FLIGHT STANDARDS DIVISION
FLIGHT OPERATIONS SECTION (A2/B)

INFORMATION BULLETIN
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"Operations Manual Entry for an EASA Fixed-Wing Operator or Helicopter Operator **Approved** to Carry Dangerous Goods as Cargo"

INITIAL ISSUE (FEBRUARY 2024)
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Checked by	Head of Flight Operations Section	/02/2024
Approved by	Director, Flight Standards division	/02/2024

0.1 PREAMBLE - SCOPE

This Information Bulletin provides to all Greek Operators, which **HAVE** the HCAA Approval to carry Dangerous Goods according to EU Regulations, all the necessary information which should be included in their Operations Manual (Part A/D). This material is not binding, so an Operator may choose not to use it, but if it included in the operator's documentation, an adequate level of compliance with regulations should be achieved.

The operator may include the following text as it is by replacing only the (highlighted) "Editorial Notes" with the operator's own text before submission to the HCAA. Editorial Notes indicate where the operator need to add text to describe its specific operation.

The paragraph numbering is this of a standard Operations Manual but can be changed according to an Operator's own OM numbering and needs.

Note: This information Bulletin replaces all previous Bulletins with the same subject.

0.2 MANUAL AMENDMENTS/REVISIONS

0.2.1 Amendement CONTROL

This Information Bulletin shall be reviewed at regular intervals by the Head of the Flight Operations Section and amended accordingly.

Reasons for amendment (not exclusive or not binding) are the following:

- Change of requirements or legislation,
- Amendment or addition of procedures,
- Change of HCAA policy.

This Information Bulletin's initial issue has been approved by the Director of Flight Standards. The approval reference is recorded.

Subsequent amendments shall be approved by the Director of Flight Standards, and approval reference shall also be recorded in the amendment record.

The Head of the Flight Operations Section is responsible for the amendment of this manual and submitting the updated document to the Director of Flight Standards for approval.

Every update of the manual is pointed out by a vertical line on the right margin of the changed/new text.

0.2.2 Record Of Amendments/Revisions

Issue No	Rev. No	Rev. Date	Approval Reference	Effective date	Reason for Revision
00	00	/02/2024	HCAA/		INITIAL ISSUE
	01				

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CHAPTER 1

Information to be Included in Section 9 of the Operator's Operations Manual part A

SECTION 9 DANGEROUS GOODS AND WEAPONS

9.1 Policy on the Transport of Dangerous Goods

9.1.1 Approval for the Transport of Dangerous Goods (CAT.GEN.MPA.200, SPA.DG.105)

Dangerous goods can only be carried according to the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (Technical Instructions), irrespective of whether the flight is wholly or partly within or wholly outside the territory of a State. An approval must be granted by the State of the Operator before dangerous goods can be carried on an aircraft, except as identified in 9.1.3 and 9.1.5 below. An additional approval or an exemption may be required to permit the transport of some dangerous goods – see 9.1.2 below.

Furthermore, due to the differences in the type of operations carried out by helicopters compared with aeroplanes, there may be circumstances when the full provisions of the Technical Instructions are not appropriate or necessary, due to the operations involving unmanned sites, remote locations, mountainous areas, or construction sites, etc. In such circumstances and when appropriate, the State of the Operator may grant an approval to permit the carriage of dangerous goods without all of the normal requirements of the Technical Instructions being fulfilled. When States other than the State of the Operator have notified ICAO that they require prior approval of such

operations, approval must also be obtained from the States of Origin and destination, as appropriate.

Editorial Note 1: *Insert Text* ***[Operator Name] holds a dangerous goods approval issued by the HCAA for the transport of dangerous goods by air in accordance with SPA.DG.100.***

Editorial Note 2*: Should the Operator's policy prohibit the carriage of certain dangerous goods (e.g. radioactive material) these restrictions should be stated. When more restrictive requirements than those specified in the Technical Instructions are adopted, the operator should notify ICAO at* ***CSS@icao.int*** *to enable Operator Variations to be published in the Technical Instructions.*

Editorial Note 3: *The following Nominated Person is responsible for ensuring that the operator remains in compliance with the applicable dangerous goods requirements in accordance with ORO.GEN.210(b) and ORO.AOC.135:*

[Job Title/Name and contact details]

Editorial Note 4*: The following person is responsible for the supervision and maintenance of the dangerous goods approval: (If not the same as above)*

[Job Title/Name and contact details]

Editorial Note 5*: As queries regarding the transport of dangerous goods are likely to be escalated to the person(s) listed above, the operator should decide to ensure continuity of supervision in their absence in accordance with AMC1 ORO.AOC.135(a).*

Editorial Note 6*: operators must include the transport of dangerous goods, including lithium batteries and cells as cargo, in the scope of their;*
a) Safety management system (SMS) in accordance with Annex 19 and ORO.GEN.200; and
b) Specific safety risk assessment on the transport of items in the cargo compartment in accordance with Annex 6 – Operation of Aircraft, Part 1 – International Commercial Air Transport – Aeroplanes.

9.1.2 Forbidden Dangerous Goods (CAT.GEN.MPA.200 (c), GM1 CAT.GEN.MPA.200)

Certain dangerous goods, which are normally forbidden, may be specifically approved for air transport by the State of Origin and the State of the Operator:
a) to transport dangerous goods forbidden on passenger and/or cargo aircraft where Special Provision A1/A2 applies; or
b) for other purposes as specified in the ICAO Technical Instructions;
provided that in such instances an overall level of safety in transport which is at least equivalent to the level of safety provided for in the Technical Instructions is achieved.

In instances of extreme urgency or when other forms of transport are inappropriate or full compliance with the prescribed requirements is contrary to public interest, the States concerned may grant an exemption from the provisions of the Technical Instructions provided that in such instances an overall level of safety in transport which is at least equivalent to the level of safety provided for in the Technical Instructions is achieved. For the purposes of exemptions, “States concerned” are the States of Origin, Operator, transit, overflight, and destination. For the State of overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

Additionally, since controls exist for the quantities of some explosives which may be carried to or from specific airfields in the Greece, operators must seek advice from the HCAA as to the suitability of the intended airfield of loading and unloading when Class 1 dangerous goods are being carried under an A2 approval.

Note: Application for approvals should be submitted to **a2b@hcaa.gov.gr** at well in advance prior to the proposed flight date.

Dangerous goods carried in accordance with an exemption or approval must comply with the conditions on the exemption or approval, as well as those on

the permanent approval unless these have been varied by the exemption or further approval.

Editorial Note 1: *The operator's procedure for ensuring relevant personnel is made aware of the details of short-term approvals and exemptions regarding the dangerous goods (e.g. through the issue of crew notices) should be described. It is recommended that when dangerous goods are carried under a specific exemption or approval, a copy of that document be carried on board the aircraft.*

Editorial Note 2: *Operators holding specific non-expiring approvals or exemptions related to the carriage of dangerous goods should provide details of these and the conditions of carriage specified therein.*

9.1.3 General Exceptions

9.1.3.1 Airworthiness and Operational Items (CAT.GEN.MPA.200 (b)(1))

An approval is not required for dangerous goods which are required to be aboard the aircraft as:

a) items for airworthiness or operating reasons or for the health of passengers or crew, such as batteries, fire extinguishers, first-aid kits, insecticides, air fresheners, life rafts, escape slides, life-saving appliances, portable oxygen supplies, tritium signs, smoke hoods, passenger service units;

b) aerosols, alcoholic beverages, perfumes, colognes, liquefied gas lighters and portable electronic devices containing lithium metal or lithium ion cells or batteries (provided that the batteries meet the provisions applicable when carried by passengers and crew) carried aboard an aircraft by the operator for use or sale on the aircraft during the flight or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure;

c) dry ice intended for use in food and beverage service aboard the aircraft;

d) alcohol-based hand sanitisers and alcohol-based cleaning products carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights for the purposes of passenger and crew hygiene; and

e) electronic devices such as electronic flight bags, personal entertainment devices, credit card readers, containing lithium metal or lithium ion cells or batteries and spare lithium batteries for such devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights, provided that the batteries meet the provisions applicable to the carriage of portable electronic devices containing lithium or lithium ion cells or batteries by passengers (see the entry for 'Batteries' in the table produced at 9.1.5). Spare lithium batteries must be individually protected to prevent short circuits when not in use.

Editorial Note 1: *Conditions for the carriage and use of these electronic devices and for the carriage of spare batteries must be provided in the operations manual and/or other appropriate manuals as will enable flight crew, cabin crew and other employees to carry out the functions for which they are responsible. Operators should either explain these conditions or specify that spares may not be carried.*

Editorial Note 2: *Operators should collect and retain evidence that any lithium cell/battery carried in accordance with 9.1.3.1 b or e is of a type which meets the requirements of each test in the United Nations UN Manual of Tests and Criteria, Part III, subsection 38.3.*

Note: Unless otherwise authorised by the State of the Operator, articles and substances intended as replacements for those referred to in 9.1.3.1 a) or articles and substances referred to in 9.1.3.1 a) which have been removed for replacement, must be transported in accordance with the provisions of the Technical Instructions, except that when consigned by operators, they may be carried in containers specially designed for their transport, provided such containers are capable of meeting at least the requirements for the packaging specified in the Technical Instructions for the items packed in the containers.

Unless otherwise authorised by the State of Operator, articles and substances intended as replacements for those referred to in 9.1.3.1 b), c) and d) must be transported in accordance with the provisions of the Technical Instructions.

Unless otherwise authorised by the State of the Operator, battery-powered devices with installed batteries and spare batteries intended as replacements for those referred to in 9.1.3.1 e) must be transported in accordance with the provisions of the Technical Instructions.

9.1.3.2 Veterinary Aid (CAT.GEN.MPA.200 (b)(1))

An approval is not required for dangerous goods which are carried for use in flight as veterinary aid or as a humane killer for an animal. Such dangerous goods must be stowed and secured during take-off and landing and at all other times when deemed necessary by the pilot-in-command. The dangerous goods must be under the control of trained personnel during the time when they are in use on the aircraft.

Dangerous goods may be carried on a flight made by the same aircraft before or after a flight for which they are required as veterinary aid or as a humane killer for an animal, (e.g. training flights and positioning flights prior to or after maintenance), when it is impracticable to load or unload the dangerous goods immediately before or after the flight, subject to the following conditions:

a) the dangerous goods must be capable of withstanding the normal conditions of air transport;
b) the dangerous goods must be appropriately identified (e.g. by marking or labelling);
c) the dangerous goods may only be carried with the approval of the operator;
d) the dangerous goods must be inspected for damage or leakage prior to loading;
e) loading must be supervised by the operator;
f) the dangerous goods must be stowed and secured in the aircraft in a manner that will prevent any movement in flight which would change their orientation;

g) the pilot-in-command must be notified of the dangerous goods loaded on board the aircraft and their loading location. In the event of a crew change, this information must be passed to the next crew;

h) all personnel must be trained commensurate with their responsibilities; and

i) the provisions of 11.10.4 (Dangerous Goods Accident and Incident Reports) apply.

9.1.3.3 **Medical Aid for a Patient (CAT.GEN.MPA.200 (b)(1))**

An approval is not required for dangerous goods where the dangerous goods are;
to provide, during flight, medical aid to a patient or to preserve tissues or organs intended for use in transplantation when those dangerous goods:

a) have been placed on board an aircraft with the approval of the operator; or

b) form part of the permanent equipment of the aircraft when it has been adapted for specialised use;

providing that:

i. the gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;

ii. the drugs and medicines and other medical matter are under the control of trained personnel during the time when they are in use;

iii. the equipment containing wet cell batteries is kept, and when necessary secured, in an upright position to prevent spillage of the electrolyte;

iv. proper provision is made to stow and secure all the equipment during take-off and landing and at all other times when deemed necessary by the commander in the interests of safety; and

v. lithium metal or lithium-ion cells or batteries meet the provisions of 2;9.3 and spare lithium batteries are individually protected to prevent short circuits when not in use.

These dangerous goods may also be carried on a flight made by the same aircraft to collect a patient or after that patient has been delivered (e.g. training flights and positioning flights prior to or after maintenance), when it is

impracticable to load or unload the goods at the time of the flight on which the patient is carried.

***Note**:* The dangerous goods carried may differ from those identified above due to the needs of the patient. These provisions apply both to dedicated air ambulances and to temporarily modified aircraft.

9.1.3.4 **Other Exceptions**

An approval is not required for dangerous goods carried by an aircraft where the dangerous goods are:

a) for dropping in connection with agricultural, horticultural, forestry, ice jam control, landslide clearance, pollution control
b) activities or pest management activities;
c) for dropping or triggering in connection with avalanche control activities;
d) to provide, during flight, or related to the flight, aid in connection with search and rescue operations;
e) vehicles carried in aircraft designed or modified for vehicle ferry operations and all the following requirements are met:

1) authorization has been given by the appropriate authorities of the States concerned, and such authorities have prescribed specific terms and conditions for the operator's operation;
2) vehicles are secured in an upright position;
3) fuel tanks are so filled as to prevent spillage of fuel during loading, unloading and transit; and
4) adequate ventilation rates are maintained in the aircraft compartment in which the vehicle is carried;

f) required for the propulsion of the means of transport or the operation of its specialized equipment during transport (e.g. refrigeration units) or that are required in accordance with the operating regulations (e.g. fire extinguishers).

9.1.3.5 **Excess baggage being sent as cargo.**

An approval is not required for dangerous goods contained within items of excess baggage being sent as cargo provided that:

i) the excess baggage has been consigned as cargo by or on behalf of a passenger;
ii) the dangerous goods may only be those that are permitted by and in accordance with 9.1.5 to be carried in checked baggage; and
iii) the excess baggage is marked with the words “Excess baggage consigned as cargo”.

With the aim of preventing dangerous goods, which a passenger is not permitted to have, from being taken aboard an aircraft in excess baggage consigned as cargo, any organization or enterprise accepting excess baggage consigned as cargo should seek confirmation from the passenger, or a person acting on behalf of the passenger, that the excess baggage does not contain dangerous goods that are not permitted and seek further confirmation about the contents of any item where there are suspicions that it may contain dangerous goods that are not permitted.

9.1.4 Instructions on the Carriage of Employees of the Operator (AMC2 CAT.OP.MPA.160)

There is no restriction of the carriage of employees on an aircraft carrying dangerous goods which are permitted on a passenger aircraft, providing the requirements of the Technical Instructions are complied with. When an aircraft is carrying dangerous goods which can only be carried on a cargo aircraft, employees of the operator can also be carried provided they are in an official capacity. It is intended this be interpreted as meaning they have duties concerned with the preparation or undertaking of a flight or on the ground once the aircraft has landed, although not necessarily in connection with an aircraft. See also 9.3.4.

9.1.5 Items That May Be Carried by Passengers and Crew (CAT.GEN.MPA.200 (b)(2))

9.1.5.1 An approval is not required for those dangerous goods which, according to the Technical Instructions, can be carried by passengers or crew members.

Passengers or crew are forbidden to carry dangerous goods either as or in carry-on baggage, checked baggage or on their person unless the dangerous goods are permitted in accordance with the table below and:

a) carried by passengers or crew for personal use only;
b) contained in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage); or
c) contained within items of excess baggage sent as cargo as permitted by 9.1.3.5.

The entry in the table that most appropriately describes the item or article must be selected. For instance, electronic cigarettes must meet the requirements of the entry for "Battery-powered portable electronic smoking devices" not the entry for lithium batteries or non-spillable batteries.

An item or article that contains multiple dangerous goods must meet all applicable entries. For instance, the restrictions and conditions for entries 1) and 14) apply to an avalanche backpack that contains lithium batteries and gas cartridges.

Active devices must meet defined standards for electromagnetic radiation to ensure that the operation of the devices does not interfere with aircraft systems.

Where an entry requires compliance with specific UN tests or Special Provisions, if considered necessary (e.g. to grant the operator's approval for carriage), passengers should be able to confirm that the applicable requirements have been met. For items such as batteries, the passenger should be able to obtain confirmation from the manufacturer or distributor of the item.

Editorial Note 1: *International standards permit the carriage of the dangerous goods listed below by passengers or crew members either as or in carry-on baggage or checked baggage or on their person. Additional restrictions implemented by countries in the interests of aviation security may, however, limit or forbid the carriage of some of these items.*

Editorial Note 2: *Certain items listed are permitted only with the operator's approval. The operator's policy towards the carriage of items listed as requiring operator's approval should be established. This should include details of how passengers are expected to declare their intention to carry an item, how its proper preparation will be confirmed and how details will be passed to ground handlers (as required). If case-by-case consideration is considered appropriate for items requiring operator approval, the person or role within the operation that may grant approval for the carriage of such items and the basis upon which approvals will be granted should be stated.*

Baggage intended to be carried in the cabin that is placed in the cargo compartment must only contain dangerous goods permitted in checked baggage. When baggage intended as carry-on is taken by the operator and placed into the cargo compartment for carriage, the operator must confirm with the passenger that dangerous goods which are only permitted in carry-on baggage (e.g. lithium batteries, including power banks) have been removed.

Editorial Note 3: *Operators that allow cabin baggage to be transferred to the cargo compartment should describe the means of obtaining the confirmations from passengers.*

Note 1: The following dangerous goods may be commonly carried by passengers on other modes of transport, however, they are prohibited either as or in carry-on baggage or checked baggage:

- personal medical oxygen devices that utilize liquid oxygen;
- electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc.;
- "strike anywhere" matches;
- lighter fuel and lighter refills;
- premixing burner lighter without a means of protection against unintentional activation; and
- battery-powered lighters powered by a lithium ion or lithium metal battery (e.g. laser plasma lighters, tesla coil lighters, flux lighters, arc lighters and double arc lighters) without a safety cap or means of protection against unintentional activation.

Note 2: Exceptions found in the Technical Instructions from the restrictions on carriage by passengers and crew (e.g. by application of a Special Provision) are not reproduced in the tables below. The following dangerous goods are not subject to the Technical Instructions:

- Radiopharmaceuticals contained within the body of a person as the result of medical treatment; and
- Energy efficient lamps when in retail packaging and intended for personal or home use.

Note 3: Air Cylinders for purposes such as scuba diving: if empty or at a pressure less than 200 kPa at 20° (2 Bar or 29 PSI) air cylinders are not classified as dangerous goods so are permitted for carriage by passenger or crew.

9.1.5.2 Loading of Battery-Powered Mobility Aids carried under the Provisions of Part 8

9.1.5.2.1 Loading of mobility aids powered by non-spillable wet batteries or batteries which comply with Special Provision A123 or A199

The operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail, or cargo.

The operator must verify that:

a) the passenger has confirmed that the battery(ies) is:
   1) a non-spillable wet battery that complies with Special Provision A67;
   2) a dry battery that complies with Special Provision A123; or
   3) a nickel-metal hydride battery that complies with Special Provision A199.

b) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container);

c) the battery(ies) is either:
   1) securely attached to the mobility aid and the electrical circuits are isolated following the manufacturer's instructions; or

2) removed by the user, if the mobility aid is specifically designed to allow it to be, following the manufacturer's instructions.

d) a maximum of one non-spillable wet spare battery is carried per passenger.

The operator must ensure that any battery(ies) removed from the mobility aid and any spare battery are carried in strong, rigid packaging, protected from short circuit, and stowed in the cargo compartment.

The operator must inform the pilot-in-command of the location of any mobility aids with installed battery(ies), removed battery(ies)and spare battery(ies).

9.1.5.2.2 Loading of mobility aids powered by spillable batteries.

The operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail, or cargo.

The operator must verify that:

a) the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container);
b) the battery(ies) is fitted, where feasible, with spill resistant-vent caps; and
c) the battery(ies) is either:
   a) securely attached to the mobility aid and the electrical circuits are isolated following the manufacturer's instructions; or
   b) removed from the mobility aid following the manufacturer's instructions when required by Part 2.13.2.3 of the Technical Instructions.

The operator must load, stow, secure, and unload a spillable battery-powered mobility aid in an upright position. If the mobility aid cannot be loaded, stowed, secured, and unloaded always in an upright position or if the mobility aid does not adequately protect the battery(ies), the operator must remove the battery(ies)and carry it (them) in strong, rigid packaging, as follows:

a) packaging must be leak-tight, impervious to battery fluid and be protected against being overturned by securing them to pallets or by securing them in cargo compartments using appropriate means of securement;
b) batteries must be protected against short circuits, secured upright in these packaging and surrounded by compatible absorbent material sufficient to absorb its (their) total liquid contents; and
c) these packaging must be marked “Battery, wet, with wheelchair” or “Battery, wet, with mobility aid” and be labelled with a Corrosive” label and with package orientation labels as required by Part 5;3 of the Technical Instructions.

The operator must inform the pilot-in-command of the location of any mobility aids with installed spillable battery(ies)and removed battery(ies).

9.1.5.2.3 Loading of mobility aids powered by lithium-ion batteries.

The operator must secure, by use of straps, tie-downs or other restraint devices, a battery-powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail, or cargo.

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(ies) is either:
   a) securely attached to the mobility aid and the electrical circuits are isolated following the manufacturer's instructions; or
   b) removed by the user, if the mobility aid is specifically designed to allow it to be, following the manufacturer's instructions; and
3. the removed battery does not exceed 300 Wh and that its spare battery does not exceed 300 Wh or its two spare batteries do not exceed 160 Wh each.

The operator must ensure that any battery(ies)removed from the mobility aid and any spare battery(ies)is (are) carried in the cabin and protected from

damage (e.g. by placing each battery in a protective pouch) and the battery terminals protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals).

The operator must inform the pilot-in-command of the location of any mobility aids with installed lithium-ion battery(ies), removed battery(ies)and spare battery(ies).

Note: The calculation used to determine watt hours is:

Volts x Ampere hour (Ah) = Watt hour (Wh)

Provisions for dangerous goods carried by passengers or crew.

	Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
		Checked baggage	*Carry-on baggage*		
Batteries					
1)	Lithium batteries (including portable electronic devices)	Yes (except for g) and h))	Yes	(see c) and d))	a) each 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; b) each battery must not exceed the following: — for lithium metal batteries, a lithium content of 2 grams; or — for lithium-ion batteries, a Watt-hour rating of 100 Wh; c) each battery may exceed 100 Wh but not exceed 160 Wh Watt-hour rating for lithium ion with the approval of the operator; d) each battery may exceed 2 grams but not exceed 8 grams lithium content for lithium metal for portable medical electronic devices with the approval of the operator; e) portable electronic devices containing batteries should be carried as carry-on baggage; however, if carried as checked baggage: – measures must be taken to prevent unintentional activation and to protect the devices from damage; and – the devices must be completely switched off (not in sleep or hibernation mode) if the batteries exceed: – for lithium metal batteries, a lithium content of 0.3 grams; or – for lithium ion batteries, a Watt-hour rating of 2.7 Wh. f) batteries and heating elements must be isolated in portable electronic devices capable of generating extreme heat, which could cause a fire if activated, by removal of the heating element, battery or other components; g) spare batteries, including power banks: — must be carried as carry-on baggage; and — 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); h) baggage equipped with a lithium battery(ies) exceeding: — for lithium metal batteries, a lithium content of 0.3 grams; or — for lithium ion batteries, a Watt-hour rating of 2.7 Wh must be carried as carry-on baggage unless the battery(ies) is removed from the baggage, in which case the battery(ies) must be carried in accordance with g); i) no more than two spare batteries meeting the requirements of c) or d) may be carried per person.

	Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
		Checked baggage	*Carry-on baggage*		
2)	Non-spillable wet, nickel-metal hydride, and dry batteries	Yes	Yes	No	a) for a non-spillable battery: i. must meet the requirements of Special Provision A67; ii. each battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh; iii. each battery must be protected from short circuit by the effective insulation of exposed terminals; iv. no more than two spare batteries per person may be carried; and v. if contained in equipment, the equipment must be either protected from unintentional activation, or each battery must be disconnected, and its exposed terminals insulated. b) for a dry battery or nickel-metal hydride battery, each battery must comply with Special Provision A123 or A199, respectively; and c) batteries and heating elements must be isolated in battery powered equipment capable of generating extreme heat, by removal of the heating element, battery or other components.
3)	Battery-powered portable electronic smoking devices (e.g. e-cigarettes, ecigs, ecigars, epipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	a) if powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g); b) the devices and/or batteries must not be recharged on board the aircraft; and c) measures must be taken to prevent unintentional activation of the heating element while on board the aircraft.

	Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
		Checked baggage	*Carry-on baggage*		
4)	Mobility aids (e.g. wheelchairs) powered by: - spillable batteries; - non- spillable wet batteries; - dry batteries; - nickel-metal hydride batteries; or -lithium ion batteries	Yes	(see e))	Yes	a) 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); b) the passenger should make advance arrangements with each operator and provide information on the type of battery installed and on the handling of the mobility aid (including instructions on how to isolate the battery); c) in the case of a dry battery or nickel-metal hydride battery, each battery must comply with Special Provision A123 or A199, respectively; d) in the case of a non-spillable wet battery: e) each battery must comply with Special Provision A67; and ii) a maximum of one spare battery may be carried per passenger; f) in the case of a lithium-ion battery: g) each 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; ii) when the mobility aid does not provide adequate protection to the battery: — the battery must be removed in accordance with the manufacturer's instructions; — the battery must not exceed 300 Wh; — the battery terminals must be protected from short circuit by insulating the terminals, e.g. by taping over exposed terminals); — the battery must be protected from damage (e.g. by placing each battery in a protective pouch); and — the battery must be carried in the cabin; iii) a maximum of one spare battery not exceeding 300 Wh **or** two spare batteries not exceeding 160 Wh each may be carried. Spare batteries must be carried in the cabin.

	Dangerous Goods	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
Flames and fuel sources					
5)	Cigarette lighter Small packet of safety matches	No	(see b))	No	a) no more than one per person; b) must be carried on the person; c) must not contain unabsorbed liquid fuel (other than liquefied gas); and d) if a cigarette lighter is powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g) and 3) b) and c).
6)	Alcoholic beverages containing more than 24 per cent but not more than 70 per cent alcohol by volume	Yes	Yes	No	a) must be in retail packagings; and b) no more than 5 L total net quantity per person. *Note. — Alcoholic beverages containing not more than 24 per cent alcohol by volume are not subject to any restrictions.*
7)	Internal combustion engines or fuel cell engines	Yes	No	No	Measures must be taken to nullify the hazard. a) for flammable liquid powered engines: i) the engine is powered by a fuel that does not meet the classification criteria for any class or division; or ii) the fuel tank of the vehicle, machine or other apparatus has never contained any fuel, or the fuel tank has been flushed and purged of vapours and adequate measures taken to nullify the hazard; and iii) the entire fuel system of the engine has no free liquid and all fuel lines are sealed or capped or securely connected to the engine and vehicle, machinery, or apparatus. b) for flammable gas-powered internal combustion or fuel cell engines: i) the entire fuel system must have been flushed, purged, and filled with a non-flammable gas or fluid to nullify the hazard; and ii) the final pressure of the non-flammable gas used to fill the system does not exceed 200 kPa at 20°C;
8)	Fuel cells containing fuel	No	Yes	No	a) fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride;
	Spare fuel cell cartridges	Yes	Yes	No	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: — for liquids 200 mL; — for solids 200 grams; — for liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and — for hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less;

	Dangerous Goods	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
					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) fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162; f) no more than two spare fuel cell cartridges may be carried by a passenger; g) fuel cells containing fuel are permitted in carry-on baggage only; h) 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; g) 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 j) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.
Gases in cylinders and cartridges					
9)	Cylinders of oxygen or air required for medical use	Yes	Yes	Yes	a) no more than 5 kg gross mass per cylinder; b) cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents; c) advance arrangements recommended; and d) 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).
10)	Cartridges of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.
11)	Cartridge of hydrocarbon gas contained in hair styling equipment	Yes	Yes	No	a) no more than one per person; b) the safety cover must be securely fitted over the heating element; and c) spare cartridges must not be carried.

	Dangerous Goods	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
12)	Cartridges of Division 2.2 with no subsidiary hazard fitted into a self-inflating personal safety device, intended to be worn by a person, such as a life-jacket or vest	Yes	Yes	Yes	a) no more than two personal safety devices per person; b) the personal safety device must be packed in such a manner that it cannot be accidentally activated; c) must be for inflation purposes; d) no more than two cartridges are fitted into the device; and e) no more than two spare cartridges.
13)	Cartridges of Division 2.2 with no subsidiary hazard for other than a self-inflating personal safety device	Yes	Yes	Yes	a) no more than four cartridges per person; and 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.*
14)	Cartridges and cylinders of Division 2.2 with no subsidiary hazard contained in an avalanche rescue backpack	Yes	Yes	Yes	a) no more than one avalanche rescue backpack per person; b) the backpack must be packed in such a manner that it cannot be accidentally activated; c) may contain a pyrotechnic trigger mechanism which must not contain more than 200 mg net of Division 1.4S; and d) the airbags within the backpack must be fitted with pressure relief valves.
Radioactive material					
15)	Radioisotopic cardiac pacemakers or other medical devices	n/a (see restrictions)	n/a (see restrictions)	No	Must be implanted into a person or fitted externally as the result of medical treatment.
Mercury					
16)	Small medical or clinical thermometer which contains mercury	Yes	No	No	a) no more than one per person; and b) must be in its protective case.
Other dangerous goods					
17)	Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols) and aerosols in Division 2.2 with no subsidiary hazard	Yes	Yes	No	a) no more than 0.5 kg or 0.5 L total net quantity per single article; b) no more than 2 kg or 2 L total net quantity of all articles (e.g. four aerosol cans of 0.5 L each) per person; c) release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents; and d) the release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties.

	Dangerous Goods	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
18)	Dry ice	Yes	Yes	Yes	a) no more than 2.5 kg per person; b) used to pack perishables that are not subject to these Technical Instructions; c) the package must permit the release of carbon dioxide gas; and d) when carried as checked baggage, each package must be marked: e) "DRY ICE" or "CARBON DIOXIDE, SOLID"; and ii) the net weight of dry ice or an indication that the net weight is 2.5 kg or less.
19)	Cartridges in Division 1.4S (UN 0012 or UN 0014 only)	Yes	No	Yes	a) no more than 5 kg gross mass per person; b) must be securely packaged; c) must not include ammunition with explosive or incendiary projectiles; and d) allowances for more than one person must not be combined into one or more packages.
20)	Permeation devices	Yes	No	No	Instructions on how to package permeation devices for calibrating air quality monitoring equipment are found in Special Provision A41.
21)	Non-infectious specimens in flammable solutions	Yes	Yes	No	Instructions on how to package and mark specimens are found in Special Provision A180.
22)	Refrigerated liquid nitrogen	Yes	Yes	No	Must be contained in insulated packagings (e.g. dry shippers) that would not allow the build-up of pressure and be fully absorbed in a porous material so that there is no free liquid that could be released from the packaging. Refer to Special Provision A152 for more information.
23)	Dangerous goods incorporated in security-type equipment, such as attaché cases, cash boxes, cash bags, etc.	Yes	No	Yes	The security-type equipment must be equipped with an effective means of preventing accidental activation and the dangerous goods incorporated in the equipment must meet the conditions of Special Provision A178.

9.1.5.6 The Organization for the Prohibition of Chemical Weapons (OPCW) and government agencies listed in the table below may carry specified instruments containing dangerous goods when:

d) carried by staff members on official travel;

e) contained in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage); or

f) contained within items of excess baggage sent as cargo as permitted by 9.1.3.5.

Provisions for instruments carried by OPCW and government agencies.

	Dangerous goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
		Checked baggage	*Carry-on baggage*		
1)	Instruments containing radioactive material (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M))	Yes	Yes	Yes	a) the instruments must not exceed the activity limits for 'excepted packages; b) must be securely packed; and c) must be carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.
2)	A mercurial barometer or mercurial thermometer	No	Yes	Yes	a) must be carried by a representative of a government weather bureau or similar official agency; b) must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position; and c) the pilot-in-command must be informed of the barometer or thermometer.

9.1.6 Provision of Information to Passengers (CAT.GEN.MPA.200 (f))

Editorial Note: *Operators must inform passengers about dangerous goods that passengers are forbidden to transport aboard an aircraft. The notification system must ensure that where the ticket purchase and/or boarding pass issuance can be completed by a passenger without the involvement of another person, the system must include an acknowledgement by the passenger that they have been presented with the information. The information must be provided to passengers:*

a) at the point of ticket purchase or, if this is not practical, made available in another manner to passengers prior to boarding pass issuance; and

b) at boarding pass issuance, or when no boarding pass is issued, prior to boarding the aircraft.

The information may be provided in text or pictorial form, electronically, or verbally, as described in the operator's manuals.

An operator or the operator's handling agent and the airport operator must ensure that information on the types of dangerous goods which they are forbidden to transport aboard an aircraft is communicated effectively to passengers. This information must be presented at each of the places at an airport where tickets are issued, boarding passes are issued, passenger baggage is dropped off and aircraft boarding areas are maintained, and at any other location where passengers are issued boarding passes and/or checked baggage is accepted. This information must include visual examples of dangerous goods forbidden from transport aboard an aircraft.

An operator, of passenger aircraft, should have information on those dangerous goods which may be carried by passengers made available prior to the boarding pass issuance process on their websites or other sources of information.

Editorial Note: *Operators must describe the means of promulgating information to passengers. The operations manual must include information on how passengers will be notified and acknowledge, when required, of the restriction on the carriage of dangerous goods before, during, and after ticketing/booking, boarding pass issuance and check-in processes.*

9.1.7 Marking and Labelling of Packages

Articles and substances meeting the dangerous goods classification criteria are assigned a 'UN Number' under the United Nations classification system. This consists of a four-digit number preceded by the capital letters 'UN'. Packages of dangerous goods must be marked with the UN Number(s) applicable to their contents.

Packages containing dangerous goods can also be identified by labels indicating the hazard of the goods by their class or division or by the presence of certain handling labels/marks.

Note: When dangerous goods marks or labels are seen on items not declared as dangerous goods, it is often an indication that they do contain such goods. Undeclared dangerous goods must not be loaded on an aircraft and reporting procedures must be implemented (see 11.10.4).

During air transport, including storage, the dangerous goods mark(s) and label(s) must not be covered or obscured by any part of or attachment to the packaging or any other label or mark.

When the operator discovers that any marks or labels for packages of dangerous goods have become lost, detached, or illegible the operator must replace them with appropriate marks or labels in accordance with the information provided on the dangerous goods transport document or other transport document, such as an air waybill, when applicable As required by Part7;2.7 of the Technical Instructions.

CLASS 1 – EXPLOSIVE

Class 1 (with exploding bomb symbol) – explosives generally not permitted on an aircraft.

Class 1 (without exploding bomb symbol):
Divisions 1.4B, 1.4F, 1.5 and 1.6 – explosives not permitted on an aircraft in normal circumstances.

* Division and compatibility group

** Compatibility group

CLASS 2 – GASES

Flammable gas (Division 2.1)

Non-flammable, non-toxic gas (Division 2.2)

Toxic gas (Division 2.3)

CLASS 3 – FLAMMABLE LIQUID

CLASS 4 – FLAMMABLE SOLIDS, SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION; SUBSTANCES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

Flammable solid (Division 4.1)

Substance liable to spontaneous combustion (Division 4.2)

Substance which, in contact with water, emits flammable gas (Division 4.3)

CLASS 5 – OXIDISING SUBSTANCES AND ORGANIC PEROXIDES

Oxidising substance (Division 5.1)

Organic peroxide (Division 5.2) (flame may be black or white)

CLASS 6 – TOXIC AND INFECTIOUS SUBSTANCES

Toxic substance (Division 6.1)

Infectious substance (Division 6.2)

The bottom part of the label should bear the inscription:

"INFECTIOUS SUBSTANCE — In case of damage or leakage immediately notify public health authority"

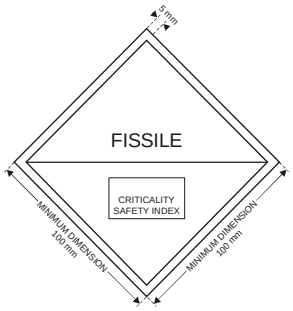
CLASS 7 – RADIOACTIVE MATERIAL

Category I

Category II

Category III

Criticality safety index label



CLASS 8 – CORROSIVE

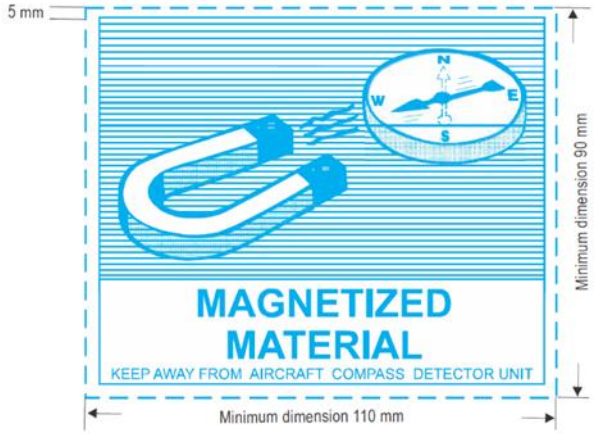
CLASS 9 – MISCELLANEOUS

Class 9 label for Section I, IA and IB lithium battery shipments

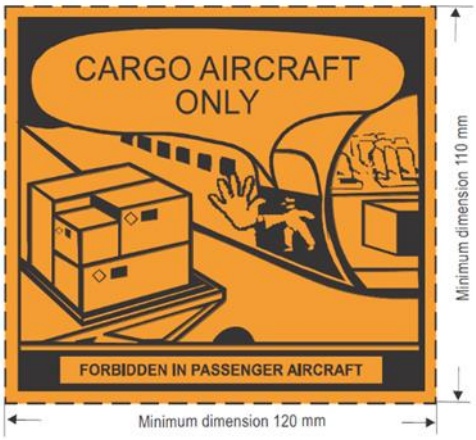
HANDLING LABELS

Packages of dangerous goods may also bear labels providing handling information; these are:

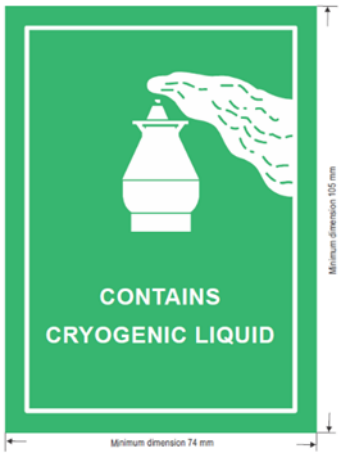
Magnetized material



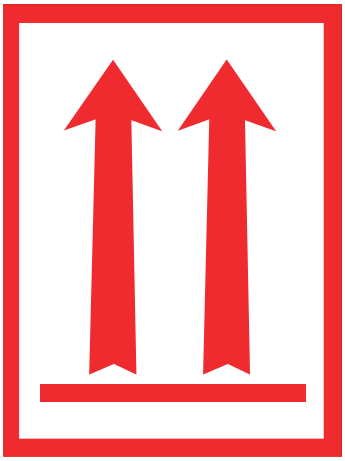
Cargo aircraft only



Cryogenic liquid label

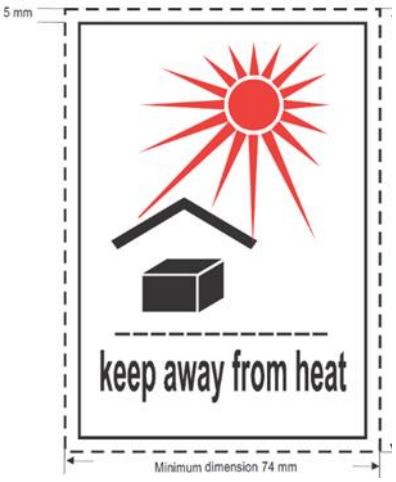


Package orientation



(red or black)

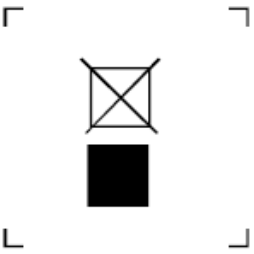
Keep away from heat



Intermediate Bulk Containers (IBCs) *are only permitted for the transport of UN 3077 Environmentally hazardous substance, solid, n.o.s. The maximum permitted stacking load applicable when the IBC is in use must be displayed on a symbol as follows:*

IBCs capable of being stacked

IBCs NOT capable of being stacked



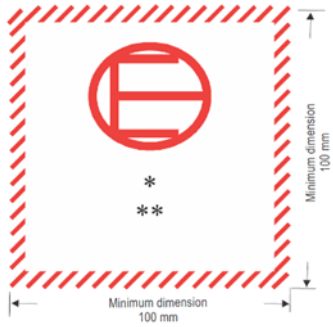
LITHIUM BATTERIES MARK

Application of the lithium battery mark to a consignment of lithium batteries (of any type) indicates that the Shipper has determined specific requirements have been met. Consignments with this mark, without the Class 9 label do not need to be accompanied by a dangerous goods transport document (Shipper's Declaration) and no acceptance check is required.

Note: The mark illustrated in Fig 5-3 of the 2021-2022 Edition of the Technical Instructions may continue to be applied until 31 December 2026.

EXCEPTED QUANTITIES MARK

Packages containing excepted quantities of dangerous goods can be identified from the following:



Hatching and symbol of the same colour, black or red, on white or suitable contrasting background.

* Place for class or, when assigned, the division number(s).

** Place for name of shipper or consignee, if not shown elsewhere on the package.

LIMITED QUANTITIES MARK

Packages containing limited quantities of dangerous goods can be identified from the following:

Many dangerous goods when in reasonably limited quantities present a reduced hazard during transport and can safely be carried in good quality packagings that have not been tested and marked as is required for UN Specification packagings required for larger quantities of dangerous goods. Packages containing limited quantities of dangerous goods must be marked with a diamond shaped mark. When presented for carriage by air, the mark must additionally include a “Y” which indicates compliance with the provisions of the ICAO Technical Instructions, some of which are more stringent than those of the UN Model Regulations and of other modes of transport.

NOTE: The mark depicted here but without the ‘Y’ indicates that the package contains dangerous goods in limited quantities as permitted by surface transport regulations (ADR/IMDG) which may not be acceptable for air transport. A package so marked and offered for transport in the absence of a dangerous goods transport document must be reported to the appropriate authority where the goods are discovered as a discovery of

undeclared dangerous goods (the HCAA if discovered within Greece).

ENVIRONMENTALLY HAZARDOUS SUBSTANCES MARK

Packages containing environmentally hazardous substances (UN Nos. 3077 and 3082) must be durably marked with the environmentally hazardous substance mark except for packages containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids.

9.2 Duties of all Personnel Involved

9.2.1 Detailed Assignments of Responsibilities (CAT.GEN.MPA.200 (d))

Editorial Note 1: *Operators need to assign the key responsibilities associated with the carriage of dangerous goods. For example, it may be intended for acceptance checks of consignments of dangerous goods cargo to be conducted by suitably trained ground staff of the operator or alternatively by a designated handling agent. Duties associated with the carriage of dangerous goods include:*

Nominated Person in accordance with ORO.GEN.210(b) and ORO.AOC.135	• Ensuring that the operator remains in compliance with the applicable dangerous goods requirements. • Ensuring all necessary permissions, approvals and exemptions are held and maintained. • Management and supervision of the carriage of dangerous goods

Person(s) Responsible for the Supervision and Maintenance of the Operator's Dangerous Goods Approval	• Oversight and control of the carriage of dangerous goods. • Generation (or acceptance) of relevant procedures. • Responding to queries regarding the carriage of dangerous goods.
Cargo Department/ Cargo Sales Agents	• Arrangement of the carriage of dangerous goods in accordance with the operator's stated policies. • Recognition of undeclared dangerous goods.
Persons receiving or handling general cargo, mail and stores	• Recognition of undeclared dangerous goods. • Dealing with dangerous goods that are found damaged or leaking during processing for transport. • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected, a report is made to the appropriate Authority (see 11.10.4).
Persons receiving or handling dangerous goods	• Acceptance procedures for dangerous goods are carried out as required by the Technical Instructions. • Inspection procedures during the processing of dangerous goods for transport are carried out as required by the Technical Instructions. • Dealing with dangerous goods that are found damaged or leaking during processing for transport. • Dangerous goods are loaded, segregated, stowed and secured on an aircraft in accordance with the Technical Instructions. • Generation of written information to the commander (NOTOC). • Provision of written information about dangerous goods loaded on board to the commander for signature. • Retention of documentation on the ground. • Recognition of undeclared dangerous goods. • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected, a report is made to the appropriate Authority (see 11.10.4).
Reservations	• Ensuring that information is provided with the passenger ticket or in another manner such that prior to or during the check-in process the passenger receives the information. • Considering passenger requests for approval of the operator for items of dangerous goods requiring such approval.

Persons handling passengers	• Ensuring that the provisions concerning passengers and dangerous goods are complied with. • Ensuring that notices are displayed in sufficient number and prominence at each of the places at an airport where tickets are issued, passengers checked in and aircraft boarding areas maintained, and at any other location where passengers are checked in. • With the aim of preventing dangerous goods which passengers are not permitted to have from being taken on board an aircraft in their baggage, seeking confirmation from a passenger about the contents of any item where there are suspicions that it may contain dangerous goods. • When baggage intended as carry-on is taken by the operator and placed into the cargo compartment for carriage, seeking confirmation from the passenger that dangerous goods which are only permitted in carry-on baggage (e.g. lithium batteries, including power banks) have been removed. • Ensuring that the discovery of prohibited dangerous goods (after a passenger has checked in) is reported to the appropriate Authority (see 11.10.4).
Cabin Crew	• Ensuring that the provisions concerning passengers and dangerous goods are complied with. • When baggage intended as carry-on is taken by the operator and placed into the cargo compartment for carriage, seeking confirmation from the passenger that dangerous goods which are only permitted in carry-on baggage (e.g. lithium batteries, including power banks) have been removed. • Responding to a dangerous goods incident or accident in the cabin. • Ensuring that a dangerous goods incident or accident in the cabin, or the discovery of prohibited dangerous goods (after a passenger has boarded), is reported to the appropriate Authority (see 11.10.4).
Operations Personnel	• If there is an aircraft incident or accident, information is passed to emergency services and state Authorities as required by the Technical Instructions (see 11.10.2). • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected a report is made to the appropriate Authority (see 11.10.4).

Flight Crew	• Recognition of undeclared dangerous goods. • Signature of NOTOC to indicate receipt of information. • If an in-flight emergency occurs, as soon as the situation permits, passage of details of dangerous goods on board to the appropriate Air Traffic Services Unit. • Responding to a dangerous goods incident or accident in the cabin (if operation does not have cabin crew). • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected a report is made to the appropriate Authority (see 11.10.4).
Trainers	• Provision of initial and recurrent dangerous goods training commensurate with the responsibilities of the personnel concerned.
Compliance Monitoring Manager and Auditors	• Ensuring that activities are monitored for compliance with the applicable dangerous goods requirements and that these activities are carried out properly under the supervision of the relevant head of functional area.

Safety Manager	• Ensuring the inclusion of the transport of dangerous goods, including lithium batteries and cells as cargo, in the scope of the:
	  ○ Safety Management System (SMS); and
	  ○ specific safety risk assessment on the transport of items in the cargo compartment.
	• Ensuring the initiation and follow-up of internal occurrence / accident investigations.

Editorial Note 2: *In practice a ground handling agent may carry out some or all the procedures for processing dangerous goods cargo for air transport. A ground handling agent must be provided with sufficient information to enable these procedures to be actioned. Operators should specify whether they utilise suitably qualified personnel of the operator or of a handling agent at the various aerodromes of the operation*.

9.3 Guidance on the Requirements for Acceptance, Handling and Stowage (SPA.DG.105)

9.3.1 Acceptance Check

Before a consignment consisting of a package or overpack containing dangerous goods, a freight container containing radioactive material or a unit

load device containing dangerous goods is first accepted for carriage by air, the operator must, by use of a checklist, verify the following:

a) the documentation or, when provided, the electronic data is compliant with the applicable requirements

b) the quantity of dangerous goods stated on the dangerous goods transport document is within the limits per package on a passenger or cargo aircraft as appropriate;

c) the package, overpack or freight container marks accord with the details stated on the accompanying dangerous goods transport document and is clearly visible;

d) where required, the letter in the packaging specification marking designating the packing group for which the design type has been successfully tested is appropriate for the dangerous goods contained within. This does not apply to overpacks where the specification marking is not visible;

e) proper shipping names, UN numbers, labels, and special handling instructions appearing on the interior package(s) are clearly visible or reproduced on the outside of an overpack;

f) the labelling of the package, overpack or freight container is as required for the consignment;

g) the outer packaging of a combination package or the single packaging is permitted by the applicable packing instruction, and when visible is of the type stated on the accompanying dangerous goods transport document;

h) the package or overpack does not contain different dangerous goods which require segregation from each other; and

i) the package, overpack, freight container or Unit Load Device (ULD) is not leaking and there is no indication that its integrity has been compromised.

The operator must be able to identify the person who performed the acceptance check.

Note 1: *An acceptance check is not required for dangerous goods in excepted quantities, radioactive material in excepted packages and lithium batteries consigned in accordance with Section II of the applicable packing instruction.*

Note 2: *Persons conducting dangerous goods acceptance checks must have received dangerous goods training commensurate with this responsibility.*

9.3.2 **Inspections for Damage or Leakage (SPA.DG.105)**

A package or overpack containing dangerous goods must not be loaded onto an aircraft or into a ULD unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage. A ULD must not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of leakage from or damage to any dangerous goods contained therein. Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft or ULD.

9.3.3 **Prohibition on the Carriage of Dangerous Goods Within a Cabin Occupied by Passengers (SPA.DG.105)**

Dangerous goods must not be carried in the cabin of an aircraft occupied by passengers or on the flight deck, except as provided for in the Technical Instructions.

9.3.4 **Prohibition on the Carriage of Passengers with 'Cargo Aircraft Only' Dangerous Goods (SPA.DG.105)**

Dangerous goods identified as suitable for transport only on a cargo aircraft must not be carried on an aircraft on which passengers are being carried. In this context "passenger" excludes a crew member, an operator's employee (see 9.1.4 above), an authorised representative of an Authority and a person with duties in respect of a particular shipment of dangerous goods or other cargo on board.

9.3.5 **Segregation, Separation and CAO Accessibility (SPA.DG.105)**

9.3.5.1 Dangerous goods must be loaded, stowed, and secured on an aircraft as required by the Technical Instructions. This includes segregating packages from each other when they contain incompatible dangerous goods, the separation

of explosives of different division numbers and compatibility groups (when required), securing packages in a manner that will prevent any movement. Dangerous goods must also be protected so they cannot be damaged by the movement of baggage, mail, stores, or other cargo.

9.3.5.2 With certain exceptions (see Note 1) packages or overpacks of dangerous goods bearing the "Cargo aircraft only" label must be loaded for carriage by a cargo aircraft (see 9.3.4) in accordance with one of the following provisions:

a) in a Class C aircraft cargo compartment; or

b) 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 (a ULD that is determined by the appropriate national authority to meet the Class C aircraft cargo compartment standards must include "Class C compartment" on the ULD tag); or

c) 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

d) external carriage by a helicopter; or

e) with the approval of the State of the Operator, for helicopter operations, in the cabin.

Note 1: the requirements of 9.3.5.2 do not apply to:

i. flammable liquids (Class 3), Packing Group III, other than those with a subsidiary hazard of Class 8;
ii. toxic substances (Division 6.1) with no subsidiary hazard other than Class 3;
iii. infectious substances (Division 6.2);
iv. radioactive material (Class 7);
v. miscellaneous dangerous goods (Class 9); UN 3528 — Engine, internal combustion, flammable liquid powered or Engine, fuel cell, flammable liquid powered or Machinery, internal combustion, flammable liquid powered or Machinery, fuel cell, flammable liquid powered; and

vi. UN 3529 — Engine, internal combustion, flammable gas powered or Engine, fuel cell, flammable gas powered or Machinery, internal combustion, flammable gas powered or Machinery, fuel cell, flammable gas powered.

Editorial Note 1: *Operators that do not conduct cargo aircraft operations (see 9.3.4) should delete 9.3.3 and 9.3.5.2.*

Editorial Note 2: *Operators holding approval for the carriage of dangerous goods should determine how such goods shall be secured to prevent movement in flight, to protect from damage by the movement of other items and to achieve adequate segregation whilst maintaining accessibility (if required), considering the types of aircraft operated, whether ULDs are used, etc. Additionally, it is appropriate to amend the following tables to reflect the operator's policy towards the separation of dangerous goods from other cargo (e.g. dry ice and animals in accordance with 9.3.6).*

9.3.5.3 Packages and overpacks containing UN 3480 — Lithium ion batteries prepared in accordance with Section IA or Section IB of Packing Instruction 965 and packages and overpacks containing UN 3090 — Lithium metal batteries prepared in accordance with Section IA or Section IB of Packing Instruction 968 must not be stowed on an aircraft next to, or in a position that would allow interaction with, packages or overpacks containing dangerous goods which bear a Class 1, other than Division 1.4S, Division 2.1, Class 3, Division 4.1 or Division 5.1 hazard label. To maintain acceptable segregation between packages and overpacks, the segregation requirements shown in the table below must be followed. The segregation requirements apply based on all hazard labels applied on the package or overpack, irrespective of whether the hazard is the primary or subsidiary hazard.

Editorial Note 1: *As UN 3480 and UN3090 may only be carried on cargo aircraft, operators that do not conduct cargo aircraft operations should delete 9.3.5.3 and the columns for Class 9 within the table below.*

Segregation of incompatible dangerous goods

Hazard Label	1	2.1	2.2, 2.3	3	4.1	4.2	4.3	5.1	5.2	8	9 See 9.3.5.3
1	Note 1	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
2.1	Note 2										X
2.2, 2.3	Note 2										
3	Note 2							X			X
4.1	Note 2										X
4.2	Note 2							X			
4.3	Note 2									X	
5.1	Note 2			X		X					X
5.2	Note 2										
8	Note 2						X				
9 See 9.3.5.3	Note 2	X		X	X			X			

An “X” at the intersection of a row and column indicates that packages containing these classes of dangerous goods may not be stowed next to or in contact with each other, or in a position which would allow interaction in the event of leakage of the contents. Thus, a package containing Class 3 dangerous goods may not be stowed next to or in contact with a package containing Division 5.1 dangerous goods.

Note 1: See the table below detailing the separation of explosive substances and articles.

Note 2: This class or division must not be stowed together with explosives other than those in Division 1.4, Compatibility Group S.

Note 3: Packages containing dangerous goods with multiple hazards in the class or divisions which require segregation in accordance with the above table need not be segregated from other packages bearing the same UN number.

Note 4: UN 3528, Engines, internal combustion, flammable liquid powered, Engines, fuel cell, flammable liquid powered, Machinery internal combustion,

flammable liquid powered and Machinery, fuel cell, flammable liquid powered need not be segregated from packages containing dangerous goods in Division 5.1.

Editorial Note: *Class 1 dangerous goods other than Division 1.4S may only be carried on cargo aircraft. Operators not operating cargo aircraft should (a) delete the table explaining the separation of explosive substances and articles (below) and (b) amend Note 1 to the segregation table (above) to read 'Only Division 1.4S is permitted for carriage on passenger aircraft'.*

Separation of explosive substances and articles

Division and Compatibility Group	1.3C	1.3G	1.4B	1.4C	1.4D	1.4E	1.4G	1.4S
1.3C			X					
1.3G			X					
1.4B	X	X		X	X	X	X	
1.4C			X					
1.4D			X					
1.4E			X					
1.4G			X					
1.4S								

An "X" at the intersection of a row and column indicates that explosives of these divisions and compatibility groups must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m. Explosive substances and articles carried under an exemption may be subject to additional separation requirements.

9.3.6 Loading of Dry Ice (SPA.DG.105)

Dry ice (Carbon dioxide, solid; UN1845) may be carried onboard aircraft to keep food (galley or cargo) and medicine or biological materials (as cargo) in a frozen

or chilled condition. Carbon dioxide gas produced by the sublimation of dry ice is an asphyxiant and will reduce the amount of available oxygen to breathe. Dry ice sublimation producing excess CO_2 gas may be dangerous in confined spaces where there is an absence of ventilation or ventilation rates are low. The signs and symptoms of CO_2 poisoning are like those that precede lack of oxygen, namely headache, dizziness, muscular weakness, drowsiness, and ringing in the ears. CO_2 poisoning does have a greater effect on breathing than simple lack of oxygen, causing a significant increase in the rate and depth of breathing as an early symptom. 10% carbon dioxide in air can be endured for only a few minutes whereas 12% to 15% would cause unconsciousness.

***Ground staff must be informed that dry ice is being loaded or is onboard the aircraft.**

Editorial Note: *Dry ice when shipped by itself or when used as a refrigerant for other commodities may be carried provided the operator has made suitable arrangements dependent on the aircraft type, the aircraft ventilation rates, the method of packing and stowing, whether animals will be carried on the same flight and other factors. To prevent the incapacitation of ground and aircrew, aircraft operators must specify maximum safe quantities of dry ice per compartment of the various aircraft types operated in accordance with the above criterion and information published by the applicable aircraft manufacturer(s).*

Editorial Note: *Where dry ice is contained in a unit load device prepared by a single shipper in accordance with Packing Instruction 954 and the operator, after acceptance, adds additional dry ice, then the operator must ensure that the information provided to the pilot-in-command reflects that revised quantity of dry ice.*

9.3.7 Loading of Magnetised Material (SPA.DG.105)

Packing Instruction 953 allows the carriage of such material when the magnetic field strength at 4.6 m causes a compass deflection of not more than 2 degrees (equivalent to 0.418 A/m or 0.00525 Gauss measured at a distance of 4.6 m). Material with a magnetic field strength exceeding these limits may only be carried with the prior approval of the State of Origin and the State of the Operator.

Magnetised material must be loaded so headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirements and, where practical, in locations minimising possible effects on compasses.

Note: Masses of ferromagnetic metals such as automobiles, automobile parts, metal fencing, piping, and metal construction material, even if not meeting the definition of magnetised materials, may affect aircraft compasses. As may packages or items of material which individually do not meet the definition of magnetised material, but cumulatively may have a magnetic field strength of a magnetised material.

Editorial Note: *Operators should consider whether consignments of large quantities of ferromagnetic metals should be stowed as if they were classified as magnetised material. Operators, particularly of small aircraft, must establish adequate procedures to ensure that consignments described above are identified and loaded in a manner that will not affect aircraft instruments.*

9.3.8 **Loading of Radioactive Material (SPA.DG.105)**

Editorial Note 1: *Should there exist a policy not to carry radioactive material (stated within 9.1.1) this section may be omitted.*

9.3.8.1 Radioactive materials are articles or substances which spontaneously and continuously emit ionising radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film. Whilst packagings used for the transport of radioactive material must provide protection from radiation, there is likely to be residual activity from packages offered for air transport.

A Transport Index (TI) is a number which represents the level of radiation at 1 metre, assigned to a single package, overpack or freight container. The TI is used to provide control over radiation exposure, to determine categories of radioactive material for the purposes of labelling, declaration, etc., to determine whether transport under exclusive use is required and to determine spacing requirements during storage and transport. The TI for each overpack or freight container must be determined as either the sum of the transport indices of all the packages contained, or by direct measurement of dose rate.

Editorial Note 2: *Operators that have a policy to carry radioactive materials must provide instructions on the loading of such dangerous goods based on the requirements for separation from persons, live animals, and undeveloped photographic film below:*

Separation from Persons

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from persons. The minimum separation distances in the following table that are to be applied are based upon the sum of TIs and these distances are from the surface of the packages, overpacks or freight containers to the nearest inside surface of the passenger cabin or flight deck partitions or floors, irrespective of the duration of the carriage of the radioactive material. If the packages, overpacks or freight containers are separated into groups, the minimum distance from the nearest inside surface of the passenger cabin or flight deck partitions or floors to each group is the distance applicable to the sum of the TIs within the individual groups, provided that each group is separated from each other group by at least three times the distance applicable to the one that has the larger sum of TIs. Alternative separation distances apply when radioactive material is being carried by a cargo aircraft and in those circumstances the minimum distances must be applied as above and to any other areas occupied by persons. Whether carried on a passenger or cargo aircraft, in accordance with the practice of keeping exposure to radiation as low as reasonably achievable, separation distances should be extended whenever feasible.

Passenger or Cargo Aircraft		Cargo Aircraft Only	
Total sum of transport indexes	Minimum distance (metres)	Total sum of transport indexes	Minimum distance (metres)
0.1 – 1.0	0.30	50.1 – 60.0	4.65
1.1 – 2.0	0.50	60.1 – 70.0	5.05
2.1 – 3.0	0.70	70.1 – 80.0	5.45
3.1 – 4.0	0.85	80.1 – 90.0	5.80
4.1 – 5.0	1.00	90.1 – 100.0	6.10
5.1 – 6.0	1.15	100.1 – 110.0	6.45
6.1 – 7.0	1.30	110.1 – 120.0	6.70
7.1 – 8.0	1.45	120.1 – 130.0	7.00
8.1 – 9.0	1.55	130.1 – 140.0	7.30
9.1 – 10.0	1.65	140.1 – 150.0	7.55

Passenger or Cargo Aircraft		Cargo Aircraft Only	
Total sum of transport indexes	Minimum distance (metres)	Total sum of transport indexes	Minimum distance (metres)
10.1 – 11.0	1.75	150.1 – 160.0	7.80
11.1 – 12.0	1.85	160.1 – 170.0	8.05
12.1 – 13.0	1.95	170.1 – 180.0	8.30
13.1 – 14.0	2.05	180.1 – 190.0	8.55
14.1 – 15.0	2.15	190.1 – 200.0	8.75
15.1 – 16.0	2.25	200.1 – 210.0	9.00
16.1 – 17.0	2.35	210.1 – 220.0	9.20
17.1 – 18.0	2.45	220.1 – 230.0	9.40
18.1 – 20.0	2.60	230.1 – 240.0	9.65
20.1 – 25.0	2.90	240.1 – 250.0	9.85
25.1 – 30.0	3.20	250.1 – 260.0	10.05
30.1 – 35.0	3.50	260.1 – 270.0	10.25
35.1 – 40.0	3.75	270.1 – 280.0	10.40
40.1 – 45.0	4.00	280.1 – 290.0	10.60
45.1 – 50.0	4.25	290.1 – 300.0	10.80

Separation from Live Animals

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from live animals by a distance of at least 0.5 metres for journeys not exceeding 24 hours, and by a distance of at least 1.0 metres for journeys longer than 24 hours.

Separation from Undeveloped Photographic Film

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from undeveloped photographic films or plates. The minimum separation distances to be applied from the surface of the packages, overpacks or freight containers to the surface of the packages of undeveloped photographic films or plates are as follows:

Total sum of transport indexes	Duration of carriage					
	2 hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
1	0.4	0.6	0.9	1.1	1.5	2.2
2	0.6	0.8	1.2	1.5	2.2	3.1

Total sum of transport indexes	Duration of carriage					
	2 hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
3	0.7	1.0	1.5	1.8	2.6	3.8
4	0.8	1.2	1.7	2.2	3.1	4.4
5	0.8	1.3	1.9	2.4	3.4	4.8
10	1.4	2.0	2.8	3.5	4.9	6.9
20	2.0	2.8	4.0	4.9	6.9	10.0
30	2.4	3.5	4.9	6.0	8.6	12.0
40	2.9	4.0	5.7	6.9	10.0	14.0
50	3.2	4.5	6.3	7.9	11.0	16.0

Note: The above table is calculated so that the radiation dose received by the films does not exceed 0.1 mSv (10 mrem).

Means of Securing

The means of securing packages or overpacks must adequately ensure that minimum separation distances are always maintained.

Editorial Note: *An aircraft and equipment used regularly for the transport of radioactive material must be periodically checked to determine the level of contamination. The frequency of such checks must be related to the likelihood of contamination and the extent to which radioactive material is transported. Operators that carry radioactive material need to define the means and frequency of checks for radioactive contamination of aircraft and equipment (e.g. unit load devices).*

9.3.8.2 The transport of radioactive material must be subject to a Radiation Protection Programme (RPP), which must consist of systematic arrangements aimed at providing adequate consideration of radiation protection measures (see Technical Instructions 1;6.2 and IAEA Safety Standards Series No. TS-G-1.3).

Editorial Note: *The RPP documents must be available, on request, for inspection by the relevant competent authority. The HCAA monitors the RPP of Greek*

Operators that transport radioactive material. Operators should identify the RPP document reference and location.

9.3.9 **Loading of UN 2211, Polymeric beads, expandable or UN 3314, Plastics moulding compound**

A total of not more than 100 kg net mass of expandable polymeric beads (or granules), or plastic moulding materials, referenced to Packing Instruction 957, may be carried in any inaccessible cargo compartment on any aircraft.

Editorial Note: *Operators should explain how the above restriction is complied with.*

9.3.10 **Loading of Battery Powered Mobility Aids**

See 9.1.5.2 for detailed loading provisions of Battery Powered Mobility Aids.

9.3.11 **Handling of Self-Reactive Substances and Organic Peroxides**

During the course of transport, packages or unit load devices containing self-reactive substances of Division 5.2 must be shaded from direct sunlight, stored away from all sources of heat in a well-ventilated area.

9.3.12 **Handling and Loading of Intermediate Bulk Containers (IBCs)**

During handling and loading of intermediate bulk containers (IBCs), an account must be taken of the IBC markings specified in 6;2.4.3, if present.

9.3.13**Notification to Captain (NOTOC) (AMC SPA.DG.110(a))**

As early as practicable before departure of the aircraft, but in no case later than when the aircraft moves under its own power, the operator of an aircraft in which dangerous goods are to be carried must:

i) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo; and

ii) provide personnel with responsibilities for operational control of the aircraft (e.g. the flight operations officer, flight dispatcher, or designated ground

personnel responsible for flight operations) with the same information that is required to be provided to the pilot-in-command (e.g. a copy of the written information provided to the pilot-in-command). This is to facilitate notifying emergency services and authorities of the dangerous goods on board in the event of an aircraft accident or incident (see 11.10.2).

Editorial Note: *The operator must specify the personnel (job title or function) to be provided this information in accordance with 9.3.9. The process of ground personnel transmitting this information to personnel with responsibilities for operational control of the aircraft also needs to be explained. Particular attention should be paid to the arrangements for ad hoc charters carrying dangerous goods where ongoing instructions to ensure the availability of the NOTOC may not be in place, e.g. through issuing appropriate instructions within the ground handling request.*

Note: This includes information about dangerous goods loaded at a previous departure point and which are to be carried on the subsequent flight.

This information must include the following:

a) the date of the flight;

b) the air waybill number (when issued);

c) the proper shipping name (the technical name(s) shown on the dangerous goods transport document is not required) and UN Number or ID number;

d) the class or division, and subsidiary hazard(s) corresponding to the subsidiary hazard label(s) applied, by numerals, and (in the case of Class 1) the compatibility group;

e) the packing group shown on the dangerous goods transport document;

f) the number of packages and their exact loading location. For radioactive material see (g) below;

g) the net quantity, or gross mass if applicable, of each package, except that this does not apply to radioactive material or other dangerous goods where the net quantity or gross mass is not required on the dangerous goods transport document or, when applicable, alternative written documentation. For a consignment

consisting of multiple packages containing dangerous goods bearing the same proper shipping name and UN number or ID number, only the total quantity and an indication of the quantity of the largest and smallest package at each loading location need to be provided. For consumer commodities, the information provided may be either the gross mass of each package or the average gross mass of the packages as shown on the dangerous goods transport document;

h) for radioactive material, the number of packages, overpacks or freight containers, their category, their Transport Index (if applicable) and their exact loading location;

i) whether the package must be carried on cargo aircraft only;

j) the aerodrome at which the package(s) is to be unloaded;

k) where applicable, an indication that the dangerous goods are being carried under a State exemption; and

l) the telephone number where a copy of the information provided to the pilot-in-command can be obtained during the flight if the operator allows the pilot-in-command to provide a telephone number instead of the details about the dangerous goods on board the aircraft, as specified in 11.10.1.

The information provided to the pilot in command must also include signed confirmation, or some other indication, from the person responsible for loading the aircraft that there was no evidence of any damage to or leakage from the packages or any leakage from the unit load devices loaded on the aircraft.

Note 1: For UN 1845 **Carbon dioxide, solid** (dry ice), the information detailed above may be replaced by the UN number, proper shipping name, class, total quantity in each cargo compartment on the aircraft and the aerodrome at which the package(s) is to be unloaded.

Note 2: For UN 3480 (**Lithium-ion batteries**) and UN 3090 (**Lithium metal batteries**), the information detailed above may be replaced by the UN number, proper shipping name, class, total quantity at each specific loading location, the aerodrome at which the package(s) is to be unloaded and whether the package must be carried on cargo aircraft only. A full NOTOC is required when such batteries are carried under a State exemption.

Editorial Note: *The telephone number where a copy of the information to the pilot-in-command can be obtained during the flight is additionally required on the NOTOC should it be intended to make it possible for the pilot-in-command to provide the appropriate Air Traffic Services Unit with a telephone number instead of details about the dangerous goods on board the aircraft in the event of an in-flight emergency.*

The following dangerous goods need not appear on the NOTOC:

UN Number	*Item*	*TI Reference*
n/a	Dangerous goods packed in excepted quantities	3;5.1.1
UN 2807	Magnetized material with field strengths causing a compass deflection of not more than 2 degrees at a distance of 4.6 m	Packing Instruction 953
UN 2908	Radioactive material, excepted package — empty packaging	1;6.1.5.1 a)
UN 2909	Radioactive material, excepted package — articles manufactured from natural uranium or depleted uranium or natural thorium	1;6.1.5.1 a)
UN 2010	Radioactive material, excepted package — limited quantity of material	1;6.1.5.1 a)
UN 2911	Radioactive material, excepted package — instruments or articles	1;6.1.5.1 a)
UN 3091	Lithium metal batteries contained in equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 970, Section II	Packing Instruction 970, Section II
UN 3091	Lithium metal batteries packed with equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 969, Section II	Packing Instruction 970, Section II
UN 3164	Articles, pressurized, hydraulic containing non-flammable gas when meeting the requirements of Packing Instruction 208 a)	Packing Instruction 208, a)
UN 3164	Articles, pressurized, pneumatic containing non-flammable gas when meeting the requirements of Packing Instruction 208 a)	Packing Instruction 208, a)
UN 3245	Genetically modified micro-organisms	Packing Instruction 959
UN3245	Genetically modified organisms	Packing Instruction 959
UN 3373	Biological substance, Category B	Packing Instruction 650, sun-paragraph 11
UN 3481	Lithium-ion batteries contained in equipment (including lithium-ion polymer batteries) when meeting the requirements of Packing Instruction 967, Section II	Packing Instruction 967, Section II
UN 3481	Lithium-ion batteries packed with equipment (including lithium-ion polymer batteries) when meeting the requirements of Packing Instruction 966, Section II	Packing Instruction 966, Section II

9.3.14 **Availability of NOTOC on the Ground for the Duration of Flight (SPA.DG.110)**

A legible copy of the information to the pilot-in command must be retained on the ground. This copy must have an indication on it, or with it, that the pilot-in-command has received the information.

9.3.15 **Retention of Documents (ORO.MLR.115 (b)(4), SPA.DG.110(f))**

At least one copy of the documents appropriate to the transport by air of a consignment of dangerous goods (including consignments that fail their acceptance check) must be retained for a minimum period of three months, or such other period as specified by the States concerned, after the flight on which the dangerous goods were transported. As a minimum, the documents which must be retained are the dangerous goods transport document (Shipper's Declaration), the acceptance checklist (when this is in a form which requires completion) including identification of the person who completed it, and the NOTOC (if the goods were carried).

Editorial Note: Operators should indicate where the documents appropriate to the transport by air of a consignment of dangerous goods are to be retained, e.g. within a flight file, or within the files of a handling agent(s), etc. If this to be carried out by a handling agent, procedures need to be in place, particularly for ad hoc charters.

9.3.16 **Ad Hoc Charters (CAT.GEN.MPA.200 (a))**

Editorial Note: *Many operators utilise ground handling agents to discharge certain duties with regards to the carriage of dangerous goods by air, e.g. conducting acceptance checks, NOTOC preparation and administration, aircraft loading, retention of documents, etc. Should such operators wish to undertake ad hoc charters involving the carriage of dangerous goods between stations where ongoing ground handling agreements are not in place, it would be necessary for duties to be properly assigned to the agent(s) concerned in advance of the operation of flights. Furthermore, should the agent at the station of departure not operate 24 hours a day, it must also be ensured that a copy of the NOTOC is readily available on the ground in the event of an emergency, e.g. by instructing the agent to fax or e-mail a copy of the completed NOTOC to the operator as soon as possible after the signature by the pilot-in-command has been obtained. Procedures for assigning such duties to agents (such as via the issue of ad hoc ground handling requests) should be established.*

9.3.17 **External Carriage of Dangerous Goods (Helicopter only)**

When dangerous goods are prepared for open external carriage (e.g. suspended from a helicopter or in open external carrying devices), consideration should be given to the type of packaging used and protection of those packagings where necessary from the effects of airflow and weather (e.g. by damage from rain or snow).

When dangerous goods are carried suspended from a helicopter, the operator must ensure that consideration is given to the dangers of static discharge upon landing or release of the load.

9.4 Recognition of Undeclared / Hidden Dangerous Goods CAT.GEN.MPA.200(e))

9.4.1 **'Hidden' Dangerous Goods**

Personnel must be alert to indications that undeclared dangerous goods are present within cargo, mail, or stores. Personnel interfacing with passengers must be alert to indications that prohibited dangerous goods are carried by passengers or within their baggage.

NOTE:THE DISCOVERY OF UNDECLARED OR MIS-DECLARED DANGEROUS GOODS OR THE DISCOVERY OF DANGEROUS GOODS FORBIDDEN FOR CARRIAGE BY PASSENGERS (DISCOVERED AFTER THE CHECK-IN PROCESS) MUST BE REPORTED TO THE CAA – SEE 11.10.4.

The following is a list of general descriptions that are often used for items in cargo or in passengers' baggage and the types of dangerous goods that may be included in any item bearing that description.

Aircraft on ground (AOG) spares — may contain explosives (flares or other pyrotechnics), chemical oxygen generators, unserviceable tyre assemblies, cylinders of compressed gas (oxygen, carbon dioxide or fire extinguishers), fuel in equipment, wet or lithium batteries, matches.

Automobile parts/supplies (car, motor, motorcycle) — may include engines (including fuel cell engines), carburettors or fuel tanks that contain or have

contained fuel, wet or lithium batteries, compressed gases in tyre inflation devices and fire extinguishers, air bags, flammable adhesives, paints, sealants and solvents, etc.

Battery-powered devices/equipment — may contain wet or lithium batteries.

Breathing apparatus — may indicate cylinders of compressed air or oxygen, chemical oxygen generators or refrigerated liquefied oxygen.

Camping equipment — may contain flammable gases (butane, propane, etc.), flammable liquids (kerosene, gasoline, etc.) or flammable solids (hexamine, matches, etc.).

Cars, car parts — see automobile parts, etc.

Chemicals — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.

Consolidated consignments (groupages) — may contain any of the defined classes of dangerous goods.

Cryogenic (liquid) — indicates refrigerated liquefied gases such as argon, helium, neon, nitrogen, etc.

Cylinders — may contain compressed or liquefied gas.

Dental apparatus — may contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material.

Diagnostic specimens — may contain infectious substances.

Diving equipment — may contain cylinders of compressed gas (e.g. air or oxygen). May also contain high intensity diving lamps that can generate extreme heat when operated in air. In order to be carried safely, the bulb or battery should be disconnected.

Drilling and mining equipment — may contain explosive(s) and/or other dangerous goods.

Dry shipper (vapour shipper) — may contain free liquid nitrogen. Dry shippers are only not subject to the Technical Instructions when they do not permit the

release of any free liquid nitrogen irrespective of the orientation of the packaging.

Electrical/electronic equipment — may contain magnetised materials, mercury in switch gear, electron tubes, wet or lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel.

Electrically-powered apparatus (wheelchairs, lawn mowers, golf carts, etc.) — may contain wet or lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel.

Expeditionary equipment — may contain explosives (flares), flammable liquids (gasoline), flammable gas (camping gas) or other dangerous goods.

Film crew and media equipment — may contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet or lithium batteries, fuel, heat-producing items, etc.

Frozen embryos — may be packed in refrigerated liquefied gas or dry ice (solid carbon dioxide).

Frozen fruit, vegetables, etc. — may be packed in dry ice.

Fuel control units — may contain flammable liquids.

Hot-air balloon — may contain cylinders with flammable gas, fire extinguishers, engines (internal combustion), batteries, etc.

Household goods — may contain items meeting any of the criteria for dangerous goods. Examples include flammable liquids such as solvent-based paint, adhesives, polishes, aerosols (for passengers, those not permitted under ICAO Technical Instructions 8;1.1.2), bleach, corrosive oven or drain cleaners, ammunition, matches, etc.

Instruments — may conceal barometers, manometers, mercury switches, rectifier tubes, thermometers, etc. containing mercury.

Laboratory/testing equipment — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries, cylinders of compressed gas, etc.

Machinery parts — may contain flammable adhesives, paints, sealants and solvents, wet and lithium batteries, mercury, cylinders of compressed or liquefied gas, etc.

Magnets and other items of similar material — may individually or cumulatively meet the definition of magnetised material.

Medical supplies/equipment — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries.

Metal construction material — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Metal fencing — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Metal piping — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Pharmaceuticals — may contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.

Photographic supplies/equipment — may contain items meeting any of the criteria for dangerous goods, particularly heat-producing devices, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries.

Racing car or motorcycle team equipment — may contain engines (including fuel cell engines), carburettors or fuel tanks that contain fuel or residual fuel, wet and lithium batteries, flammable aerosols, nitromethane or other gasoline additives, cylinders of compressed gases, 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, oxidisers, organic peroxides, toxic or corrosive substances.

Semen — may be packed with dry ice or refrigerated liquefied gas (see also dry shipper).

Sporting goods/sports team equipment — may contain cylinders of compressed or liquefied gas (air, carbon dioxide, etc.), lithium batteries, propane torches, first aid kits, flammable adhesives, aerosols, etc.

Swimming pool chemicals — may contain oxidising or corrosive substances.

Switches in electrical equipment or instruments — may contain mercury.

Toolboxes — may contain explosives (power rivets), compressed gases or aerosols, flammable gases (Butane cylinders or torches), flammable adhesives or paints, corrosive liquids, lithium batteries, 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 not permitted for carriage by passengers and crew.

Note: Excess baggage carried as cargo may contain certain dangerous goods (see 9.1.3.5).

Vaccines — may be packed in dry ice.

9.4.1.1 Identification of Dangerous Goods Through X-Ray Screening

Persons conducting security screening of cargo should be alert to the presence of dangerous goods within packages that are not marked and labelled as dangerous goods and/or not accompanied by a Shipper's Declaration. In particular, items such as aerosols, ammunition, gas cylinders (camping gas, cylinders attached to lifejackets, etc.), cigarette lighters and wet acid batteries

can be readily identified from x-ray images. Information provided on an air waybill or marked on a package often indicates that a consignment contains no dangerous goods. In the absence of such annotation by the shipper, should suspicions be raised by the size and shape of the contents of a package, consideration should be given to opening and hand-searching the consignment to verify that no undeclared dangerous goods are present.

Consignments of dangerous goods that have been properly marked, labelled, and declared to the operator (where approved for carriage) are commonly processed separately from general freight. Should consignments bearing UN numbers, proper shipping names or hazard labels be discovered within general freight, when separate arrangements exist, this should be queried. It may be that no shipper's declaration accompanies the consignment; as such the consignment of dangerous goods would be considered 'undeclared'.

9.4.1.2 Safety Data Sheets

REACH (**R**egistration, **E**valuation, **A**uthorisation & restriction of **Ch**emicals) is a European Union regulation controlling chemicals in Europe. REACH requires for many substances and mixtures, a Safety Data Sheet (SDS) to be provided either before or at the time of first delivery. Section 14 of the EU format SDS provides basic classification information, i.e. UN number, proper shipping name, Class/Division and Packing Group.

9.4.1.3 GHS Consumer Labelling (Overview)

9.4.1.4 Some everyday household items bear consumer warning labels which may or may not indicate they are classified as dangerous goods in air transport. All over the world there are different laws on how to identify the hazardous properties of chemicals (called 'classification') and how information about these hazards is then passed to users (through consumer supply labels and safety data sheets for workers). This can be confusing because the same chemical can have different hazard descriptions in different countries. For example, a chemical could be labelled for supply as 'toxic' in one country, but not in another. For this reason, the UN brought together experts from different countries to create the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The GHS has been implemented

within Europe by the Regulation on Classification, Labelling and Packaging of Substances and Mixtures (known as the CLP Regulation.).

Products bearing the following GHS labels ARE classified as dangerous goods:

Note: A product bearing the GHS corrosive label (depicted far right above) is NOT classified as dangerous goods if the signal word 'Danger' and hazard statement 'causes serious eye damage' applies.

Products only bearing the following GHS labels (and none of the above) are NOT classified as dangerous goods:

9.5 Emergency Situations (AMC1 SPA.DG.105(b))

9.5.1 Provision of Information for Use in Responding to In-Flight Emergencies (SPA.DG.110)

For those dangerous goods for which a dangerous goods transport document is required, the commander of an aircraft carrying such goods must be provided with information which can be used on board to assist in planning the response to an emergency arising in-flight involving the dangerous goods.

Editorial Note: *This information can be provided by the 'Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods' (Doc 9481), which is published by the International Civil Aviation Organization, or by another document giving similar information. Operators should establish what information is to be made available to flight crew onboard aircraft.*

9.5.2 **For procedures for responding to Emergency Situations**

For procedures for responding to emergency situations see section 11.10.

9.6 Conditions Under Which Weapons, Munitions of War and Sporting Weapons May Be Carried (CAT.GEN.MPA.155, CAT.GEN.MPA.160)

9.6.1 Need for Approval to Transport Munitions of War (CAT.GEN.MPA.155)

Weapons of war and munitions of war can only be carried provided an approval to do so has been granted by all the States concerned before a flight. They must be carried in the aircraft in a place which is inaccessible to passengers during flight and, in the case of firearms, unloaded, except as specified in 9.6.2 below.

Editorial Note: *Insert Text* ***[Operator Name holds/does not hold] HCAA approval for the transport of Munitions of War by air.***

9.6.2 **Stowage Requirements for Munitions of War (EC Regulation 300/2008)**

In exceptional circumstances, weapons of war and munitions of war may be carried other than in an inaccessible place on the aircraft and may be loaded, provided an approval to do so has been granted by all the States concerned before a flight. These exceptional circumstances are intended primarily to permit the carriage of law enforcement officers, protection officers, etc.

9.6.3 **Notifying Commander of the Carriage of Munitions of War (CAT.GEN.MPA.155)**

The commander must be notified before a flight if weapons of war or munitions of war are to be carried on the aircraft.

9.6.4 **Carriage of Sporting Weapons When Inaccessible to Passengers During Flight (CAT.GEN.MPA.160)**

Sporting weapons and ammunition for such weapons may be carried without an approval from an Authority, provided they are stowed in a place on the aircraft which is inaccessible to passengers during flight and, in the case of firearms, unloaded.

Editorial Note: Operators must take all reasonable measures to ensure that any sporting weapons intended to be carried by air are reported to them and operators should describe the measures in place to make passengers aware of the need to furnish the operator with details of any sporting weapon they intend to carry. For aircraft without inaccessible compartments, carriage should be prohibited unless alternative effective procedures for stowing the weapons in a place that is inaccessible to passengers are established.

NOTE: Ammunition is subject to the conditions set out in 9.1.5.

9.6.5 *"Not used"*

9.6.6 The passenger and operator (or his agent) must observe all regulations applicable to the export, import and transit of weapons and ammunition, applicable in the country of departure, transit, and destination.

Editorial Note: Operators should consider all relevant legislation when formulating procedures for the carriage of weapons, munitions of war and sporting weapons.

CHAPTER 2

Information to be Included in Section 11 of the Operator's OM part A

11.10 Special Notification Requirements in the Event of an Accident or Occurrence When Dangerous Goods are Being Carried or Have Been Offered for Air Transport Without Having Been Prepared and Declared in Accordance with the ICAO Technical Instructions

11.10.1 Information to be Provided by the Pilot-In-Command in the Event of an In-Flight Emergency (AMC1 SPA.DG.105(b))

If an in-flight emergency occurs and the situation permits, the commander must inform the appropriate Air Traffic Services Unit of any dangerous goods on board. This information should include the proper shipping name, class/division, identified subsidiary hazard(s), compatibility group for explosives, quantity, and location on board.

Editorial Note: *If it is the operator's policy to provide flight crew with a telephone number where detailed information on dangerous goods on board may be obtained (on the NOTOC) this procedure should be explained.*

11.10.2 Information to be Provided by the Operator in the Event of an Aircraft Accident or Serious Incident Where Dangerous Goods Carried as Cargo may be Involved.

If an aircraft carrying dangerous goods as cargo is involved in an accident or serious incident where the dangerous goods may be involved, the operator must provide information, without delay, to emergency services responding to the accident or serious incident about the dangerous goods on board, as shown

on the copy of the information to the pilot-in-command (NOTOC). The information must be sufficient to enable any hazards created by the dangerous goods to be minimised and include the proper shipping name, UN number, class/division, any identified subsidiary hazard(s), the compatibility group for explosives, the quantity, and the location on board the aircraft. As soon as possible, the operator must also provide this information to HCAA.

11.10.3 Information to be Provided by the Operator in the Event of an Aircraft Incident (AMC1 SPA.DG.105(b))

In the event of an aircraft incident, the operator of an aircraft carrying dangerous goods as cargo must, if requested to do so, provide information without delay to the emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, about the dangerous goods on board, as shown on the copy of the information to the pilot-in-command (NOTOC). For aircraft accidents and serious incidents, see 11.10.2.

11.10.4 Dangerous Goods Accident and Incident Reports (CAT.GEN.MPA.200(e))

Definitions:

Dangerous goods accident: An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident: An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants is also deemed to be a dangerous goods incident.

Note: A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified in ICAO Annex 13 — Aircraft Accident and Incident Investigation.

An operator must report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred in accordance with the reporting requirements of those appropriate authorities.

Note. — This includes incidents involving dangerous goods that are not subject to all or part of the ICAO Technical Instructions through the application of an exception or of a special provision (e.g. an incident involving the short circuiting of a dry cell battery that is required to meet short-circuit prevention conditions in a special provision of 3;3).

An operator must report to the appropriate authority of the State of the Operator any occasion when:

a) dangerous goods are discovered to have been carried when not correctly loaded, segregated, separated, or secured in accordance with Part 7;2 or

b) dangerous goods are discovered to have been carried without information having been provided to the pilot-in command (when required) in accordance with Part 7;4.1.

An operator must report any occasion when undeclared or misdeclared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the Operator and the State in which this occurred.

An operator must report any occasion when dangerous goods that are not permitted are discovered by the operator (or the operator is advised by the entity that discovers the dangerous goods) either in the baggage or on the person of passengers (after check-in) or crew members. Such a report must be made to the appropriate authority of the State in which this occurred.

In addition to the requirements of the ICAO Technical Instructions for the reporting of dangerous goods occurrences (above), ORO.GEN.160 requires that **any incident** which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person is reported to **HCAA**. Dangerous

goods occurrences reportable under the Mandatory Occurrence Reporting Scheme include:

- Dangerous goods found not to have been secured to prevent movement.
- Damage to packages of dangerous goods
- NOTOC errors where dangerous goods have not been stowed in accordance with loading instructions.
- Failure to prepare electric wheelchairs in order to prevent accidental activation.
- Electric wheelchairs found not to have been stowed and secured correctly.
- Leakage of dangerous goods from passenger baggage.

NOTE: Dangerous goods occurrences meeting the criteria of ORO.GEN.160 also meet the definition of a dangerous goods accident or incident (above), reportable in accordance with CAT.GEN.MPA.200(e). Accordingly, the report must be made to HCAA within 72 hours, unless exceptional circumstances prevent this.

A dangerous goods accident or dangerous goods incident not meeting the criteria of ORO.GEN.160 must be reported to the HCAA within 72 hours, unless exceptional circumstances prevent this. If necessary, a subsequent report shall be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation shall be sent as soon as possible. Any type of accident or incident must be reported irrespective of whether the dangerous goods are in cargo, mail, stores, passengers' baggage, or crew baggage.

Editorial Note: *In accordance with Regulation (EU) No. 376/2014 on the reporting, analysis, and follow-up of occurrences in civil aviation, aircraft operators are required to store occurrence reports on a database capable of producing an output that is ECCAIRS compatible. Organisations need to submit Mandatory Occurrence Reports to HCAA in this format.*

Dangerous goods occurrences meeting the criteria of ORO.GEN.160 are to be reported using the standard Occurence Report Form the operator has prepared and included in its Operation Manual.

Dangerous goods occurrences not meeting the criteria of ORO.GEN.160 may be reported to HCAA **a2b@hcaa.gov.gr**

The first and any subsequent report shall be as precise as possible and contain such of the following data that are relevant:

- Date of the incident or accident or the finding of undeclared or misdeclared dangerous goods.
- Location, the flight number, and flight date.
- Description of the goods and the reference number of the air waybill, pouch, baggage tag, ticket, etc.
- Proper shipping name (including the technical name, if appropriate) and UN/ID number, when known.
- Class or division and any subsidiary risk.
- Type of packaging, and the packaging specification marking on it.
- Quantity of dangerous goods.
- Name and address of the shipper, passenger, etc.
- Any other relevant details.
- Suspected cause of the incident or accident.
- Action taken.
- Any other reporting action taken.
- Name, title, address, and telephone number of the person making the report.

Copies of relevant documents and any photographs taken should be attached to a report.

NOTE: IF SAFE TO DO SO, THE DANGEROUS GOODS INVOLVED IN THE ACCIDENT OR INCIDENT SHOULD BE HELD PENDING HCAA INVESTIGATION.

Editorial Note: *Operators should describe their procedures for reporting dangerous goods incidents, accidents, and undeclared dangerous goods to the HCAA. Where*

applicable, this information should be provided to handling agents so that, as a minimum, they are advised to whom non-MOR events should be submitted (Regulation (EU) No. 376/2014 places a direct legal duty upon a person who performs a function in respect of the ground handling of aircraft to report to the HCAA any incident which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person).

11.10.5 Removal of Contamination (SPA.DG.105)

In the event of a spillage or leakage of dangerous goods within an aircraft, the position where the dangerous goods or ULD was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. The hazard of the dangerous goods within packages concerned may be established by checking the entry on the NOTOC for that loading position or from hazard labels applied to the packages. The hazard classes and divisions of dangerous goods within a ULD may also be identified from the NOTOC or otherwise, should package labels are not visible, from the ULD tag bearing red hatchings applied to the outside of the ULD. Persons responding in the event of damage to or leakage of dangerous goods from packages must:

- identify the hazards and wear appropriate protective clothing;
- avoid handling the package or keep handling to a minimum;
- inspect adjacent packages for contamination and put aside any that may have been contaminated;
- arrange for decontamination of the aircraft and equipment; and
- in the case of infectious material, inform the appropriate public health authority or veterinary authority, and provide information to any other countries of transit where persons may have been exposed to danger; and notify the shipper and/or the consignee.

If it is evident that a package containing radioactive material is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package must be restricted and a qualified person must, as soon as possible, assess the extent of contamination and the resultant dose rate of the package. The scope of the assessment must include the package, the aircraft, the adjacent loading and unloading areas and, if necessary, all other material which has been carried in the aircraft. When necessary, additional steps for the protection of persons, property and

the environment must be taken in accordance with provisions established by the relevant competent authority, to overcome and minimise the consequences of such leakage or damage.

An aircraft which has been contaminated by radioactive materials must be immediately taken out of service and not returned until the dose rate at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions. In the event of non-compliance with any limit in the Technical Instructions applicable to dose rate or contamination, the operator must ensure the shipper is informed if the non-compliance is identified during transport; take immediate steps to mitigate the consequences of the non-compliance; and communicate the non-compliance to the shipper and relevant competent Authority(ies), respectively, as soon as practicable and immediately whenever an emergency situation has developed or is developing.

CHAPTER 3

Information to be Included in Section 2.4 of the Operator's OM part D

SECTION D SECTION 2.4
TRAINING SYLLABUS FOR TRANSPORT OF DANGEROUS GOODS
(OPERATIONS PERSONNEL INCLUDING CREW MEMBERS)

2.4.1 ORO.GEN.110(j) – Approval of Training Programmes

Insert Text ['Operator XXX'] hold approval for training programmes in the carriage of dangerous goods by air in accordance with ORO.GEN.110(j). This training is identified and described in the following text. Any substantive changes to this training (or proposals for sourcing training from an alternative external company) shall require prior approval by the competent authority in accordance with ORO.GEN.130 and must be submitted together to the assigned Oversight DG Inspector.

Editorial Note: *Prior to contracting the provision of dangerous goods training to an external organisation, the operator must ensure that the proposed training materials reflect the syllabi contained in this manual and are approved by the Authority". Further details on contracted activities can be found in ORO.GEN.205.*

2.4.2 General Requirements Applicable to Dangerous Goods Training Programmes

The goal of competency-based training and assessment (CBTA) is to produce a competent workforce by providing focused training. It does so by identifying key competencies that need to be achieved, determining the most effective way of achieving them and establishing valid and reliable assessment tools to evaluate their achievement.

The Operator must ensure that personnel are competent to perform any function for which they are responsible prior to performing any of these functions. This must be achieved through training and assessment commensurate with the functions for which they are responsible. Such training must include:

- general awareness/familiarisation training - Personnel must be trained to be familiar with the general provisions;
- function-specific training — Personnel must be trained to perform competently any function for which they are responsible; and
- safety training — Personnel must be trained on how to recognize the hazards presented by dangerous goods, on the safe handling of dangerous goods, and on emergency response procedures.

Editorial Note 1: *General information on the provisions for dangerous goods carried by passengers and crew (see 9.1.5) should be included in training courses, as appropriate.*

Personnel who have received training but who are assigned to new functions must be assessed to determine their competence in respect of their new function. If competency is not demonstrated, appropriate additional training must be provided.

Recurrent training and assessment must be provided within 24 months of previous training and assessment in addition to the remainder of the month of completion to ensure competency has been maintained. If recurrent training and assessment is completed within the final three months of validity of previous training and assessment, the period of validity shall extend from the month of completion, until 24 months from the expiry month of that previous training and assessment.

As with other aviation qualifications an offence against the regulations will be committed if staff continue to work after their training and assessment validity has expired.

Editorial Note 2: *Operators with a policy to provide recurrent dangerous goods training and assessment at periods of less than 24 months should state that policy.*

A record of training and assessment must be maintained and include;

a) the individual's name;
b) the month of completion of the most recent training and assessment;
c) a description, copy or reference to training and assessment materials used to meet the training and assessment requirements;
d) the name and address of the organisation providing the training and assessment; and
e) evidence which shows that the personnel have been assessed as competent.

Training and assessment records must be retained by the employer for a minimum period of 36 months from the most recent training and assessment completion month and must be made available upon request to personnel or the appropriate national authority.

Editorial Note 3: Further information on Competency-Based Training and Assessment (CBTA) can be found in ICAO Doc 10147 - Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment.

2.4.3 Dangerous Goods Training Syllabus

The operator must ensure training is provided in accordance with the detailed requirements of Part 1;4 of the Technical Instructions to all relevant employees including those of agencies employed to act on the operator's behalf, to enable them to carry out the functions for which they are responsible regarding the transport of dangerous goods, passengers and their baggage, cargo and mail.

Personnel must be trained to recognise the hazards presented by dangerous goods, to safely handle them and to apply appropriate emergency response procedures.

Editorial Note: To identify the dangerous training and assessment personnel require, the operator should insert the training syllabi for each function involved in the transport of dangerous goods. To support this, the operator should include:

- an assessment plan;
- a training plan;
- a competency framework for personnel;
- a dangerous goods task list;
- a task/knowledge matrix tool.

Editorial Note: As a minimum, the operator should include the personnel identified in 9.2 Duties of All Personnel Involved.

2.4.4 Instructor Qualifications

Instructors of initial and recurrent dangerous goods training programmes must demonstrate or be assessed as competent in instruction and the function(s) that they will instruct prior to delivering such training.

Instructors delivering initial and recurrent dangerous goods training programmes must deliver such courses at least every 24 months, or in the absence of this, attend recurrent training.

Editorial Note 1: In addition to the above, operators should detail the experience and aptitudes considered appropriate for the selection of trainers and assessors.

Editorial Note 2: Any person assessing competence must be trained and assessed commensurate with this function. This includes the requirement to undertake recurrent training and assessment within 24 months of previous training and assessment.

Editorial Note 3: The above section does not apply to the exclusive use of Computer-Based Training (CBT) and other self-study materials for the delivery of dangerous goods training and assessment, i.e., where none of the training and assessment is delivered in person. There must, however, exist adequate

means to ensure that persons creating and maintaining self-study training and assessment materials are competent and their knowledge of the transport of dangerous goods by air remains current. This includes contracted training providers.

2.4.5 Identification of Training and Testing Materials

Editorial Note 1: *Operators should detail the dangerous goods training and assessment materials that have been subjected to approval so that they may be readily identified by trainers. The titles and revision numbers of presentations, videos, study books, handouts, visual aids, and assessment tools should be included. Additionally, the pass mark for projects, examinations or oral assessments required to achieve competency and procedures to be applied if personnel do not achieve or maintain the required competency should be established.*

- *End -*