


Irish Aviation Authority The Times Building 11–12 D'Olier Street Dublin 2, Ireland www.iaa.ie Safety Regulation Division	Údarás Eitlíochta na hÉireann Foirgneamh na hAmanna 11–12 Sráid D'Olier Baile Átha Cliath 2, Éire Rannán na Rialachán Sábháilteachta	No. OAM 08 Revision 00 Date 11.08.17	
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Title: Guidance Material for the Carriage of Dangerous Goods by Air

1. INTRODUCTION

The purpose of this Advisory Memorandum is to provide detailed guidance for Industry and persons and IAA personnel on the basic requirements for the safe carriage of dangerous goods by air. This Advisory Memorandum supersedes Airworthiness Information Memorandum 20.

The carriage of dangerous goods on board any aircraft other than commercial air transport shall be in compliance with the requirements of S.I. No. 224 of 1973 Air Navigation (Carriage of Munitions of War and Dangerous Goods) Order, 1973 as amended. The ICAO technical instructions for the Safe Transport of Dangerous Goods by Air contain the internationally agreed recommendations, which will ensure those dangerous goods, can be carried safely.

The ICAO technical instructions cover the procedures to be followed by everyone involved in preparing a consignment of dangerous goods and placing it on an aircraft.

Dangerous goods are articles or substances which are capable of posing a significant risk to health, safety or property, when transported by air and which are classified by part 2 of the technical instructions.

2. REFERENCES

- S.I. No. 224 of 1973 Air Navigation (Carriage of Munitions of War and Dangerous Goods) Order, 1973 as amended by S.I. 130 of 1989.
- Irish Aviation Authority, Aeronautical Notice O.1. (latest issue)
- ICAO Annex 18 the Safe Transport of Dangerous Goods by Air. (latest edition)
- ICAO Technical Instruction for the Safe Transport of Dangerous Goods by Air Document Number 9284-AN/905 and its supplement. (latest editions)
- IATA Dangerous Goods Regulations. (latest edition)
- European Dangerous Goods Liaison Group Guidance Material for the safe transport of dangerous goods.


3. Responsibilities

3.1. The Shipper must:

- (a) Identify any dangerous article or substance using the nine hazard classes.
- (b) Limit the package content and/or size to the maximum allowed (Note: The listed limits are for each individual package).
- (c) Use the correct type of packaging.
- (d) Put on the package the required labels and markings.
- (e) Enter the required details on the Shipper's Declaration for Dangerous Goods.

3.2. The Airline Acceptance Staff must:

- (a) Inspect each package for leakage or damage and for the correct labels and markings.
- (b) Complete a comprehensive checklist and only accept the consignment if all relevant requirements have been complied with.

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3.3. The Loading Personnel must:

- (a) Inspect each package for leakage or damage.
- (b) Correctly position, segregate and secure each package.

3.4. The Captain must:

- (a) Receive and retain full written details of all dangerous goods loaded on the aircraft (notification to Pilot in Command).
- (b) Be aware of the action to be taken in the event of emergencies involving dangerous goods.

The Operator (Airline) is required to provide the above information in the Operations Manual.

Additional Guidance

4. Dangerous Goods are divided into nine classes:

Note: The order in which they appear below does not imply a relative degree of danger.

Class 1: Explosives

Class 2: Gases - compressed, liquefied, dissolved under pressure or deeply refrigerated.

Class 3: Flammable liquids

Class 4: Flammable solids, substances liable to spontaneous combustion, substance that on contact with water emits flammable gases.

Class 5: Oxidizing substances; organic peroxides.

Class 6: Poisonous (toxic) and infectious substances.

Class 7: Radioactive materials.

Class 8: Corrosives

Class 9: Substance, which during air transport presents a danger not covered by other classes, e.g. magnetized materials. This class does not require hazard labels.


In some classes, dangerous goods are further divided into divisions. The division is expressed by placing a decimal point after the class number and reflecting the number of the division - e.g. Division 5.2 for details of the classes and their divisions see Part 2 of the technical instructions.

5. Dangerous Goods List

Part 3 of the technical instructions contains an alphabetical list of dangerous goods most commonly offered for transport by air. It contains information relating to the classification, labelling, packing and the permitted quantity limitations on both passenger and cargo aircraft.

The absence of an article or substance from the list should not be interpreted as permitting its carriage by air.

There are occasions when new substances will be offered for transport, which do not appear in the list. To cover potential dangerous goods such as these, a number of generalised entries have been made in

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the list which refer to groups or categories of substance 'not otherwise specified' (n.o.s) e.g. poisonous liquid n.o.s. This type of entry may require the technical name of the substance, in parenthesis, following the n.o.s. entry. (See attachment 1 chapter 2 of the technical instruction for a list of such entries).

The dangerous goods list also gives the UN number for the substance. If the name and description of the substance are unclear, the UN or ID No. on the captain's notification can be cross-referenced by consulting the table in attachment I of the technical instructions.

6. General Packing Requirements

Dangerous goods must be packed in receptacles of good quality, which must be so constructed and so closed as to prevent the package from any leakage, which might be caused in normal conditions of air transport. Most packaging must be subject to performance tests, the severity of which is dependent on the degree of danger of the intended contents (packing group).

For packing purposes, dangerous goods are divided into three packing groups, depending on the degree of danger they present:

Packing Group I: Great danger
Packing Group II: Medium danger
Packing Group III: Minor danger

There is a column in the dangerous goods list, which indicates the packing group of each substance (column 8 - UN Pkg. Group).

7. Marking

The shipper is responsible for the marking of each package of dangerous goods, in accordance with part 5 chapter 2 of the technical instructions.

A package or overpack must be marked with the paper shipping name a UN or ID number.

8. Labelling


The shipper is responsible for affixing all labels to a package or over pack in accordance with part 5 chapter 3 of the technical instructions.

The operator is responsible for replacing labels, which become detached or illegible during transport.

There are two types of labels: hazard labels and handling labels.

- **Hazard Labels:**
 - Normally a diamond shape - 10 cm X 10 cm.
 - Some articles and substances require subsidiary risk labels as well as a primary hazard label.
 - Primary hazard labels carry the class or division number in the bottom corner but subsidiary risk labels carry no class or division number.
- **Handling Labels:**

Examples are:

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- Magnetized material - must not be loaded in such a position that they will have a significant effect on the compasses.
- “Danger cargo aircraft only” packages and over packs must not be loaded on passenger aircraft.
- This Way Up - these packages must be handled and stored in the upright position as indicated by the arrows.

Labelling of unit load devices (U.L.D.) - Igloo etc.

Each U.L.D. containing dangerous goods which require a hazard label must clearly display on its exterior an indication that dangerous goods are contained unless the hazard labels themselves are visible. To do this, an identification tag with a border of prominent red hatching on both sides is attached to the U.L.D. The primary hazard class or division is indicated on this tag. The tag must be removed immediately after the dangerous goods have been unloaded.

9. Loading

Inspection:

Operators must ensure that a package or over pack is not loaded onto an aircraft or U.L.D. unless it has been inspected immediately prior to loading and found free from leaks or damage.

U.L.D.s must be inspected before loading on an aircraft.

The operator must inspect the goods on unloading. If they have been carried in a U.L.D. the place where the U.L.D. was stored on the aircraft must also be inspected after unloading for signs of leakage.

Any package, which appears to be damaged or leaking, must be removed from the aircraft and safe disposal arranged as laid down in Company or airport procedures. This may require specialist personnel.

In the case of spillage of radioactive material, the appropriate national authority must be advised. In Ireland this is the Radiological Protection Institute of Ireland at www.rpii.ie

In the case of leakage, the operator must ensure that the remainder of the load is neither damaged nor contaminated.

Security:

Packages of dangerous goods must be secured to prevent movement in flight.

Dangerous goods must not be carried in the cabin or cockpit.


Dangerous goods may be carried in a main deck cargo compartment of a passenger aircraft provided that the compartment meets all the certification for a Class 3 cargo compartment.

Expandable Polystyrene Beads or Plastic Moulding Materials:

A total or not more than 100 kg. (220 LB) net may be carried in any inaccessible hold.

10. Radioactive Materials

Radioactive materials must be loaded on an aircraft in strict compliance with the requirements as laid down in the technical instructions.

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Note:

Radioactive materials must never be loaded in a compartment occupied by passengers or crew.

11. Information to Captain:

An operator of an aircraft in which dangerous goods are to be carried must, prior to departure, provide the captain with written information of at least the following:

- (a) The Air Waybill No.
- (b) The proper shipping name and UN or ID number as listed in the Regulations.
- (c) The Class or division and subsidiary risks for which labels are required for Class I, the compatibility group.
- (d) The Packing Group if applicable.
- (e) For non-radioactive materials, the number of packages, the net quantity of each package and its exact location.
- (f) For radioactive materials, the number of packages, their category, their transport index if applicable and their exact location.
- (g) Whether the package is for cargo aircraft only.
- (h) The airport at which the package is to be unloaded.
- (i) An indication that the dangerous goods are being carried under a State exemption if applicable.
- (j) The location of any wheelchairs with spillable batteries or of a battery if stowed separately.
- (k) Confirmation that there is no evidence of damage to or leak from any package loaded on the aircraft.

Written notification must be readily available to the pilot-in-command during the flight and a copy of the above information must be retained on the ground at a readily accessible location until after the flight to which the written information refers has landed at its destination.

12. Incompatible Dangerous Goods:

Packages containing substances, which might react dangerously with each other, must NOT be stowed next to each other or in a position, which would allow interaction in the event of a leak. See table 7.1 in the technical instructions for details.


13. Loading of liquids:

Liquids must be loaded and stowed the correct way up as indicated by the labels.

Single packages with end closures must be stowed with these closures upwards.

14. Poisonous and Infectious Substances:

These substances must not be stowed in the same compartment as animals or foodstuffs intended for animal or human consumption. This does not apply if the poisons and foodstuffs are loaded in separate

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Unit Load devices (ULD's) and the U.L.D.s are not adjacent to each other or if they are loaded in separate closed U.L.D.s.

15. Dry Ice (Solid Carbon Dioxide):

May be carried in any cargo compartment, see part 7-2-8 paragraph 2.11 of the technical instructions for details of maximum quantity limitations.

When a captain takes over a through flight, he must receive a written notification for all goods loaded at previous stations, which remain on board.

When the captain signs the notification he is merely signing that he has received that notification, he does not accept responsibility for the packing and loading of the goods.

16. Information by the Captain in the Case of Emergency:

If an in-flight emergency occurs, the Captain should inform the air traffic unit of any dangerous goods on board. If time permits the information should include: -

- (a) The proper shipping name.
- (b) The Class.
- (c) UN number.
- (d) Subsidiary risks.
- (e) Compatibility group for Class I.
- (f) Quantity.
- (g) Location on board.
- (h) Or a telephone number where the above information can be obtained.

17. Reporting of Accidents and Incidents

An operator must report dangerous goods accidents and incidents to the appropriate authority of the State in which they occurred as required by that authority and to the Authority of the state of the operator.

18. Training

Training for involved personnel shall be carried out as per requirements of I.C.A.O. Technical instructions part 1 chapter 4.