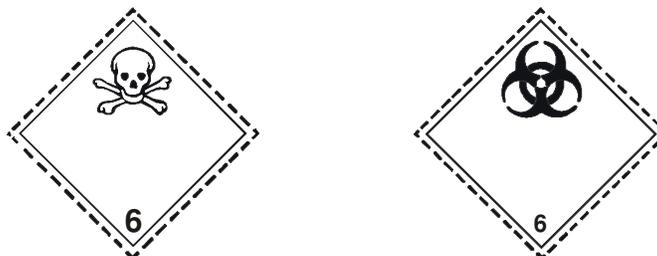
- 4.1 — Flammable solids.
- 4.2 — Substances liable to spontaneous combustion.
- 4.3 — Substances which on contact with water emit flammable gases.

**Class 5 — Oxidizing substances and organic peroxides**



- 5.1 — Substance not necessarily combustible, but may generally, by yielding oxygen, cause or contribute to combustion of other material.
- 5.2 — Thermally unstable substances which may undergo exothermic, self-accelerating decomposition. May also have one or more of the following properties: liable to explosive decomposition; burn rapidly; sensitive to impact or friction; react dangerously with other substances; may cause damage to the eyes.

**Class 6 — Toxic and infectious substances**



- 6.1 — Toxic through inhalation, absorption or ingestion.
- 6.2 — Substances containing viable micro-organisms, infectious or reasonably believed to be infectious to humans or animals.

**Class 7 — Radioactive materials**



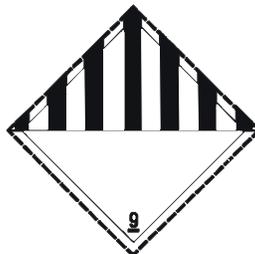
Any material with a specific activity greater than 70 kBq/kg.

**Class 8 — Corrosives**



A substance that causes visible necrosis of skin or corrodes steel or non-clad aluminium.

**Class 9 — Miscellaneous Dangerous Goods**

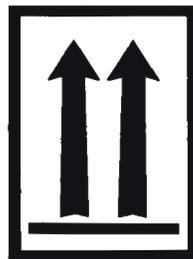


Miscellaneous Dangerous Goods; a substance or product presenting dangers sufficient to warrant regulation in transport but which cannot be ascribed to any other class.

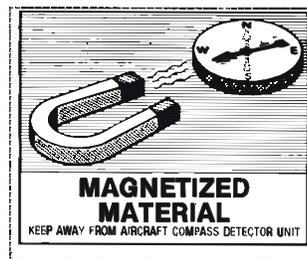
**HANDLING LABELS**



**Cargo only aircraft**



**Package orientation**



**Magnetized material**