

**PARTS OF AUTOMOBILE (CAR, MOTOR, MOTORCYCLE)**—may contain wet batteries, etc.

**PASSENGERS 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 (those not permitted under Subsection 2.3), etc.

**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.

**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.

**PROMOTIONAL MATERIAL**—see PASSENGER BAGGAGE.

**RACING CAR OR MOTORCYCLE TEAM EQUIPMENT**—may contain engines, carburetors or fuel tanks which contain fuel or residual fuel, flammable aerosols, cylinders of compressed gases, nitromethane, other fuel additives or wet batteries, etc.

**REFRIGERATORS**—may contain liquefied gases or an ammonia solution.

**REPAIR KITS**—may contain organic peroxides and flammable adhesives, solvent based paints, resins, etc.

**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**—may be packed with Carbon dioxide, solid (dry ice) or refrigerated liquefied gas. See also DRY SHIPPER.

**SHIPS' SPARES**—may contain explosives (flares), cylinders of compressed gas (life rafts), paint, lithium batteries (emergency locator transmitters), etc.

**SHOW, MOTION PICTURE, STAGE AND SPECIAL EFFECTS EQUIPMENT**—may contain flammable substances, explosives or other dangerous goods.

**SWIMMING POOL CHEMICALS**—may contain oxidizing or corrosive substances.

**SWITCHES IN ELECTRICAL EQUIPMENT OR INSTRUMENTS**—may contain mercury.

**TOOL BOXES**—may contain explosives (power rivets), compressed gases or aerosols, flammable gases (butane cylinders or torches), flammable adhesives or paints, corrosive liquids, etc.

**TORCHES**—micro torches and utility lighters may contain flammable gas and be equipped with an electronic starter. Larger torches may consist of a torch head (often with a self-igniting switch) attached to a container or cylinder of flammable gas.

**UNACCOMPANIED PASSENGERS BAGGAGE/ PERSONAL EFFECTS**—may contain items meeting any of the criteria for dangerous goods, such as fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, bleach, aerosols, etc.

**VACCINES**—may be packed in Carbon dioxide, solid (dry ice).

**Note:**

*Articles and substances which do not fall within the definitions of dangerous goods as shown in these Regulations and which in the event of leakage may cause a serious clean-up problem or corrosion to aluminium on a long term basis must be checked by the shipper to at least ensure that the packaging is adequate to prevent leakage during transportation. These may include brine, powdered or liquid dyes, pickled foodstuffs, etc.*

**2.3 Dangerous Goods Carried by Passengers or Crew**

STATE VARIATIONS: CHG-01, USG-15

OPERATOR VARIATIONS: AR-02, MN-01, P2-01, PG-01, PX-08

**2.3.0 General**

**2.3.0.1** Dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew:

- as or in checked baggage;
- as or in carry-on baggage; or
- on their person;

except as noted in 2.3.2 to 2.3.5.

**2.3.0.2** Notwithstanding any additional restrictions that may be implemented by States in the interests of aviation security, except for the incident reporting requirements of 9.6.1 and 9.6.2, the provisions of these Regulations do not apply to 2.3.2 to 2.3.5 when carried by passengers or crew members or in baggage transported by the operator which 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 1.2.7.1(g).

**Notes:**

1. See Subsection 2.2 for a listing of Hidden Dangerous Goods which may not be obvious to passengers and crew and which may be inadvertently contained in baggage.
2. The following provisions are tabulated in Table 2.3.A.

**2.3.0.3** Paragraphs 2.3.2 to 2.3.4 address dangerous goods that are permitted in passenger and crew baggage only when the operator(s) concerned approve such carriage. It is recommended that operators have documented procedures that identify the approval process and any company specific requirements that may apply to items that are approved for carriage. More detail on the recommended practice is set out in 1.4.2.2.

## 2.3.1 Forbidden Goods

### 2.3.1.1 Attaché Cases, Cash Boxes/Bags

Except as permitted in 2.3.2.6 below security-type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, are totally forbidden. See entry in Subsection 4.2, List of Dangerous Goods.

### 2.3.1.2 Disabling Devices

Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.

### 2.3.1.3 Liquid Oxygen Devices

Personal medical oxygen devices that utilize liquid oxygen are forbidden on the person, in checked and carry-on baggage.

### 2.3.1.4 Electro Shock Weapons

Electro shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.

## 2.3.2 Goods Acceptable with Operator Approval, as Checked Baggage Only

The following dangerous goods, as listed in 2.3.2.1 through 2.3.2.6, are permitted on aircraft as checked baggage only and with the approval of the operator(s).

### 2.3.2.1 Ammunition

STATE VARIATIONS: AEG-09, SGG-02

OPERATOR VARIATIONS: FJ-02, KL-01

Securely packaged ammunition (cartridges for weapons, small arms) in Division 1.4S (UN 0012 or UN 0014 only), in quantities not exceeding 5 kg (11 lb) gross weight per person 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.

### 2.3.2.2 Wheelchairs/Mobility Aids with Non-spillable Wet Batteries or with Batteries which Comply with Special Provision A123

Battery-powered wheelchairs or other similar mobility aids 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), with non-spillable wet batteries or with Batteries which Comply with Special Provision A123:

- (a) non-spillable batteries must comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872;

- (b) the operator must verify:
  1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
  2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.16.5 and Figure 9.3.H);
  3. electrical circuits have been inhibited.
- (c) the wheelchair/battery-powered mobility aid must be secured against movement in the cargo hold and must be carried such that it is protected from being damaged by the movement of baggage, mail, or cargo;
- (d) where a battery-powered or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):
  1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction;
  2. the removed battery(ies) must be carried in strong, rigid packagings which must be carried in the cargo compartment (see 9.3.16.5 and Figure 9.3.H);
  3. the battery(ies) must be protected from short circuit; and
  4. the pilot-in-command must be informed of the location of the packed battery.
- (e) it is recommended that passengers make advance arrangements with each operator.

### 2.3.2.3 Wheelchairs/Mobility Aids with Spillable Batteries

OPERATOR VARIATIONS: AR-04, AV-05, E8-05, IP-05, IT-01, OS-02, OU-03, PR-02, SV-10, VO-02

2.3.2.3.1 Battery-powered wheelchairs or other similar mobility aids 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), with spillable batteries:

- (a) provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position then the battery may remain installed in the wheelchair. The operator must verify that:
  1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
  2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.16.5 and Figure 9.3.H);
  3. electrical circuits have been inhibited;
  4. the wheelchair/battery-powered mobility aid must be carried such that it is protected from being damaged by the movement of baggage, mail, or cargo.
- (b) if the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed. The wheelchair or mobility aid may then be carried as checked baggage without restriction;

(c) the removed battery must be carried in strong, rigid packagings as follows:

1. packagings must be leak-tight, impervious to battery fluid and be protected against upset by securing to pallets or 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;
2. 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; and
3. these packagings must be marked "BATTERY, WET, WITH WHEELCHAIR" or "BATTERY, WET, WITH MOBILITY AID" and be labelled with the "Corrosive" label (see Figure 7.3.U) and with the "Package Orientation" label (see Figures 7.4.D and 7.4.E).

**2.3.2.3.2** 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. It is recommended that passengers make advance arrangements with each operator; also that batteries which are spillable should be fitted with spill-resistant vent caps when feasible (see 9.3.16.5 and Figure 9.3.H).

#### △ **2.3.2.4 Wheelchairs/Mobility Aids with Lithium Batteries**

Lithium-ion battery powered wheelchairs or other similar mobility aids 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), subject to the following conditions:

- (a) the batteries must be of a type which meets the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3;
- (b) the operator must verify:
  1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
  2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.16.5 and Figure 9.3.H);
  3. electrical circuits have been inhibited.
- (c) mobility aids must be secured against movement in the cargo hold and must be carried in a manner so that they are protected from being damaged by the movement of baggage, mail or other cargo;
- (d) where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):
  1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction;
  2. the battery(ies) must be protected from short circuit by insulating the terminals (e.g. by taping over exposed terminals);
  3. the removed battery(ies) must be protected from damage (e.g.) by placing each battery in a

protective pouch. The battery(ies) must be carried in the passenger cabin;

4. removal of the battery from the device must be performed by following the instructions of the manufacturer or device owner;
  5. the battery must not exceed 300 Wh;
  6. a maximum of one spare battery not exceeding 300 Wh or two spares each not exceeding 160 Wh may be carried.
- (e) the pilot-in-command must be informed of the location of the mobility aid with an installed battery or the location of the lithium battery when removed and carried in the cabin;
- (f) it is recommended that passengers make advance arrangements with each operator.

#### ✈ **2.3.2.5 Camping Stoves and Fuel Containers that have Contained a Flammable Liquid Fuel**

△ OPERATOR VARIATIONS: 9W-01, IT-02, LX-04, PR-03, SN-01, SV-11

With the approval of the operator, as checked baggage only, camping stoves and fuel containers for camping stoves that have contained a flammable liquid fuel may be carried provided the fuel tank of the camping stove, and/or fuel container has been completely drained of all liquid fuel and action has been taken to nullify the danger. To nullify the danger, the empty fuel tank and/or container must be allowed to drain for at least 1 hour, the fuel tank and/or container must then be left uncapped for a minimum of 6 hours to allow any residual fuel to evaporate. Alternative methods, such as adding cooking oil to the fuel tank and/or container to elevate the flash point of any residual liquid above the flash point of flammable liquid and then emptying the fuel tank and/or container, are equally acceptable. The fuel tank, and/or container must then have the cap securely fastened and be wrapped in an absorbent material such as paper towel and placed in a polyethylene or equivalent bag. The top of the bag must then be sealed or gathered and closed with an elastic band or twine.

**Note:**

*Provided the above cleaning method is followed in accordance with these Regulations, the fuel stove or container can be classified as non hazardous. However to control the carriage of these items, they are listed in Table 2.3.A Provisions for Dangerous Goods Carried by Passengers or Crew.*

#### **2.3.2.6 Security-Type Equipment**

Security type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods as part of this equipment, for example lithium batteries or pyrotechnic material, may be carried as checked baggage only if the equipment complies with the following:

- (a) the equipment must be equipped with an effective means of preventing accidental activation;
- (b) 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 in compliance with 3.1.7.1;

- (c) if the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions:
  1. for a lithium metal cell, the lithium content is not more than 1 g;
  2. for a lithium metal battery, the aggregate lithium content is not more than 2 g;
  3. for lithium ion cells, the Watt-hour rating is not more than 20 Wh;
  4. for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;
  5. each cell or battery is of the type proven to meet the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3.
- (d) if the equipment contains gases to expel dye or ink, only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Regulations other than a Division 2.2 gas, are allowed. The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties. In case of accidental activation all hazardous effects must be confined within the equipment and must not produce extreme noise;
- (e) security type equipment that is defective or that has been damaged is forbidden for transport.

### 2.3.3 Goods Acceptable with Operator Approval as Carry-on Baggage Only

The following dangerous goods, as listed in 2.3.3.1 and 2.3.3.2, are permitted on aircraft as carry-on baggage only and with the approval of the operator(s).

#### 2.3.3.1 Mercury Barometer or Thermometer

△ OPERATOR VARIATIONS: 9W-01, AA-03, LX-03

A mercurial barometer or mercurial thermometer carried by a representative of a government weather bureau or similar official agency. The barometer or thermometer must 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 location of the barometer or thermometer.

#### △ 2.3.3.2 Lithium Ion Batteries

Lithium ion batteries exceeding a watt-hour rating of 100 Wh but not exceeding 160 Wh may be carried as spare batteries in carry on baggage, or in equipment in either checked or carry on baggage. Batteries must be of a type that meet the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3. No more than two individually protected spare batteries per person may be carried.

### 2.3.4 Goods Acceptable with Operator Approval as Baggage

The following dangerous goods, as listed in 2.3.4.1 through 2.3.4.7, are permitted on aircraft as checked or carry-on baggage with the approval of the operator(s).

#### 2.3.4.1 Medical Oxygen

OPERATOR VARIATIONS: AR-06, AV-06, CA-12, IT-03, MN-02, MU-05, OK-05, OU-02, SN-02, TN-03, UL-07

Gaseous oxygen or air cylinders required for medical use. Each cylinder must not exceed 5 kg gross weight. Cylinders, valves and regulators, where fitted, must be protected from damage that could cause inadvertent release of the contents. This provision also applies where the cylinders are being carried by medically trained persons. 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).

**Note:**

*Personal medical oxygen devices that utilise liquid oxygen are forbidden on the person, in checked and carry-on baggage.*

#### △ 2.3.4.2 Small Gas Cylinders Containing a Division 2.2

2.3.4.2.1 Not more than two small cylinders, containing carbon dioxide or other suitable gas in Division 2.2, per person fitted into a self-inflating life jacket for inflation purposes plus not more than two spare cylinders.

2.3.4.2.2 Not more than four small cylinders of carbon dioxide or other suitable gas in Division 2.2 without a subsidiary risk, per person for other devices. The water capacity of each cylinder must not exceed 50 mL.

**Note:**

*For carbon dioxide a gas cylinder with a water capacity of 50 mL is equivalent to a 28 g cartridge.*

**Editorial Note:**

*The provisions for dry shippers have been moved to paragraph 2.3.5.12.*

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#### △ 2.3.4.3 Avalanche Rescue Backpack

STATE VARIATION: USG-02

One avalanche rescue backpack per person containing a cylinder of compressed gas in Division 2.2. The avalanche rescue backpack may also be equipped with a pyrotechnic trigger mechanism containing not more than 200 mg net of explosives in Division 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The air bags within the backpacks must be fitted with pressure relief valves.

#### 2.3.4.4 Chemical Agent Monitoring Equipment

□ OPERATOR VARIATION: 9W-04

Instruments containing radioactive material not exceeding the activity limits specified in Table 10.3.D, i.e. chemical

agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M), securely packed and without lithium batteries, when carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.

### 2.3.4.5 Carbon Dioxide, Solid (Dry Ice)

Carbon dioxide, solid (dry ice) in quantities not exceeding 2.5 kg per person when used to pack perishables that are not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Each item of checked baggage containing dry ice must be marked:

- “Carbon dioxide, solid” or “Dry ice”; and
- with the net weight of dry ice or an indication that the net weight is 2.5 kg or less.

**Note:**

See 9.3.12.3 and Figure 9.3.G for an example of a baggage tag.

### △ 2.3.4.6 Heat Producing Articles

OPERATOR VARIATION: DE-08

Battery-powered equipment capable of generating extreme heat, which would cause a fire if activated, e.g. underwater high-intensity lamps. The heat producing component and the battery are isolated from each other by the removal of the heat producing component, the battery or another component, e.g. fuse. Any battery that has been removed must be protected against short circuit (by placement in the 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).

### 2.3.4.7 Portable Medical Electronic Devices

Portable medical electronic devices (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries may be carried by passengers for medical use as follows:

- (a) no more than two spare batteries may be carried in carry-on baggage only. Spare batteries 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);
- (b) each installed or spare battery must be of a type which meets the requirements of each test in the UN *Manual of Tests and Criteria*, Part III,

subsection 38.3; In addition, each installed or spare battery must not exceed the following:

1. for lithium metal batteries, a lithium content of not more than 8 g; or
2. for lithium ion batteries, a watt-hour rating of not more than 160 Wh.

### 2.3.5 Goods Acceptable without the Operator's Approval

Dangerous goods, as listed in 2.3.5.1 through 2.3.5.11, are permitted on aircraft as baggage without the approval of the operator(s).

#### 2.3.5.1 Medicinal or Toiletry Articles

Non-radioactive medicinal or toiletry articles (including aerosols). The term “medicinal or toiletry articles” is intended to include such items as hair sprays, perfumes, colognes and medicines containing alcohols.

#### 2.3.5.2 Aerosols in Division 2.2

Aerosols in Division 2.2, with no subsidiary risk, for sporting or home use, are permitted in checked baggage only.

**Note:**

*The total net quantity of all such articles carried by each passenger or crew member under the provisions of 2.3.5.1 and 2.3.5.2 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. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.*

#### 2.3.5.3 Cylinders for Mechanical Limbs

Small cylinders of a gas of Division 2.2 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.

#### 2.3.5.4 Cardiac Pacemakers/ Radio-pharmaceuticals

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.

#### 2.3.5.5 Medical/Clinical Thermometer

One small medical or clinical thermometer which contains mercury, for personal use, when in its protective case.

**TABLE 2.3.A**  
**Provisions for Dangerous Goods Carried by Passengers or Crew**  
**(Subsection 2.3)**

*Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below.*

2

2.3

Permitted in or as carry-on baggage					
Permitted in or as checked baggage					
Permitted on one's person					
The approval of the operator(s) is required					
The pilot-in-command must be informed of the location					
NO	NO	NO	n/a	n/a	<b>Disabling devices</b> such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.
NO	NO	NO	n/a	n/a	<b>Electro shock weapons</b> (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.
NO	NO	NO	n/a	n/a	<b>Security-type attaché cases, cash boxes, cash bags</b> , etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in 4.2 - List of Dangerous Goods.
NO	YES	NO	YES	NO	<b>Ammunition (cartridges for weapons), securely packaged</b> (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.
NO	YES	NO	YES	NO	<b>Battery-powered wheelchairs or other similar mobility devices with non-spillable wet batteries or with batteries which comply with Special Provision A123</b> , (see 2.3.2.2).
NO	YES	NO	YES	YES	<b>Battery-powered wheelchairs or other similar mobility devices with spillable batteries or with lithium batteries</b> (see 2.3.2.3 and 2.3.2.4 for details).
YES	NO	NO	YES	YES	<b>Battery-powered mobility aids with lithium ion batteries (collapsible)</b> , lithium-ion battery must be removed and carried in the cabin (see 2.3.2.4(d) for details).
NO	YES	NO	YES	NO	<b>Camping stoves and fuel containers that have contained a flammable liquid fuel</b> , with empty fuel tank and/or fuel container (see 2.3.2.5 for details).
NO	YES	NO	YES	NO	<b>Security-type equipment containing lithium batteries</b> (see 2.3.2.6 for details).
YES	YES	YES	YES	NO	<b>Lithium ion battery powered equipment</b> containing batteries over 100 Wh but not exceeding 160 Wh.
YES	NO	YES	YES	NO	<b>Spare lithium ion batteries</b> with a Watt-hour rating exceeding 100 Wh but not exceeding 160 Wh for consumer electronic devices. Maximum of two spare batteries may be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.
YES	NO	NO	YES	YES	<b>Mercury barometer or thermometer</b> carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details.)
YES	YES	NO	YES	NO	<b>Avalanche rescue backpack</b> , one (1) per person, containing a cylinder of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing less than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.
YES	YES	NO	YES	NO	<b>Carbon dioxide, solid (dry ice)</b> , in quantities not exceeding 2.5 kg per person when used to pack perishables not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked "dry ice" or "carbon dioxide, solid" and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.
YES	YES	NO	YES	NO	<b>Chemical Agent Monitoring Equipment</b> , when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.4).
YES	YES	NO	YES	NO	<b>Heat producing articles</b> such as underwater torches (diving lamps) and soldering irons. (See 2.3.4.6 for details.)
YES	YES	NO	YES	YES	<b>Oxygen or air, gaseous, cylinders</b> required for medical use. The cylinder must not exceed 5 kg gross weight.
YES	YES	YES	YES	NO	<b>Note: Liquid oxygen systems are forbidden for transport.</b> <b>Portable medical electronic devices</b> (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries may be carried (see 2.3.4.7 for details).

**TABLE 2.3.A**  
**Provisions for Dangerous Goods Carried by Passengers or Crew**  
**(Subsection 2.3) (continued)**

**2**  
2.3

Permitted in or as carry-on baggage					
Permitted in or as checked baggage					
Permitted on one's person					
The approval of the operator(s) is required					
The pilot-in-command must be informed of the location					
YES	YES	YES	YES	NO	<b>Small non-flammable gas cylinders</b> , containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cylinders fitted into a life jacket, and up to two (2) spare cartridges per person, not more than four (4) cylinders up to 50 mL water capacity for other devices.
YES	YES	YES	NO	NO	<b>Alcoholic beverages</b> , when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L.
NO	YES	NO	NO	NO	<b>Aerosols in Division 2.2</b> , with no subsidiary risk, for sporting or home use.
YES	YES	YES	NO	NO	<b>Non-radioactive medicinal or toilet articles</b> (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol.
YES	YES	YES	NO	NO	The <u>total</u> net quantity of all above mentioned articles 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. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.
YES	YES	YES	NO	NO	<b>Energy efficient light bulbs</b> when in retail packaging intended for personal or home use.
YES	YES	YES	NO	NO	<b>Fuel cells, and spare fuel cartridges</b> powering portable electronic devices (e.g. cameras, cellular phones, laptop computers, and camcorders), see 2.3.5.10 for details.
YES	YES	NO	NO	NO	<b>Hair curlers containing hydrocarbon gas</b> , up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.
YES	YES	NO	NO	NO	<b>Insulated packagings containing refrigerated liquid nitrogen</b> (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.
NO	YES	YES	NO	NO	<b>Internal combustion or fuel cell engines</b> , must meet A70 (see 2.3.5.15 for details).
YES	YES	YES	NO	NO	<b>Medical or clinical thermometer</b> , which contains mercury, one (1) per person for personal use, when in its protective case.
YES	YES	YES	NO	NO	<b>Non-flammable, non-toxic gas cylinders</b> 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.
YES	YES	YES	NO	NO	<b>Non-infectious specimens</b> packed with small quantities of flammable liquid, must meet A180 (see 2.3.5.14 for details).
YES	YES	YES	NO	NO	<b>Portable electronic devices containing lithium metal or lithium ion cells or batteries</b> , such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders, etc., when carried by passengers or crew for personal use.
YES	NO	YES	NO	NO	<b>All spare batteries, including lithium metal or lithium ion cells or batteries</b> , for such portable electronic devices must be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.
YES	YES	YES	NO	NO	<b>Portable electronic devices containing non-spillable batteries</b> , batteries must meet A67 and must be 12 V or less and 100 Wh or less. A maximum of 2 spare batteries may be carried (see 2.3.5.13 for details).
NO	NO	YES	NO	NO	<b>Radioisotopic cardiac pacemakers</b> 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.
NO	NO	YES	NO	NO	<b>Safety matches (one small packet) or a cigarette lighter</b> that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage.
<b>Note:</b> "Strike anywhere" matches, "Blue flame" or "Cigar" lighters are forbidden.					

**Note:**  
n/a means not applicable

### △ 2.3.5.6 Safety Matches or Cigarette Lighter

OPERATOR VARIATIONS: JW-02, NZ-01, PX-06

One small packet of safety matches or a cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Matches and lighters are not permitted in checked or carry on baggage. Lighter fuel and lighter refills are not permitted on one's person nor in checked or carry-on baggage.

**Notes:**

1. "Strike anywhere" matches are forbidden for air transport.
2. "Blue Flame" or "Cigar" lighters are not permitted on one's person, carry-on or checked baggage.
3. Cigarette lighters should have two independent actions by the user to activate ignition.

### 2.3.5.7 Alcoholic Beverages

STATE VARIATION: SAG-01

Alcoholic beverages, when in retail packaging, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L for such beverages.

**Note:**

Alcoholic beverages containing 24% or less alcohol by volume are not subject to any restrictions.

### 2.3.5.8 Hair Curlers

Hair curlers containing hydrocarbon gas, no more than one per passenger or crew member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.

### △ 2.3.5.9 Portable Electronic Devices containing Batteries

**2.3.5.9.1** Portable electronic devices (such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders) containing batteries when carried by passengers or crew for personal use, which should be carried in carry-on baggage. Spare batteries must be individually protected to prevent short circuits by placement in the 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, and carried in carry-on baggage only. In addition, lithium batteries are subject to the following conditions:

- (a) each installed or spare battery must not exceed:
  1. for lithium metal or lithium alloy batteries, a lithium content of not more than 2 g; or
  2. for lithium ion batteries, a watt-hour rating of not more than 100 Wh.
- (b) batteries and cells must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3;

- (c) if devices are carried in checked baggage the passenger/crew member must take measures to prevent unintentional activation.

### △ 2.3.5.10 Fuel Cells Contained in Portable Electronic Devices

**2.3.5.10.1** Fuel cells used to power portable electronic devices (for example cameras, cellular phones, laptop computers, and camcorders), and spare fuel cell cartridges, under the following conditions:

- (a) fuel cells and fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water-reactive substances or hydrogen in metal hydride;
- (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:
  1. for liquids, 200 mL;
  2. for solids 200 g;
  3. for liquefied gases, 120 mL for non metallic fuel cells or fuel cell cartridges or 200 mL for metal fuel cells or fuel cell cartridges;
  4. for hydrogen in metal hydride the fuel cell cartridges must have a water capacity of 120 mL or less.
- (d) each fuel cell and each fuel cell cartridge must conform to IEC 62282-6-100 Ed. 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) no more than two spare fuel cell cartridges may be carried in checked baggage, carry-on baggage, or on the person;
- (f) fuel cells containing fuel are permitted in carry-on baggage only;
- (g) interaction between fuel cells and integrated batteries in a device must conform to IEC 62282-6-100 Ed. 1. Fuel cells whose sole function is to charge a battery in the device are not permitted;
- (h) 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
- (i) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.

### 2.3.5.11 Energy Efficient Light Bulbs

Energy efficient light bulbs when in retail packaging intended for personal or home use.

### △ 2.3.5.12 Insulated Packages Containing Refrigerated Liquid Nitrogen (Dry Shipper)

In checked or carry-on baggage, insulated packaging containing refrigerated liquid nitrogen fully absorbed in a

porous material (dry shipper). The dry shipper must meet the requirements of Special Provision A152.

**2.3.5.13 Portable Electronic Equipment Containing Non-Spillable Batteries**

In checked or carry-on baggage, portable electronic equipment containing a non-spillable battery meeting the requirements of Special Provision A67. A maximum of two spare non-spillable batteries meeting Special Provision A67 may also be carried. The following requirements apply:

- (a) the voltage of each battery must not exceed 12 V and the watt-hour rating must not exceed 100 Wh;
- (b) the equipment must either be protected from inadvertent activation, or the battery must be disconnected and the battery terminals insulated;
- (c) each spare battery must be protected from short circuit by insulation of the battery terminals.

**2.3.5.14 Non-Infectious Specimens Packed with Small Quantities of Flammable Liquids**

In checked or carry-on baggage non-infectious specimens, such as specimens of mammals, birds, amphibians, reptiles, fish, insects and other invertebrates containing small quantities of flammable liquids provided that the requirements of Special Provision A180 are complied with.

**2.3.5.15 Internal Combustion or Fuel Cell Engines**

In checked baggage only, internal combustion or fuel cell engines being carried separately or incorporated into a machine or other apparatus. The engine must comply with the requirements of Special Provision A70.

**2.3.5.16 Permeation Devices**

In checked baggage only permeation devices for calibrating air quality monitoring equipment. These devices must comply with the requirements of Special Provision A41.

**2.4 Transport of Dangerous Goods by Post**

STATE VARIATIONS: CAG-05/09, DQG-03, FRG-06, GBG-05, VCG-04, ZAG-04

△ OPERATOR VARIATIONS: 9W-08, AR-03, AV-07, AY-02, BA-03, BR-05, BZ-02, C8-03, CA-06, CV-03, D5-03, EY-07, IJ-04, KQ-03, KZ-10, LH-03, MH-02, MK-07, MS-03, MU-03, OK-01, OM-03, OS-04, OU-06, QR-02, TK-06, UL-04, UU-01, VN-03, VO-04

**2.4.1** The Universal Postal Union Convention forbids the carriage of dangerous goods in mail except as permitted in 2.4.2. Appropriate national authorities should ensure that the provisions of the UPU Convention are complied with in relation to the transport of dangerous goods by air.

△ **2.4.2** The dangerous goods listed in this subsection may be accepted in mail for air carriage subject to the

provisions of the appropriate national authorities concerned and the parts of these Regulations which relate to such materials:

- (a) **Infectious substances**, assigned to **Biological substance, Category B** (UN 3373) only, when packed in accordance with the requirements of Packing Instruction 650, and carbon dioxide, solid (dry ice) when used as a refrigerant for infectious substances (UN 3373);
- (b) **Patient specimens** as defined in 3.6.2.1.4 provided that they are classified, packed and marked as required by 3.6.2.2.3.6; and
- (c) **Radioactive material**, provided the activity does not exceed one tenth of that permitted in Table 10.3.D. The provisions relating to documentation (Subsection 10.8) do not apply to such radioactive material;
- (d) **Lithium ion batteries contained in equipment** (UN 3481) meeting the provisions of Section II of Packing Instruction 967. No more than four cells or two batteries may be mailed in any single package; and
- (e) **Lithium metal batteries contained in equipment** (UN 3091) meeting the provisions of Section II of Packing Instruction 970. No more than four cells or two batteries may be mailed in any single package.

**2.4.3** The procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport are subject to review and approval by the civil aviation authority of the State where the mail is accepted.

**2.4.4** Before a designated postal operator can introduce the acceptance of lithium batteries as identified in 2.4.2(d) and (e) they must have received specific approval from the civil aviation authority.

**Notes:**

1. Designated postal authorities may accept the dangerous goods identified in 2.4.2(a), (b) and (c) without receiving specific approval from the civil aviation authority.
2. Guidelines for appropriate national authorities and civil aviation authorities are contained in the Supplement to the ICAO Technical Instructions (S-1;3).

**2.5 Dangerous Goods in Operator's Property**

**2.5.1 Exceptions**

The provisions contained in these Regulations do not apply to the articles and substances of 2.5.1.1 through 2.5.1.4.

**2.5.1.1 Aircraft Equipment**

Articles and substances which would otherwise be classified as dangerous goods but which are required to be aboard the aircraft in accordance with pertinent airworthiness requirements and operating regulations or that are authorized by the State of the operator to meet special requirements.

# IATA:s Dangerous Goods Regulations (DGR)

## 2.3 Dangerous Goods Carried by Passengers or Crew

### 2.3.2.4 Wheelchairs/Mobility Aids with Lithium Batteries

Lithium-ion battery powered wheelchairs or other similar mobility aids 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), subject to the following conditions:

- (a) the batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
- (b) the operator must verify:
  - 1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
  - 2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.14.5 and Figure 9.3.C);
  - 3. electrical circuits have been inhibited.
- (c) mobility aids must be secured against movement in the cargo hold and must be carried in a manner so that they are protected from being damaged by the movement of baggage, mail or other cargo;
- (d) where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):
  - 1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction;
  - 2. the battery(ies) must be protected from short circuit by insulating the terminals (e.g. by taping over exposed terminals);
  - 3. the removed battery(ies) must be protected from damage (e.g.) by placing each battery in a protective pouch. The battery(ies) must be carried in the passenger cabin;
  - 4. removal of the battery(ies) from the device must be performed by following the instructions of the manufacturer or device owner;
  - 5. the battery must not exceed 300 Wh, or for a device that is fitted with two batteries required for operation, each battery must not exceed 160 Wh;
  - 6. a maximum of one spare battery not exceeding 300 Wh or two spares each not exceeding 160 Wh may be carried.
- (e) the pilot-in-command must be informed of the location of the mobility aid with an installed battery or the location of the lithium battery when removed and carried in the cabin;
- (f) it is recommended that passengers make advance arrangements with each operator

## 2.3 Dangerous Goods Carried by Passengers or Crew

STATE VARIATIONS: USG-15

OPERATOR VARIATIONS: AR-02 MN-01 P2-01 PG-01 PX-08

### 2.3.0 General

2.3.0.1 Dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew:

- as or in checked baggage;
- as or in carry-on baggage; or
- on their person;

except as noted in 2.3.2 to 2.3.5.

2.3.0.2 Notwithstanding any additional restrictions that may be implemented by States in the interests of aviation security, except for the incident reporting requirements of 9.6.1 and 9.6.2, the provisions of these Regulations do not apply to 2.3.2 to 2.3.5 when carried by passengers or crew members or in baggage transported by the operator which 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 1.2.7.1(g).

Notes:

1. See Subsection 2.2 for a listing of Hidden Dangerous Goods which may not be obvious to passengers and crew and which may be inadvertently contained in baggage.

2. The following provisions are tabulated in Table 2.3.A.

2.3.0.3 Paragraphs 2.3.2 to 2.3.4 address dangerous goods that are permitted in passenger and crew baggage only when the operator(s) concerned approve such carriage. It is recommended that operators have documented procedures that identify the approval process and any company specific requirements that may apply to items that are approved for carriage. More detail on the recommended practice is set out in 1.4.2.2.

2.3.0.4 Dangerous goods permitted in 2.3.2.2, 2.3.2.3, 2.3.2.4, 2.3.3.1 and 2.3.4.1 require that the operator advise the pilot-in-command when these dangerous goods are carried. Operators should follow the recommended practice as shown in 1.4.2.2(f) to advise the pilot-in-command.

### 2.3.1 Forbidden Goods

#### 2.3.1.1 Attaché Cases, Cash Boxes/Bags

Except as permitted in 2.3.2.6 below security-type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, are totally forbidden. See entry in Subsection 4.2, List of Dangerous Goods.

- 2.3.1.2 Disabling Devices

Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.

#### 2.3.1.3 Liquid Oxygen Devices

Personal medical oxygen devices that utilize liquid oxygen are forbidden on the person, in checked and carry-on baggage.

#### 2.3.1.4 Electro Shock Weapons

Electro shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.

### 2.3.2 Goods Acceptable with Operator Approval, as Checked Baggage Only

The following dangerous goods, as listed in 2.3.2.1 through 2.3.2.6, are permitted on aircraft as checked baggage only and with the approval of the operator(s).

#### 2.3.2.1 Ammunition

STATE VARIATIONS: AEG-09 SGG-02

OPERATOR VARIATIONS: FJ-02 KL-01

Securely packaged ammunition (cartridges for weapons, small arms) in Division 1.4S (UN 0012 or UN 0014 only), in quantities not exceeding 5 kg (11 lb) gross weight per person 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.

#### 2.3.2.2 Wheelchairs/Mobility Aids with Non-spillable Wet Batteries or with Batteries which Comply with Special Provision A123 or A199

Battery-powered wheelchairs or other similar mobility aids 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), with non-spillable wet batteries or with Batteries which Comply with Special Provision A123 or A199:

(a) non-spillable batteries must comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872;

(b) the operator must verify:

1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.14.5 and Figure 9.3.C);
3. electrical circuits have been inhibited.

(c) the wheelchair/battery-powered mobility aid must be secured against movement in the cargo hold and must be carried such that it is protected from being damaged by the movement of baggage, mail, or cargo;

(d) where a battery-powered or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):

1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction;
2. the removed battery(ies) must be carried in strong, rigid packagings which must be carried in the cargo compartment (see 9.3.14.5 and Figure 9.3.C);
3. the battery(ies) must be protected from short circuit; and
4. the pilot-in-command must be informed of the location of the packed battery.

(e) it is recommended that passengers make advance arrangements with each operator

### 2.3.2.3 Wheelchairs/Mobility Aids with Spillable Batteries

• 2.3.2.3 - Amendment - Wheelchairs/Mobility Aids with Spillable Batteries  
OPERATOR VARIATIONS: 2K-01 AR-04 AV-01 E9-05 GF-13 HQ-02 IP-05 JP-03 JU-10 LR-01 OM-16 OU-03 QT-01 SV-10 T0-01 TA-01 UU-04

2.3.2.3.1 Battery-powered wheelchairs or other similar mobility aids 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), with spillable batteries:

(a) provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position then the battery may remain installed in the wheelchair. The operator must verify that:

1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.14.5 and Figure 9.3.C);
3. electrical circuits have been inhibited;

4. the wheelchair/battery-powered mobility aid must be carried such that it is protected from being damaged by the movement of baggage, mail, or cargo.

(b) if the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed. The wheelchair or mobility aid may then be carried as checked baggage without restriction;

(c) the removed battery must be carried in strong, rigid packagings as follows:

1. packagings must be leak-tight, impervious to battery fluid and be protected against upset by securing to pallets or 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;
2. 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; and
3. these packagings must be marked "BATTERY, WET, WITH WHEELCHAIR" or "BATTERY, WET, WITH MOBILITY AID" and be labelled with the "Corrosive" label (see Figure 7.3.V) and with the "Package Orientation" label (see Figures 7.4.D and 7.4.E)

2.3.2.3.2 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. It is recommended that passengers make advance arrangements with each operator; also that batteries which are spillable should be fitted with spill-resistant vent caps when feasible (see 9.3.14.5 and Figure 9.3.C).

#### 2.3.2.4 Wheelchairs/Mobility Aids with Lithium Batteries

Lithium-ion battery powered wheelchairs or other similar mobility aids 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), subject to the following conditions:

(a) the batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;

(b) the operator must verify:

1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;
2. the battery is securely attached to the wheelchair or mobility aid (see 9.3.14.5 and Figure 9.3.C);
3. electrical circuits have been inhibited.

(c) mobility aids must be secured against movement in the cargo hold and must be carried in a manner so that they are protected from being damaged by the movement of baggage, mail or other cargo;

(d) where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):

1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction;
2. the battery(ies) must be protected from short circuit by insulating the terminals (e.g. by taping over exposed terminals);
3. the removed battery(ies) must be protected from damage (e.g.) by placing each battery in a protective pouch. The battery(ies) must be carried in the passenger cabin;
4. removal of the battery(ies) from the device must be performed by following the instructions of the manufacturer or device owner;
5. the battery must not exceed 300 Wh, or for a device that is fitted with two batteries required for operation, each battery must not exceed 160 Wh;
6. a maximum of one spare battery not exceeding 300 Wh or two spares each not exceeding 160 Wh may be carried.

(e) the pilot-in-command must be informed of the location of the mobility aid with an installed battery or the location of the lithium battery when removed and carried in the cabin;

(f) it is recommended that passengers make advance arrangements with each operator

- 2.3.2.5 Camping Stoves and Fuel Containers that have Contained a Flammable Liquid Fuel
- 2.3.2.5 - Amendment - Camping Stoves and Fuel Containers that have Contained a Flammable Liquid Fuel OPERATOR VARIATIONS: 9W-01 LX-04 OM-18 PR-02 SB-01 SN-01 SV-11 WN-03

With the approval of the operator, as checked baggage only, camping stoves and fuel containers for camping stoves that have contained a flammable liquid fuel may be carried provided the fuel tank of the camping stove, and/or fuel container has been completely drained of all liquid fuel and action has been taken to nullify the danger. To nullify the danger, the empty fuel tank and/or container must be allowed to drain for at least 1 hour, the fuel tank and/or container must then be left uncapped for a minimum of 6 hours to allow any residual fuel to evaporate. Alternative methods, such as adding cooking oil to the fuel tank and/or container to elevate the flash point of any residual liquid above the flash point of flammable liquid and then emptying the fuel tank and/or container, are equally acceptable. The fuel tank, in an absorbent material such as paper towel and placed in a polyethylene or equivalent bag. The top of the bag must then be sealed or gathered and closed with an elastic band or twine.

Note:

Provided the above cleaning method is followed in accordance with these Regulations, the fuel stove or container can be classified as non hazardous. However to control the carriage of these items, they are

listed in Table 2.3.A Provisions for Dangerous Goods Carried by Passengers or Crew.d/or container must then have the cap securely fastened and be wrapped

#### 2.3.2.6 Security-Type Equipment

Security type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods as part of this equipment, for example lithium batteries or pyrotechnic material, may be carried as checked baggage only if the equipment complies with the following:

- (a) the equipment must be equipped with an effective means of preventing accidental activation;
- (b) 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 in compliance with 3.1.7.1;
- (c) if the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions
  1. for a lithium metal cell, the lithium content is not more than 1 g;
  2. for a lithium metal battery, the aggregate lithium content is not more than 2 g;
  3. for lithium ion cells, the Watt-hour rating is not more than 20 Wh;
  4. for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;
  5. each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3
- (d) if the equipment contains gases to expel dye or ink, only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Regulations other than a Division 2.2 gas, are allowed. The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties. In case of accidental activation all hazardous effects must be confined within the equipment and must not produce extreme noise;
- (e) security type equipment that is defective or that has been damaged is forbidden for transport.

#### 2.3.3 Goods Acceptable with Operator Approval as Carry-on Baggage Only

The following dangerous goods, as listed in 2.3.3.1 and 2.3.3.2, are permitted on aircraft as carry-on baggage only and with the approval of the operator(s).

##### 2.3.3.1 Mercury Barometer or Thermometer

OPERATOR VARIATIONS: 9W-01 AA-03 LX-03 US-03

A mercurial barometer or mercurial thermometer carried by a representative of a government weather bureau or similar official agency. The barometer or thermometer must 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 location of the barometer or thermometer

#### 2.3.3.2 Spare Lithium Batteries

OPERATOR VARIATIONS: AR-12 AU-12

Spare lithium batteries are permitted in carry-on baggage as follows:

(a) for portable medical electronic devices (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.):

1. no more than 2 lithium ion batteries with a watt-hour rating exceeding 100 Wh but not exceeding 160 Wh or lithium metal batteries, with a lithium content exceeding 2 g but not exceeding 8 g may be carried;
2. spare batteries 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);
3. batteries must be of a type that meet the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3. No more than two individually protected spare batteries per person may be carried.

(b) for portable electronic devices (such as cameras, lap-top computers, camcorders):

1. no more than 2 lithium ion batteries exceeding a watt-hour rating of 100 Wh but not exceeding 160 Wh may be carried;
2. spare batteries 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);
3. batteries must be of a type that meet the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3. No more than two individually protected spare batteries per person may be carried

#### 2.3.4 Goods Acceptable with Operator Approval as Baggage

The following dangerous goods, as listed in 2.3.4.1 through 2.3.4.7, are permitted on aircraft as checked or carry-on baggage with the approval of the operator(s).

##### 2.3.4.1 Medical Oxygen

- 2.3.4.1 - Amendment - Medical Oxygen OPERATOR VARIATIONS: 3K-04 AR-06 CA-12 JP-03 JQ-04 MK-15 MN-02 MU-05 OK-05 OU-02 QF-04 SN-02 TN-03 UL-07 WN-03

Gaseous oxygen or air cylinders required for medical use. Each cylinder must not exceed 5 kg gross weight. Cylinders, valves and regulators, where fitted, must be protected from damage that could cause inadvertent release of the contents. This provision also applies where the cylinders are being carried by medically trained persons. 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).

Note:

Personal medical oxygen devices that utilise liquid oxygen are forbidden on the person, in checked and carry-on baggage.

- 2.3.4.2 Small Non-flammable Gas Cartridges Fitted into Devices

2.3.4.2.1 Small cartridges fitted into a self-inflating safety device such as a life-jacket or vest:

- (a) no more than one personal safety device per person;
- (b) the personal safety device must be packed in such a manner that it cannot be accidentally activated;
- (c) limited to carbon dioxide or other suitable gas in Division 2.2 without a subsidiary risk;
- (d) cartridge(s) must be for inflation purposes;
- (e) the device must be fitted with no more than two small cartridges; and
- (f) not more than two spare cartridges.

2.3.4.2.2 Other devices:

- (a) no more than four small cartridges of carbon dioxide or other suitable gas in Division 2.2 without a subsidiary risk, per person;
- (b) the water capacity of each cartridge must not exceed 50 mL.

Note:

For carbon dioxide a gas cartridge with a water capacity of 50 mL is equivalent to a 28 g cartridge

#### 2.3.4.3 Avalanche Rescue Backpack

STATE VARIATIONS: USG-02

One avalanche rescue backpack per person containing a cartridge of compressed gas in Division 2.2 without a subsidiary risk. The avalanche rescue backpack may also be equipped with a pyrotechnic trigger mechanism containing not more than 200 mg net of explosives in Division 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The air bags within the backpacks must be fitted with pressure relief valves.

#### 2.3.4.4 Chemical Agent Monitoring Equipment

OPERATOR VARIATIONS: 9W-04 UU-07 WN-03

Instruments containing radioactive material not exceeding the activity limits specified in Table 10.3.C, i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M), securely packed and without lithium batteries, when carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.

#### 2.3.4.5 Carbon Dioxide, Solid (Dry Ice)

Carbon dioxide, solid (dry ice) in quantities not exceeding 2.5 kg per person when used to pack perishables that are not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Each item of checked baggage containing dry ice must be marked:

- “Carbon dioxide, solid” or “Dry ice”; and
- with the net weight of dry ice or an indication that the net weight is 2.5 kg or less.

Note:

See 9.3.10.3 and Figure 9.3.B for an example of a baggage tag.

#### 2.3.4.6 Heat Producing Articles

OPERATOR VARIATIONS: DE-08

Battery-powered equipment capable of generating extreme heat, which would cause a fire if activated, e.g. underwater high-intensity lamps. The heat producing component and the battery are isolated from each other by the removal of the heat producing component, the battery or another component, e.g. fuse. Any battery that has been removed must be protected against short circuit (by placement in the 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).

- 2.3.4.6 - Amendment - Heat Producing Articles

#### TABLE 2.3.A Provisions for Dangerous Goods Carried by Passengers or Crew (Subsection 2.3)

Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below

Permitted in or as carry-on baggage					
Permitted in or as checked baggage					
Permitted on one's person					
The approval of the operator(s) is required					
The pilot-in-command must be informed of the location					
NO	NO	NO	n/a	n/a	<b>Disabling devices</b> such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.
NO	NO	NO	n/a	n/a	<b>Electro shock weapons</b> (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.
NO	NO	NO	n/a	n/a	<b>Security-type attaché cases, cash boxes, cash bags</b> , etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in 4.2 - List of Dangerous Goods.
NO	YES	NO	YES	NO	<b>Ammunition (cartridges for weapons), securely packaged</b> (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.
NO	YES	NO	YES	NO	<b>Battery-powered wheelchairs or other similar mobility devices with non-spillable wet batteries or with batteries which comply with Special Provision A123 or A199</b> , (see 2.3.2.2).
NO	YES	NO	YES	YES	<b>Battery-powered wheelchairs or other similar mobility devices with spillable batteries or with lithium batteries</b> (see 2.3.2.3 and 2.3.2.4 for details).
YES	NO	NO	YES	YES	<b>Battery-powered mobility aids with lithium ion batteries (collapsible)</b> , lithium-ion battery must be removed and carried in the cabin (see 2.3.2.4(d) for details).
NO	YES	NO	YES	NO	<b>Camping stoves and fuel containers that have contained a flammable liquid fuel</b> , with empty fuel tank and/or fuel container (see 2.3.2.5 for details).
YES	NO	NO	YES	YES	<b>Mercury barometer or thermometer</b> carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details.)
NO	YES	NO	YES	NO	<b>Security-type equipment containing lithium batteries</b> (see 2.3.2.6 for details).
YES	NO	YES	YES	NO	<b>Spare lithium batteries</b> . Lithium ion batteries for portable electronic devices (including medical devices) with a Wh rating exceeding 100 Wh but not exceeding 160 Wh. For portable medical electronic devices only, lithium metal batteries with a lithium content exceeding 2 g but not exceeding 8 g. Maximum of two spare batteries in carry-on baggage only. These batteries must be individually protected to prevent short circuits. (see 2.3.3.2)
YES	YES	NO	YES	NO	<b>Avalanche rescue backpack</b> , one (1) per person, containing a cartridge of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing less than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.
YES	YES	NO	YES	NO	<b>Carbon dioxide, solid (dry ice)</b> , in quantities not exceeding 2.5 kg per person when used to pack perishables not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked "dry ice" or "carbon dioxide, solid" and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.
YES	YES	NO	YES	NO	<b>Chemical Agent Monitoring Equipment</b> , when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.4).
YES	YES	NO	YES	NO	<b>Heat producing articles</b> such as underwater torches (diving lamps) and soldering irons. (See 2.3.4.6 for details.)
YES	YES	YES	YES	NO	<b>Lithium battery-powered electronic devices</b> . Lithium ion batteries for portable (including medical) electronic devices, a Wh rating exceeding 100 Wh but not exceeding 160 Wh. For portable medical electronic devices only, lithium metal batteries with a lithium content exceeding 2 g but not exceeding 8 g.
YES	YES	YES	YES	YES	<b>Oxygen or air, gaseous, cylinders</b> required for medical use. The cylinder must not exceed 5 kg gross weight. <i>Note: Liquid oxygen systems are forbidden for transport.</i>
YES	YES	YES	YES	NO	<b>Small non-flammable gas cartridges</b> , containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cartridge fitted into a self-inflating safety device such as a life-jacket or vest. Not more than one (1) device per passenger, and up to two (2) spare small cartridges per passenger, not more than four (4) cartridges up to 50 mL water capacity for other devices (see 2.3.4.2).
YES	YES	YES	NO	NO	<b>Alcoholic beverages</b> , when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L.
NO	YES	NO	NO	NO	<b>Aerosols in Division 2.2</b> , with no subsidiary risk, for sporting or home use. and

YES	YES	YES	NO	NO	<b>Non-radioactive medicinal or toilet articles</b> (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol. The <u>total</u> net quantity of all above mentioned articles 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. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.
YES	YES	YES	NO	NO	<b>Energy efficient lamps</b> when in retail packaging intended for personal or home use.
YES	YES	YES	NO	NO	<b>Fuel cells, and spare fuel cartridges</b> powering portable electronic devices (e.g. cameras, cellular phones, laptop computers, and camcorders), see 2.3.5.10 for details.
YES	YES	NO	NO	NO	<b>Hair curlers containing hydrocarbon gas</b> , up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.
YES	YES	NO	NO	NO	<b>Insulated packagings containing refrigerated liquid nitrogen</b> (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.
NO	YES	NO	NO	NO	<b>Internal combustion or fuel cell engines</b> , must meet A70 (see 2.3.5.15 for details).
YES	YES	YES	NO	NO	<b>Medical or clinical thermometer</b> , which contains mercury, one (1) per person for personal use, when in its protective case.
YES	YES	YES	NO	NO	<b>Non-flammable, non-toxic gas cylinders</b> 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.
YES	YES	NO	NO	NO	<b>Non-infectious specimens</b> packed with small quantities of flammable liquid, must meet A180 (see 2.3.5.14 for details).
NO	YES	NO	NO	NO	<b>Permeation devices</b> , must meet A41 (see 2.3.5.16 for details).
YES	YES	YES	NO	NO	<b>Portable electronic devices (including medical devices) containing lithium metal or lithium ion cells or batteries</b> , such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders, etc., when carried by passengers or crew for personal use (see 2.3.5.9). Batteries must not exceed 2 g for lithium metal batteries and 100 Wh for lithium ion batteries.
YES	NO	YES	NO	NO	<b>All spare batteries, including lithium metal or lithium ion cells or batteries</b> , for such portable electronic devices must be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.
YES	YES	NO	NO	NO	<b>Portable electronic devices containing non-spillable batteries</b> , batteries must meet A67 and must be 12 V or less and 100 Wh or less. A maximum of 2 spare batteries may be carried (see 2.3.5.13 for details).
NO	NO	YES	NO	NO	<b>Radioisotopic cardiac pacemakers</b> or other devices, including those powered by lithium batteries, implanted into a person or fitted externally, or radiopharmaceuticals contained within the body of a person as the result of medical treatment.
NO	NO	YES	NO	NO	<b>Safety matches (one small packet) or a small cigarette lighter</b> that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage.
					<b>Note:</b> "Strike anywhere" matches, "Blue flame" or "Cigar" lighters are forbidden.

Note:

n/a means not applicable

- 2.3.4.7 Lithium Battery-Powered Electronic Devices

Lithium battery-powered electronic devices are permitted in checked and carry-on baggage with the approval of the operator as follows:

(a) portable medical electronic devices (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries may be carried by passengers for medical use as follows:

1. for lithium metal or lithium alloy batteries, a lithium content exceeding 2 g, but not exceeding 8 g; or
2. for lithium ion batteries, a watt-hour rating exceeding 100 Wh, but not exceeding 160 Wh;
3. batteries must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3

(b) portable electronic devices (such as cameras, lap-top computers, camcorders) containing lithium ion batteries as follows:

1. lithium ion batteries with a watt-hour rating exceeding 100 Wh, but not exceeding 160 Wh;

2. batteries must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3.

Note:

For spare lithium metal batteries with a lithium content exceeding 2 g and lithium ion batteries with a Watt-hour rating exceeding 100 Wh see 2.3.3.2 . For electronic devices with lithium metal batteries with a lithium content not exceeding 2 g and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh see 2.3.5.9 .

### 2.3.5 Goods Acceptable without the Operator's Approval

Dangerous goods, as listed in 2.3.5.1 through 2.3.5.16, are permitted on aircraft as baggage without the approval of the operator(s).

#### 2.3.5.1 Medicinal or Toiletry Articles

Non-radioactive medicinal or toiletry articles (including aerosols). The term “medicinal or toiletry articles” is intended to include such items as hair sprays, perfumes, colognes and medicines containing alcohols.

#### 2.3.5.2 Aerosols in Division 2.2

Aerosols in Division 2.2, with no subsidiary risk, for sporting or home use, are permitted in checked baggage only.

Note:

The total net quantity of all such articles carried by each passenger or crew member under the provisions of 2.3.5.1 and 2.3.5.2 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. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.

#### 2.3.5.3 Cylinders for Mechanical Limbs

Small cylinders of a gas of Division 2.2 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.

- 2.3.5.4 Cardiac Pacemakers/Radio-pharmaceuticals

Radioisotopic cardiac pacemakers or other medical devices, including those powered by lithium batteries, implanted into a person or fitted externally, or radiopharmaceuticals contained within the body of a person as the result of medical treatment

#### 2.3.5.5 Medical/Clinical Thermometer

One small medical or clinical thermometer which contains mercury, for personal use, when in its protective case.

- 2.3.5.6 Safety Matches or Cigarette Lighter

OPERATOR VARIATIONS: 3K-02 JQ-02 JW-02 PX-06 QF-02

One small packet of safety matches or a small cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Matches and lighters are not permitted in checked or carry on baggage. Lighter fuel and lighter refills are not permitted on one's person nor in checked or carry-on baggage.

Notes:

1. "Strike anywhere" matches are forbidden for air transport.
2. "Blue Flame" or "Cigar" lighters are not permitted on one's person, carry-on or checked baggage.
3. Cigarette lighters should have two independent actions by the user to activate ignition.

#### 2.3.5.7 Alcoholic Beverages

STATE VARIATIONS: SAG-01

Alcoholic beverages, when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L for such beverages.

Note:

Alcoholic beverages containing 24% or less alcohol by volume are not subject to any restrictions.

#### 2.3.5.8 Hair Curlers

Hair curlers containing hydrocarbon gas, no more than one per passenger or crew member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.

#### 2.3.5.9 Portable Electronic Devices (Including Medical Devices) containing Batteries

Portable electronic devices (including medical devices) (such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders) containing batteries when carried by passengers or crew for personal use, which should be carried in carry-on baggage. Spare batteries must be individually protected to prevent short circuits by placement in the 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, and carried in carry-on baggage only. In addition, lithium batteries are subject to the following conditions:

(a) each installed or spare battery must not exceed:

1. for lithium metal or lithium alloy batteries, a lithium content of not more than 2 g; or
2. for lithium ion batteries, a watt-hour rating of not more than 100 Wh.

(b) batteries and cells must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3;

• 2.3.5.9 - New Provision - Portable Electronic Devices (Including Medical Devices) containing Batteries  
(c) articles containing lithium metal or lithium ion cells or batteries, the primary purpose of which is to provide power to another device, are permitted in carry-on baggage only. These articles must be individually protected to prevent short circuits by placement in the 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.

(d) if devices are carried in checked baggage the passenger/crew member must take measures to prevent unintentional activation.

#### 2.3.5.10 Fuel Cells Contained in Portable Electronic Devices

OPERATOR VARIATIONS: UU-06

2.3.5.10.1 Fuel cells used to power portable electronic devices (for example cameras, cellular phones, laptop computers, and camcorders), and spare fuel cell cartridges, under the following conditions:

(a) fuel cells and fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water-reactive substances or hydrogen in metal hydride;

(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:

1. for liquids, 200 mL;
2. for solids 200 g;
3. for liquefied gases, 120 mL for non metallic fuel cells or fuel cell cartridges or 200 mL for metal fuel cells or fuel cell cartridges;
4. for hydrogen in metal hydride the fuel cell cartridges must have a water capacity of 120 mL or less.

(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) no more than two spare fuel cell cartridges may be carried in checked baggage, carry-on baggage, or on the person;

(f) fuel cells containing fuel are permitted in carry-on baggage only;

(g) 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;

(h) 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

#### 2.3.5.11 Energy Efficient Lamps

Energy efficient lamps when in retail packaging intended for personal or home use.

#### 2.3.5.12 Insulated Packages Containing Refrigerated Liquid Nitrogen (Dry Shipper)

In checked or carry-on baggage, insulated packagings containing refrigerated liquid nitrogen fully absorbed in a porous material (dry shipper). The dry shipper must meet the requirements of Special Provision A152.

#### 2.3.5.13 Portable Electronic Devices Containing Non-Spillable Batteries

OPERATOR VARIATIONS: UU-06

In checked or carry-on baggage, portable electronic devices containing a non-spillable battery meeting the requirements of Special Provision A67. A maximum of two spare non-spillable batteries meeting Special Provision A67 may also be carried. The following requirements apply:

(a) the voltage of each battery must not exceed 12 V and the watt-hour rating must not exceed 100 Wh;

(b) the device must either be protected from inadvertent activation, or the battery must be disconnected and the battery terminals insulated;

(c) each spare battery must be protected from short circuit by insulation of the battery terminals.

#### 2.3.5.14 Non-Infectious Specimens Packed with Small Quantities of Flammable Liquids

OPERATOR VARIATIONS: HQ-03 UU-06

In checked or carry-on baggage non-infectious specimens, such as specimens of mammals, birds, amphibians, reptiles, fish, insects and other invertebrates containing small quantities of flammable liquids provided that the requirements of Special Provision A180 are complied with.

#### 2.3.5.15 Internal Combustion or Fuel Cell Engines

OPERATOR VARIATIONS: 3K-03 AR-14 AU-14 JQ-03 OM-17 QF-03 SB-01 UU-06 VA-01 WN-03

In checked baggage only, internal combustion or fuel cell engines being carried separately or incorporated into a machine or other apparatus. The engine must comply with the requirements of Special Provision A70.

#### 2.3.5.16 Permeation Devices

OPERATOR VARIATIONS: HQ-04

In checked baggage only permeation devices for calibrating air quality monitoring equipment. These devices must comply with the requirements of Special Provision A41.