

The 2011-2012 edition of the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air

The 2011-2012 edition of the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air, upon which United Kingdom legislation is based, comes into effect on 1 January 2011. Below is a summary of the changes, which has been produced to assist industry in the transition from the 2009-2010 edition. Please note this is not an exhaustive list and affected parties will need to review the new edition to ensure all relevant changes are taken into account.

Note: changes affecting operators and shippers may also affect handling agents and freight agents respectively.

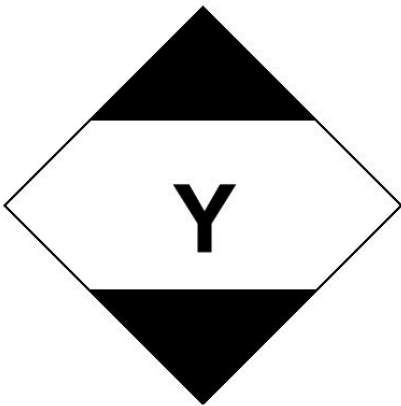
Summary of changes to Technical Instructions with effect from 1 January 2011

Reference	Detail	Party Affected
1;1.1.3.1	Excess Baggage containing dangerous goods permitted in checked baggage may be consigned as cargo if it has been presented by passenger at check in but it exceeds the passenger's baggage allowance.	Operator
1;2.2.1	New operator exception providing for electronic flight bags, personal entertainment devices, credit card readers etc.	Operator
1;3.1	<p>New/amended definitions:</p> <p><u>Baggage</u> - Personal property of passengers or crew carried on an aircraft by agreement with the operator;</p> <p><u>Cargo transport unit</u> - A multimodal freight container or portable tank;</p> <p><u>Closed cargo transport unit</u> - A cargo transport unit which totally encloses the contents by permanent structures with complete and rigid surfaces. Cargo transport units with fabric sides or tops are not considered closed cargo transport units.</p> <p><u>Excess baggage</u> - Baggage which a passenger has presented to check-in as accompanied checked baggage, but which exceeds the passenger's baggage allowance specified by the operator and which is consequently consigned as cargo in order to be sent to the same destination as the passenger.</p> <p><u>Exemption</u> – an authorization granted to permit the transport of dangerous goods which are forbidden in normal circumstances; or to provide an alternative means of compliance with the Technical Instructions.</p> <p><u>Intermediate bulk containers</u> - Any rigid or flexible portable packaging, other than those specified in Part 6;3 of these Instructions, as described in Chapter 6.5 of the UN Model Recommendations, that is designed for mechanical handling and is resistant to the stresses produced in handling and transport, as determined by tests. Note: IBCs are only authorized by these Instructions for UN 3077, Environmentally hazardous substance, solid, n.o.s. as provided for in Packing Instruction 956.</p> <p><u>Metal hydride storage system</u> - A single complete hydrogen storage system, including a receptacle, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transport of hydrogen only.</p>	Operator Shipper


Reference	Detail	Party Affected
1;3.1 (Continued)	<p><u>Net explosive mass</u> - The total mass of the explosive substances, without the packagings, casings, etc. (net explosive quantity (NEQ), net explosive contents (NEC), or net explosive weight (NEW) are often used to convey the same meaning).</p> <p><u>Open cryogenic receptacle</u> - A transportable thermally insulated receptacle for refrigerated liquefied gases maintained at atmospheric pressure by continuous venting of the refrigerated liquefied gas.</p> <p><u>Pressure receptacle</u> - A collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal hydride storage systems and bundles of cylinders;</p> <p><u>Through or into</u> - For the transport of Class 7 material, through or into the countries in which a consignment is transported but specifically excluding countries "over" which a consignment is carried by air, provided that there are no scheduled stops in those countries.</p>	Operator Shipper
1;4.2.2	Clarified that personnel must be trained before performing any duty specified in Table 1-4 or 1-5	Operator Shipper
2; Introductory chapter 3.5	Clarified that although traces of substances may not need to be taken into account for classification purposes, those traces may affect the properties of the substance and do need to be taken into account when considering the compatibility requirements of 4;1.1.3.	Shipper
2;2.2	Gases of division 2.2 are not subject to the Technical Instructions when contained in carbonated beverages, balls intended for use in sports, tyres meeting Special Provision A59 and light bulbs.	Shipper
2;9.2	Optional status as dangerous goods of UN3077 Environmentally hazardous substance, solid, n.o.s and or UN3082 Environmentally hazardous substance, liquid, n.o.s. removed such that they are now subject to the provisions of the Technical Instructions.	Shipper
	Magnetized material now only regulated if compass deflection of more than 2 degrees occurs at a distance of 2.1 m.	Operator Shipper
Table 3-1	<p>New proper shipping names (<i>class/division in parenthesis</i>):</p> <p>Vehicle, fuel cell, flammable liquid powered, UN3166 (9) Engine, fuel cell, flammable liquid powered, UN3166 (9) Vehicle, fuel cell, flammable gas powered, UN3166 (9) Engine, fuel cell, flammable gas powered, UN3166 (9)</p> <p>Alkali metal dispersion, UN3482 (4.3, 3)</p> <p>Alkaline earth metal dispersion, flammable UN3482 (4.3, 3)</p> <p>Motor fuel anti-knock mixture, flammable UN3483 (6.1, 3)</p> <p>Hydrazine aqueous solution, flammable with more than 37% hydrazine, by mass UN3484 (8, 3, 6.1)</p>	Shipper Operator

Reference	Detail	Party Affected
Table 3-1 Continued	<p>New proper shipping names (<i>class/division in parenthesis</i>):</p> <p>Calcium hypochlorite mixture, dry, corrosive with more than 39% available chlorine (8.8% available oxygen) UN3485 (5.1, 8)</p> <p>Calcium hypochlorite mixture, dry, corrosive with more than 10% but not more than 39% available chlorine UN3486 (5.1, 8)</p> <p>Calcium hypochlorite, hydrated, corrosive with not less than 5.5% but not more than 16% water UN3487 (5.1, 8)</p> <p>Calcium hypochlorite, hydrated mixture, corrosive with not less than 5.5% but not more than 16% water UN3487 (5.1, 8)</p> <p>Toxic by inhalation liquid, flammable, corrosive, n.o.s.* with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC₅₀ UN3488 (6.1, 3, 8)</p> <p>Toxic by inhalation liquid, flammable, corrosive, n.o.s.* with an inhalation toxicity lower than or equal to 1 000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC₅₀ UN3489 (6.1, 3, 8)</p> <p>Toxic by inhalation liquid, water-reactive, flammable, n.o.s.* with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC₅₀ UN3490 (6.1, 3, 4.3)</p> <p>Toxic by inhalation liquid, water-reactive, flammable, n.o.s.* with an inhalation toxicity lower than or equal to 1 000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC₅₀ UN3491 (6.1, 3, 4.3)</p> <p>Toxic by inhalation liquid, corrosive, flammable, n.o.s.* with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC₅₀ UN3492 (6.1, 3, 8)</p> <p>Toxic by inhalation liquid, corrosive, flammable, n.o.s.* with an inhalation toxicity lower than or equal to 1 000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC₅₀ UN3493 (6.1, 3, 8)</p> <p>Petroleum sour crude oil, flammable, toxic UN3494 (3, 6.1)</p> <p>Iodine UN3495 (8, 6.1)</p> <p>Many generic, n.o.s. entries now require the addition of the technical name, e.g. UN1378, UN1462, UN1482</p>	Shipper Operator
3;Table 3-2 Special Provisions	<p>A1/A2 Approval required from the State of the operator as well as the State of origin;</p> <p>A2 modified to now only apply to transport on cargo aircraft. UN numbers previously with SP A109 have now been given A2. A109 is now “not used”.</p>	Operator Shipper
	A44 Chemical kits must be assigned the most stringent packing group of any individual substance in the kit;	Shipper

Reference	Detail	Party Affected
3;Table 3-2 Special Provisions (Continued)	A47 Clarified that Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs) are not subject to the Technical Instructions if they comply with Packing Instruction 959 and do not meet the criteria for toxic or infectious substances;	Shipper
	A88 Prototype or low production (annual production less than 100) lithium batteries that have not been tested in accordance with the UN Test and Criteria Manual may be carried on cargo aircraft if approved by the State of Origin, subject to conditions;	Shipper
	A99 Clarification that lithium batteries having a mass exceeding 35 kg may be transported if approved by the State of origin, including when packed with or contained in equipment;	Shipper
	A130 Clarification of classification requirements for dangerous goods meeting the criteria of excepted radioactive material and other classes of dangerous goods;	Shipper
	A144 Carriage of Protective breathing equipment containing a small chemical oxygen generator, packed in accordance with Packing Instruction 565 no longer subject to Special Provision A1 State of Origin approval;	Shipper Operator
	A152 Clarified that overpacks or outer packagings containing Insulated packagings containing refrigerated liquid nitrogen (“dry shippers”) must be closed in such a way that will not allow a build up of pressure;	Shipper
	A175 Provision for oxygen cylinders for emergency use, with a small explosive actuating cartridge installed, to retain classification as a division 2.2 gas;	Shipper
	A177 Petroleum crude oil containing hydrogen sulphide in sufficient concentration that vapours evolved from the crude oil can present an inhalation hazard must be consigned under the new entry of UN3494 Petroleum sour crude oil, flammable, toxic;	Shipper
	A178 Some types of security type attaché cases fitted with lithium batteries, gas cartridges and/or pyrotechnic material are not subject to the Technical Instructions if the various conditions of Special provision A178 are met;	Operator Shipper
	A179 Intermediate bulk containers (IBCs) not exceeding 1000 kg maximum net quantity are permitted for UN3077 Environmentally hazardous substance, solid in accordance with Packing Instruction 956;	Shipper
	A180 Non-infectious specimens of mammals, birds, amphibians, reptiles, fish etc. packed in alcohol (not exceeding 30 mL per inner, 1 L per outer) not subject to the Technical Instructions subject to the conditions specified in Special provision A180;	Shipper
	A181 Clarified that if a package contains lithium batteries both in and with equipment, the package must be marked as “with” equipment;	Shipper
A182 Equipment containing only lithium batteries must be classified as either UN3091 or UN3481 as appropriate i.e. UN3171 Battery powered equipment must not be used;	Shipper	

Reference	Detail	Party Affected
3;Table 3-2 Special Provisions (Continued)	A183 Waste batteries (all types) being shipped for recycling or disposal may only be transported by air if approved by the States of origin and the operator;	Shipper
3;4 limited quantities	LTD QTY and/ or limited quantity marking will be replaced with Y in a diamond to facilitate multi modal transport. Marking must be 100 mm x 100 mm or 50 mm X 50 mm if package size won't accommodate larger marking. 	Shipper Operator
3;5.1 excepted quantities	Provisions for excepted quantities expanded to clarify that they are subject to the prohibition in air mail, definitions, loading restrictions and the reporting of dangerous goods accidents and incidents. Excepted quantity provisions removed for ID8000 Consumer commodities	Shipper Operator
4;1.1.3 General packing requirements	Parts of packagings in direct contact with dangerous goods must not allow permeation of the dangerous goods that could constitute a danger under normal conditions of transport. Also, any absorbent material or materials of intermediate packagings must not react dangerously with the dangerous goods.	Shipper
4;1.1.4 & 1.1.10 General packing requirements	Requirement for absorbent material replaced with a requirement for closures of inner packagings containing liquids to be held securely by secondary means, such as adhesive tape or friction sleeves. When it is not possible to apply a secondary means of closure a leakproof liner must be used.	Shipper
4;1.1.13 General packing requirements	Hermetically sealed inner packagings not exceeding 500 mL do not have to be packed such that they are upright and in accordance with orientation arrows.	Shipper
Packing Instructions	All of the reformatted packing instructions for Classes 3, 4, 5, 8, 9 and Division 6.1 have been adopted. In addition there are the following changes and additions:	Shipper
Packing Instruction 202	New provisions for open cryogenic receptacles.	Shipper Operator
Packing Instruction 214	Expanded provisions for metal hydride storage systems.	Shipper

Reference	Detail	Party Affected
Packing Instruction Y215	New provisions for fuel cell cartridges containing a) liquefied flammable gas (UN3478) and b) hydrogen in metal hydride (UN3479) in limited quantities.	Shipper
Packing Instruction Y374	New provisions for fuel cell cartridges containing flammable liquid (UN3473) in limited quantities.	Shipper
Packing Instruction 377	New Packing Instruction for flammable Chlorosilanes (UN1162, UN1196, UN1250, UN1298, UN1305, UN2985).	Shipper
Packing Instruction Y495	New provisions for fuel cell cartridges containing water-reactive substances (UN3476) in limited quantities.	Shipper
Packing Instruction 620 (formerly 602)	New provisions for up to 30 mL of dangerous goods of classes 3, 8 or 9 to be packed in the same packaging as infectious substances (UN2814 or UN2900) if they are to maintain the viability, stabilizing or preventing degradation or neutralizing the hazards of the infectious substances.	Shipper
Packing Instruction 681	New Packing Instruction for toxic Chlorosilanes (UN3361, UN3362).	Shipper
Packing Instruction Y873	New provisions for fuel cell cartridges containing corrosive substances (UN3477) in limited quantities.	Shipper
Packing Instruction 876	New Packing Instruction for corrosive Chlorosilanes (UN1724, UN1728, UN1747, UN1753, UN1762, UN1763, UN1766, UN1767, UN1769, UN1771, UN1781, UN1784, UN1799, UN1800, UN1801, UN1804, UN1816, UN1818, UN2434, UN2435, UN2437, UN2986, UN2987).	Shipper
Packing Instruction 953 (formerly 902)	<p>Requirements for magnetized material revised such that material causing a compass deflection of more than 2 degrees at a distance of 2.1 m but not more than 2 degrees at a distance of 4.6 m are only subject to the following requirements:</p> <ul style="list-style-type: none"> a) The shipper must make prior arrangements with the operator. A Dangerous Goods Transport Document (Shipper's Declaration) is not required providing alternative written or electronic documentation includes the words "magnetized material". b) The package must bear the magnetized material handling label; c) Packaged magnetized material must be stowed in accordance with Part 7;2.10; d) The incident reporting requirements of Part 7;4.4. <p>Magnetized material causing a compass deflection of more than 2 degrees at a distance of 4.6 m may only be transported with the prior approval of the appropriate authority of the State of Origin and the State of the Operator.</p>	Shipper Operator

Reference	Detail	Party Affected
Packing Instruction 954 (formerly 904)	Clarification that Unit Load Devices containing dry ice, prepared by a single shipper, do not need to be marked or labelled as such.	Shipper Operator
Packing Instruction 956 (formerly 911)	Provision made for UN3077, Environmentally hazardous substances, solid to be packed in Intermediate bulk containers.	Shipper Operator
Packing Instruction 959 (formerly 913)	Provisions for Genetically modified organisms (UN3245) revised; inner packaging limits removed, not subject to most other requirements (labelling, transport document), new marking of at least 50 mm x 50 mm: 	Shipper
Packing Instruction 963 (formerly 910)	3 m stack test introduced for consumer commodities. Packages must bear the new limited quantity marking (see above, against 3;4).	Shipper
Packing Instruction 965, 966, 967, 968, 969, 970	Additional clarification and restructuring of lithium battery Packing instructions.	Shipper
Part 5;1.1	When an overpack is used, packages contained within must be secured.	Shipper
Part 5;1.2.1	Addition of a requirement for the competent authority of the country of origin to be notified of shipments of type C and type B(U) packages containing high activity radioactive material, type B(M) packages and any under special arrangement.	Shipper Operator
New Part 5;1.2.4	Shipper requirements for excepted packages of radioactive material grouped together.	Shipper
Part 5;2.4.2	Recommended that the shipper and consignee details should be on the same surface of the package near the proper shipping name marking, if the package dimensions are adequate.	Shipper
Part 5;2.4.3	Deletion of the requirement for each package of explosive to be marked with the net quantity of explosive and the gross mass.	Shipper

Reference	Detail	Party Affected
Part 5;2.4.9	Amended such that packages of UN3077 and UN3082 Environmentally hazardous substances solid and liquid, where single or inner packagings exceed 5 L or 5 kg, must bear the environmentally hazardous substances mark in addition to the Class 9 label.	Shipper
Part 5;3.5.2.2	Provision for smaller lithium battery handling labels where packaging size dictates;	Shipper Operator
Part 5;4.4	New requirement for the shipper to retain a copy of the Dangerous Goods Transport Document for a minimum of 3 months.	Shipper
Part 6;2.4	Packaging marking requirements for Intermediate bulk containers.	Shipper
New Part 6;5.2.9	Marking requirements for UN metal hydride storage systems.	Shipper
Part 7;2.2.5	Revision of separation requirements for explosives.	Operator
Part 7;2.4.1.1	ULDs meeting the Class C aircraft cargo compartment standards must include "Class C compartment" on the ULD tag.	Operator
Part 7;2.10	Revision of the loading requirements for magnetized material.	Operator
Part 7;4.7	Warning notices at cargo acceptance points must contain visual examples, including batteries.	Operator
Part 7;5.1.1	Purchasers of tickets online should not be able to complete the purchase process until they have indicated that they have understood the restrictions on dangerous goods in baggage. This will become mandatory from 1 January 2013.	Operator
Part 7;5.1.3	New recommendation that operators should provide information about dangerous goods which passengers are <u>permitted</u> to carry; either via their websites or in some other way.	Operator
Part 7;5.1.4	When passengers are able to check in remotely (e.g. via the internet), they should not be able to complete the check-in process until they have indicated that they have understood the restrictions on dangerous goods in baggage. This will become mandatory from 1 January 2013.	Operator
Part 7;5.1.5	When passengers are able to check in at an airport without the involvement of any other person (e.g. automated check-in facility), they should not be able to complete the check-in process until they have indicated that they have understood the restrictions on dangerous goods in baggage. This will become mandatory from 1 January 2013.	Operator
Part 7;6.1	Information about indications of forbidden dangerous goods in cargo and baggage; and dangerous goods permitted in baggage now required to be provided to cargo reservations and sales staff and passenger reservations and sales staff.	Operator
Part 8;1.1.1	Electro shock weapons (e.g. Tasers) forbidden in carry-on or checked baggage or on the person.	Operator

Reference	Detail	Party Affected
Part 8;1.1.2	Dangerous goods permitted for carriage by passengers or crew may be contained in excess baggage.	Operator
	Pilot in command must be informed of the number of oxygen or air cylinders carried by passenger for medical use, and their loading location.	Operator
	Provisions for fuel cells amended such that spares containing flammable liquids, flammable gases, corrosive substances, hydrogen in a metal hydride may be in either checked or carry-on baggage. Spare fuel cell cartridges containing water reactive substances must be carried either on the person or in carry-on baggage.	Operator
	Energy efficient light bulbs when in retail packaging permitted in checked or carry-on baggage.	Operator
	Provision made for security type attaché cases, cash boxes etc. to be carried as checked baggage only, subject to any pyrotechnic being excluded from Class 1, any lithium batteries not exceeding the Section II limits of the various lithium battery packing instructions and any gas receptacles fitted (e.g. to expel dye or ink) not exceeding 50 mL capacity.	Operator
	<p>Mobility aids</p> <ul style="list-style-type: none"> • Clarified that “mobility aid” is for use by passenger whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg); • Must be carried such that unintentional activation, and damage by the movement of baggage, cargo etc. are prevented; • Provision made for mobility aids powered by lithium batteries. 	Operator
	Provision made for lithium battery portable medical electronic devices e.g. Automated External Defibrillators (AEDs).	Operator
Supplement Part S-7	<p>Guidance to States on Enforcement produced including:</p> <ol style="list-style-type: none"> 1. Experience has shown that rejection of dangerous goods for minor reasons increases the likelihood of undeclared dangerous goods. Consequently States should not penalise Operators and handling agents for accepting dangerous goods with minor discrepancies; 2. The primary aim of incident reporting systems should be to further flight safety and not to punish. Consequently, States should ensure the free and uninhibited reporting of undeclared dangerous goods, incidents, accidents etc. 	States
Supplement Part S-1	Guidance to States on the granting of exemptions, including advice on what constitutes “extreme urgency”, “when other forms of transport are inappropriate” and “when full compliance with the Technical Instructions is contrary to the public interest”.	States
Emergency Response Guide	Drill code for UN3291 and UN3373 changed from 6L to 11L.	Operator