


**The 2009-2010 Edition of the Technical Instructions**  
**A SUMMARY OF CHANGES**



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**Medical aid**

- Applies both to dedicated air ambulances and temporarily modified aircraft
- to provide, during flight, medical aid to a patient when those dangerous goods:
  - 1) have been placed on board with the approval of the operator; or
  - 2) form part of the permanent equipment of the aircraft when it has been adapted for specialized use (1; 1.1.3.1)

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**Excepted quantities**

- Excepted quantity provisions amended to align with those in the UN Model Regulations
- New Chapter 3; 5
- \* Class or division number(s)
- \* Name of shipper or consignee, if not shown elsewhere on the package (3; 5)



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## Excepted quantity codes

Table 3.3. Excepted quantity codes for Table 3-1

Code	Maximum quantity per inner packaging	Maximum quantity per outer packaging
E0	Not permitted as Excepted Quantity	
E1	30g/30 mL	1kg/1 L
E2	30g/30 mL	500g/500 mL
E3	30g/30 mL	300g/300 mL
E4	1g/1 mL	500g/500 mL
E5	1g/1 mL	300g/300 mL

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Let's look at "Acetone" one more time...



## Training

- Extension of recurrent training validity;
- If recurrent training is completed within the final 3 months of validity of previous training, period of validity extends from the date on which the recurrent training was completed until 24 months from expiry date of that previous training (1; 4.2.3).

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## Training - TABLE 1-4

- Staff "involved in" the handling, storage etc are subject to the training requirements.
- "Limitations" for category 5 and 8 staff (Freight forwarders, operator and ground handling staff) involved in the loading of mail, to be trained in the requirements applicable to air mail.

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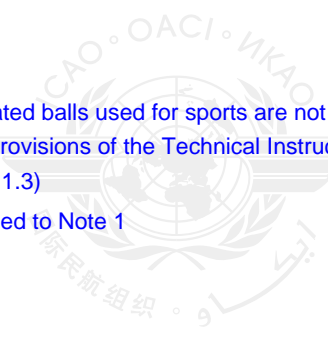
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**Class 2 - Gases**

- Inflated balls used for sports are not subject to the provisions of the Technical Instructions (2; 2.1.3)
- Added to Note 1



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**Environmentally hazardous substances**

- Substances or mixtures dangerous to the aquatic environment not otherwise classified under these Instructions, **but classified by the shipper as dangerous goods (See Special Provision A97)**, must be assigned to Packing Group III and designated UN 3077 or 3082
- Packages must be durably marked:
  - except single packagings
  - combination packagings



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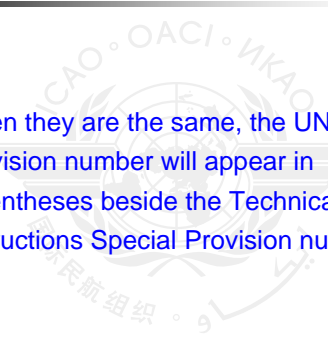
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**Special Provisions**

When they are the same, the UN Special Provision number will appear in parentheses beside the Technical Instructions Special Provision number



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**A112**

- UN3077 and UN3082 now permitted under ID8000 Consumer Commodities



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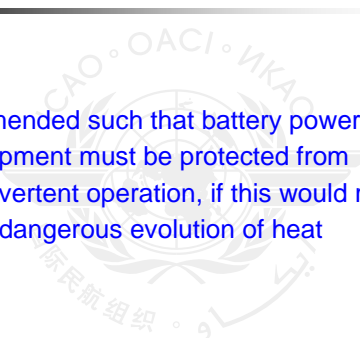
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**A123**

- Amended such that battery powered equipment must be protected from inadvertent operation, if this would result in a dangerous evolution of heat



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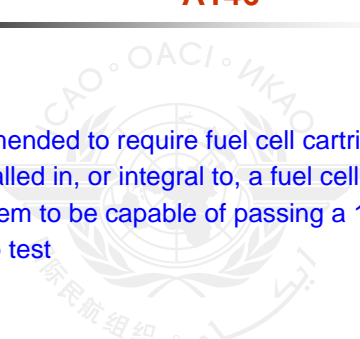
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**A146**

- Amended to require fuel cell cartridges installed in, or integral to, a fuel cell system to be capable of passing a 1.2m-drop test



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**A164**

- Added to all regulated battery and battery-powered equipment entries, requiring protection from short circuit and inadvertent operation

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**Special Provisions – “Not restricted”**

- A32 (air bags),
- A67 (non-spillable batteries),
- A69 (mercury in manufactured articles),
- A70 (internal combustion engines),
- A93 (heat producing articles),
- A98 (aerosols not exceeding 50mL capacity),
- A123 (electric storage batteries),
- A152 (dry ice)

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**“Not restricted” (contd.)**

- Amended to require a statement to confirm compliance with the Special Provision on the accompanying air waybill or other transport document
- The words “not restricted” and the special provision number A32 must be provided on the air waybill when an air waybill is issued

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## PART 4 - PACKING INSTRUCTIONS

- Completely re-formatted, with the new system using a more rational numbering system and many of the anomalies and inconsistencies in the current system have been removed
- New system is applicable from 1 January 2011
- Shipments prepared before 31 December 2010 may be accepted for transport until 31 March in accordance with the previous system

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## PACKING INSTRUCTIONS FUEL CELLS

- Packing Instructions developed for
  - 2.1 (PI 215, 216, 217)
  - 4.3 (PI 495, 496, 497)
  - 8 (PI 873, 874, 875)
- Packing Instructions revised
  - 3 (PI 374, 375, 376) have been revised

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## PACKING INSTRUCTIONS 915/Y915

- Dry ice permitted in chemical kits/first aid kits in limited quantities
- Packing Instructions 915 and Y915 clarified such that the quantity limitations apply only to inner packagings containing dangerous goods

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**PACKING INSTRUCTION**  
**916**

- Amended to allow compressed gas in cylinders to be contained in dangerous goods in machinery or apparatus

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**4;1.1.8**

- Amended to permit those dangerous goods where the quantity limit is a gross mass per package to be packed with other dangerous goods where the quantity limit is a net quantity

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**5; 2.4.1**

Date from which the limited quantity marking (UN number in a diamond) will be mandatory revised from 1 January 2009 to 1 January 2011

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### History of the Cargo aircraft only label

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### New Cargo aircraft only label

- Revised with the word “danger” replaced by “cargo aircraft only”;
- Subject to a transition period until 31 December 2012

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### Electronic Documentation

- 5.4 text amended to provide for the use of electronic documentation;

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**Electronic Documentation**  
**(contd.)**

- 4.1.1.3 Where the dangerous goods transport information is provided by EDP or EDI techniques the data must be able to be produced as a paper document without delay, with the data in the sequence required by this chapter.  
*Note.— All references to “dangerous goods transport document” in this chapter also include provision of the required information by use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques.*

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**Electronic Documentation**  
**(contd.)**

- 4.1.6.2 If the dangerous goods documentation is presented to the operator by means of electronic data processing (EDP) or electronic data interchange (EDI) transmission techniques, the signature(s) may be replaced by the name(s) (in capitals) of the person authorized to sign.

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**Electronic Documentation**  
**(contd.)**

- 4.1.6.2 Where the original consignment details are provided to an operator, by EDP or EDI techniques and subsequently the consignment is transhipped to an operator that requires a paper dangerous goods transport document, the paper document must indicate “Original Received Electronically” and the name of the signatory must be shown in capital letters.

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**Loading on Cargo Aircraft**

- Alternatives provided
  - in such a manner that in the event of an emergency involving such packages or overpacks, a crew member or other authorized person can access those packages or overpacks, and can handle and, where size and mass permit, separate such packages or overpacks from other cargo

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**Loading on Cargo Aircraft (contd.)**

- in a Class C aircraft cargo compartment;
- in a unit load device equipped with a fire detection/suppression system equivalent to that required by the certification requirements of a Class C aircraft cargo compartment as determined by the appropriate national authority; or

(7; 2.4.1)

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**Loading on Cargo Aircraft (contd.)**

- Note added that packages filled at normal atmospheric pressure may not be capable of withstanding the pressure drop in a non-pressurized cargo hold

(7; 2.4.1)

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## Securing of DG

Packages must be secured to prevent any movement, not only that which would change the orientation

The operator must secure dangerous goods in the aircraft in a manner that will prevent any movement ~~in flight which would change the orientation of the packages~~. For packages or overpacks containing radioactive material, the securing must be adequate to ensure that the separation requirements of 2.9.3 are met at all times.

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## General loading requirements

Packages of dangerous goods must be protected so they cannot be damaged by the movement of baggage, mail, stores or other cargo. (7;2.4.3)

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## Loading of magnetized material

- Note warning of the effect ferro-magnetic metals may have on an aircraft compass (already in 2; 9.2.1 d) reproduced in 7; 2.10

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**Dry Ice**

- Operators will now have the option of showing a total quantity of dry ice in each hold, rather than per consignment
- For UN 1845, Carbon dioxide, solid (dry ice), only the UN number, proper shipping name, class, total quantity in each hold on the aircraft and the aerodrome at which the package(s) is to be unloaded need be provided.

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**Visual examples**

An operator or the operator's handling agent and the airport operator must ensure that notices warning passengers of the types of dangerous goods which they are forbidden to transport aboard an aircraft are prominently displayed, ..... These notices must include visual examples of dangerous goods forbidden from transport aboard an aircraft.

*Note.— Existing notices that do not include visual examples of dangerous goods may continue in place until 31 December 2009 after which time the requirements specified above will apply (7; 5.1.2)*

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**8;1.1**

Dangerous goods carried by passengers or crew has been revised and now appears under 4 headings:

- Medical necessities
- Articles used in dressing or grooming
- Consumer articles
- Other

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### Medical necessities

- Gaseous oxygen or air cylinders.... Each cylinder must not exceed 5 kg gross mass. Cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents;

*Note. — Devices containing liquid oxygen are forbidden as or in carry-on baggage, checked baggage or on the person.*

- non-radioactive medicinal articles (including aerosols).



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### Medical necessities

- Radioisotopic cardiac pacemakers;
- wheelchairs or other battery-powered mobility aids with non-spillable batteries

- wheelchairs or other battery-powered mobility aids with spillable batteries



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### Articles used in dressing or grooming

- Toiletry articles (including aerosols). The total net quantity of each single article must not exceed 0.5 kg or 0.5L.



- Hair curlers containing hydrocarbon gas

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### Consumer articles

- When in retail packagings, alcoholic beverages containing more than 24 per cent but not more than 70 per cent
- 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 not more than 24 per cent alcohol by volume are not subject to any restrictions.*




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### Consumer articles (contd.)

- Aerosols in Division 2.2, with no subsidiary risk, permitted in checked baggage only;
- With the approval of the operator(s), as checked baggage only, securely packaged cartridges (UN 0012 or UN 0014 only), in Division 1.4S, in quantities not exceeding 5 kg gross mass per person

- One small packet of safety matches or a cigarette lighter that does not contain unabsorbed liquid fuel (other than liquefied gas)

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### Consumer articles (contd.)

- With approval of the operator(s), battery-powered equipment capable of generating extreme heat;
- With approval of the operator(s), one avalanche rescue backpack per person;



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### Consumer articles (contd.)

■With approval of the operator(s), no more than two small 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;



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### Other

■With the approval of the operator, dry ice in quantities not exceeding 2.5 kg per person, to pack perishables not subject to these Instructions. When carried in checked baggage, each package must be marked:

- “DRY ICE” or “CARBON DIOXIDE, SOLID”;
- and
- with net weight of dry ice or an indication that the net weight is 2.5 kg or less;

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### Other

■with the approval of the operator(s), as carry-on baggage only, a mercurial barometer or mercurial thermometer carried by a representative of a government weather bureau or similar official agency

■with the approval of the operator(s), as carry-on or checked baggage, instruments containing radioactive material not exceeding the activity limits specified in Table 2-12

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### 8;1.1 (Contd.)

- Clarification that additional restrictions may apply for security reasons;
- The size of “small” gaseous oxygen or air cylinders for medical use has been specified as not exceeding 5kg gross;
- Clarification of the maximum quantity of aerosols which may be carried per person;

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### 8;1.1 (Contd.)

Other changes include:

- “Heat producing articles” replaced with reference to battery powered equipment capable of generating extreme heat – batteries must be removed and protected from short circuit;
- Dry ice, wherever carried, is subject to approval by the operator.



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### 8;1.1 (Contd.)

Fuel cells containing hydrogen in metal hydrides now included in the list of fuel cell types permitted for carriage by passengers under certain provisions (maximum water capacity of 120 mL and compliance with Special Provision A162).

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**Lithium batteries**

- Number of changes made to the provisions for lithium batteries, both in cargo and baggage
- A45 deleted – text transferred to appropriate packing instructions

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Cargo

**Lithium ion batteries**

- Three new proper shipping names/UN numbers will appear:
  - **Lithium ion batteries** (including li-ion polymer batteries), UN3480
  - **Lithium ion batteries contained in equipment**, (including li-ion polymer batteries) UN3481
  - **Lithium ion batteries packed with equipment**, (including li-ion polymer batteries), UN3481

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Cargo

**Lithium ion batteries**

- The provisions currently addressed by Special Provision A45 amended as follows:
  - maximum lithium equivalent will be replaced by the watt/hour rating of the battery. Thus, the 1.5 g maximum lithium equivalent per cell replaced by a watt/hour rating of 20Wh and the 8g maximum lithium equivalent per battery replaced by a watt/hour rating of 100Wh;
  - the maximum quantity per package reduced from 30kg gross to 10kg gross;

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Cargo

### Lithium ion batteries

- The provisions currently addressed by Special Provision A45 amended as follows:
  - (iii) all consignments will have to be documented, marked/labelled and capable of withstanding a 1.2m drop test; currently these requirements apply only to consignment of 24 cells or 12 batteries;
  - (iv) information will have to be provided to persons preparing such consignments

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Cargo

### Lithium metal batteries

- The existing proper shipping names for UN3090 and UN 3091 will be replaced with the following:
  - **Lithium metal batteries** (including lithium alloy batteries), UN3090
  - **Lithium metal batteries contained in equipment**, (including lithium alloy batteries), UN3091
  - **Lithium metal batteries packed with equipment**, (including lithium alloy batteries), UN3091

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Cargo

### Lithium metal batteries

The following changes apply to lithium metal batteries fully regulated as cargo:

- (i) the maximum quantity per package on passenger aircraft is reduced from 5kg to 2.5kg;
- (ii) a metal intermediate packaging will be required for packages to be carried on passenger aircraft;

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Cargo

### Lithium metal batteries

- The provisions by Special Provision A45 are amended as follows:
  - (i) the maximum quantity per package is reduced from 30kg to 2.5kg;
  - (ii) all consignments will have to be documented, marked/labelled and capable of withstanding a 1.2m drop test; currently these requirements apply only to consignment of 24 cells or 12 batteries;
  - (iii) information have to be provided to persons preparing such consignments

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Cargo

### Lithium batteries packed with equipment

The quantity per package is reduced from 30kg gross to the minimum needed for the operation of the equipment plus 2 spares

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Cargo

### Lithium batteries packed with equipment

Lithium batteries of any type, previously addressed under Special Provision A45, will be required to bear the following label:

**CAUTION!**

**DO NOT LOAD OR TRANSPORT PACKAGE IF DAMAGED**

For more information, call xxx.xxx.xxxx

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**Baggage**

**Lithium ion batteries (small)**

(i) the 8g maximum lithium equivalent per cell is replaced by a watt/hour rating of 100Wh;

**Lithium ion batteries (large)**

(i) the 25g maximum lithium equivalent per cell is replaced by a watt/hour rating of 160Wh;

(ii) carriage may only be with the approval of the operator.

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**Baggage**

**Lithium batteries of any type**

Equipment containing lithium batteries should be carried in the cabin (spares already must be so carried)

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**Special Provision A154**

■Lithium batteries capable of a dangerous evolution of heat, fire or short circuit due to being damaged or defective are forbidden (e.g. batteries being returned for safety reasons)

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**Supplement**

- Text developed to provide for the carriage of symbolic flames (e.g. Olympic flame)



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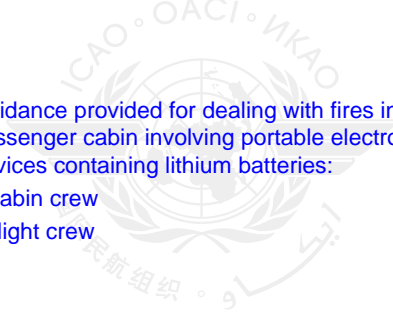
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**Emergency Response**

Guidance provided for dealing with fires in the passenger cabin involving portable electronic devices containing lithium batteries:

- Cabin crew
- Flight crew



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