



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

**Montréal, 15 to 19 April 2013**

**Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2015-2016 Edition**  
**2.5 : Part 5 — Shipper's Responsibilities**

**DRAFT AMENDMENTS TO THE TECHNICAL INSTRUCTIONS TO ALIGN WITH THE UN  
RECOMMENDATIONS — PART 5**

(Presented by the Secretary)

**SUMMARY**

This working paper contains draft amendments to Part 5 of the Technical Instructions to reflect the decisions taken by the UN Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals at its sixth session (Geneva, 14 December 2012). It also reflects amendments agreed by DGP-WG12 (Montreal, 15 to 19 October 2012).

The DGP-WG is invited to agree to the draft amendments in this working paper.

## Part 5

### SHIPPER'S RESPONSIBILITIES

#### Chapter 1

#### GENERAL

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##### 1.1 GENERAL REQUIREMENTS

Before a person offers any package or overpack of dangerous goods for transport by air, that person must ensure that:

- a) the articles or substances are not forbidden for transport by air (see Part 1, Chapter 2);

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- d) the dangerous goods transport document has been properly executed and the declaration signed;

- ~~e) an overpack is used for packages bearing the "Cargo aircraft only" label only if:~~

- ~~1) the packages are assembled in such a way that clear visibility and easy access to them is possible; or  
2) the packages are not required to be accessible under 7;2.4.1; or  
3) not more than one package is involved;~~

- f) the overpack does not contain packages of dangerous goods which require segregation according to Table 7-1;

- g) when an overpack is used, packages must be secured within the overpack;

- h) the dangerous goods are not included in any freight container/unit load device except for radioactive material as specified in 7;2.9 (subject to the approval of the operator, this does not apply to a unit load device containing consumer commodities prepared according to Packing Instruction Y963 or dry ice used as a refrigerant for other than dangerous goods when prepared according to Packing Instruction 954 or magnetized material when prepared according to Packing Instruction 953);

- i) before a package or overpack is reused, all inappropriate dangerous goods labels and markings are removed or completely obliterated;

- j) each package contained within an overpack is properly packed, marked, labelled and is free of any indication that its integrity has been compromised and in all respects is properly prepared as required in these Instructions. The "overpack" marking described in 2.4.10 is an indication of compliance with this requirement. The intended function of each package must not be impaired by the overpack; and

- k) packages and overpacks containing dangerous goods are offered to the operator separately from cargo which is not subject to these Instructions, except as provided for in 7;1.4.1.

*Note 1.— Packages and overpacks containing dangerous goods may be included on the same air waybill as cargo which is not subject to these Instructions.*

*Note 2.— The requirement in 1.1 k) also applies to consolidated shipments offered to the operator.*

*Note 3.— For cooling purposes, an overpack may contain dry ice, provided that the overpack meets the requirements of Packing Instruction 954.*

## 1.2 GENERAL PROVISIONS FOR CLASS 7

### 1.2.1 Approval of shipments and notification

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UN Model Regulations, paragraph 5.1.5.1.1, ST/SG/AC.10/40/Add.1

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#### 1.2.1.1 General

In addition to the approval ~~for~~ of package designs described in Part 6, Chapter 4, multilateral shipment approval is also required in certain circumstances (1.2.1.2 and 1.2.1.3). In some circumstances it is also necessary to notify competent authorities of a shipment (1.2.1.4).

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#### 1.2.1.4 Notifications

Notification to competent authorities is required as follows:

- a) Before the first shipment of any package requiring competent authority approval, the shipper must ensure that copies of each applicable competent authority certificate applying to that package design have been submitted to the competent authority of the country of origin of the shipment and to the competent authority of each country through or into which the consignment is to be transported. The shipper is not required to await an acknowledgement from the competent authority, nor is the competent authority required to make such acknowledgement of receipt of the certificate;
- b) For each of the following types of shipments:
  - i) Type C packages containing radioactive material with an activity greater than 3000 A<sub>1</sub> or 3000 A<sub>2</sub>, as appropriate, or 1000 TBq, whichever is the lower;
  - ii) Type B(U) packages containing radioactive material with an activity greater than 3000 A<sub>1</sub> or 3000 A<sub>2</sub>, as appropriate, or 1000 TBq, whichever is the lower;
  - iii) Type B(M) packages;
  - iv) Shipment under special arrangement;

the shipper must notify the competent authority of the country of origin of the shipment and the competent authority of each country through or into which the consignment is to be transported. This notification must be in the hands of each competent authority prior to the commencement of the shipment, and preferably at least 7 days in advance;

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UN Model Regulations, paragraph 5.1.5.1.4 c), ST/SG/AC.10/40/Add.1

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Note.— Paragraph referred to in Model Regulations does not appear in the Instructions (6.4.23: Applications and approvals for radioactive material transport).

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- c) The shipper is not required to send a separate notification if the required information has been included in the application for ~~shipment~~ approval **of shipment (see 6.4.23.2 of the UN Model Regulations)**;
- d) The consignment notification must include:
  - i) sufficient information to enable the identification of the package or packages including all applicable certificate numbers and identification marks;
  - ii) information on the date of shipment, the expected date of arrival and proposed routing;
  - iii) the names of the radioactive material or nuclides;
  - iv) descriptions of the physical and chemical forms of the radioactive material, or whether it is special form radioactive material or low dispersible radioactive material; and
  - v) the maximum activity of the radioactive contents during transport expressed in units of becquerels (Bq) with an appropriate SI prefix symbol (see 1;3.2). For fissile material, the mass of fissile material (or of each fissile nuclide for mixtures when appropriate) in units of grams (g), or multiples thereof, may be used in place of activity.

## 1.2.2 Certificates issued by the competent authority

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### UN Model Regulations, paragraph 5.1.5.2.1, ST/SG/AC.10/40/Add.1

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1.2.2.1 Certificates issued by the competent authority are required for the following:

a) Designs for:

i) special form radioactive material;

ii) low dispersible radioactive material;

iii) fissile material excepted under 2;7.2.3.5.1 f)

~~iii~~iv) packages containing 0.1 kg or more of uranium hexafluoride;

iv) ~~all~~ packages containing fissile material unless excepted by 2;7.2.3.5, 6;7.10.2 or 6;7.10.3;

~~v)~~ Type B(U) packages and Type B(M) packages;

~~vii)~~ Type C packages;

b) Special arrangements;

c) Certain shipments (1.2.1.2);

d) Determination of the basic radionuclide values referred to in 2;7.2.2.1 for individual radionuclides which are not listed in Table 2-12 (see 2;7.2.2.2 a));

e) Alternative activity limits for an exempt consignment of instruments or articles (see 2;7.2.2.2 b));.

The certificates must confirm that the applicable requirements are met, and for design approvals, must attribute to the design an identification mark.

The certificates of approval for the package design and shipment ~~approval certificates~~ may be combined into a single certificate.

Certificates and applications for these certificates must be in accordance with the requirements in 6;7.22.

1.2.2.2 The shipper must be in possession of a copy of each applicable certificate.

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### UN Model Regulations, paragraph 5.1.5.2.3, ST/SG/AC.10/40/Add.1

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1.2.2.3 For package designs where it is not required that a competent authority issued a certificate ~~is not required of approval~~, the shipper must, on request, make available for inspection by the relevant competent authority, documentary evidence of the compliance of the package design with all the applicable requirements.

## 1.2.3 Determination of transport index (TI) and criticality safety index (CSI)

### 1.2.3.1 Determination of transport index

1.2.3.1.1 The transport index (TI) for a package, overpack or freight container, must be the number derived in accordance with the following procedure:

a) Determine the maximum radiation level in units of millisieverts per hour (mSv/h) at a distance of 1 m from the external surfaces of the package, overpack, or freight container. The value determined must be multiplied by 100 and the resulting number is the transport index. For uranium and thorium ores and their concentrates, the maximum radiation level at any point 1 m from the external surface of the load may be taken as:

0.4 mSv/h for ores and physical concentrates of uranium and thorium;

0.3 mSv/h for chemical concentrates of thorium;

0.02 mSv/h for chemical concentrates of uranium, other than uranium hexafluoride;

b) For freight containers, the value determined in step a) above must be multiplied by the appropriate factor from Table 5-1;

- c) The value obtained in steps a) and b) above must be rounded up to the first decimal place (e.g. 1.13 becomes 1.2), except that a value of 0.05 or less may be considered as zero.

1.2.3.1.2 The transport index 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 radiation level, except in the case of non-rigid overpacks for which the transport index must be determined only as the sum of the transport indices of all the packages.

**Table 5-1. Multiplication factors for freight containers**

<i>Size of load*</i>	<i>Multiplication factor</i>
size of load $\leq 1 \text{ m}^2$	1
$1 \text{ m}^2 < \text{size of load} \leq 5 \text{ m}^2$	2
$5 \text{ m}^2 < \text{size of load} \leq 20 \text{ m}^2$	3
$20 \text{ m}^2 < \text{size of load}$	10
* Largest cross-sectional area of the load being measured.	

1.2.3.1.3 The criticality safety index for each overpack or freight container must be determined as the sum of the CSIs of all the packages contained. The same procedure must be followed for determining the total sum of CSIs in a consignment or aboard an aircraft.

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UN Model Regulations, paragraph 5.1.5.3.4, ST/SG/AC.10/40/Add.1

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1.2.3.1.4 Packages ~~and~~ overpacks and freight containers must be assigned to either category I-WHITE, II-YELLOW or III-YELLOW in accordance with the conditions specified in Table 5-2 and with the following requirements:

- a) for a package ~~or~~ overpack or freight container, both the transport index and the surface radiation level conditions must be taken into account in determining which is the appropriate category. Where the transport index satisfies the condition for one category but the surface radiation level satisfies the condition for a different category, the package ~~or~~ overpack or freight container must be assigned to the higher category. For this purpose, category I-WHITE must be regarded as the lowest category;
- b) the transport index must be determined following the procedures specified in 1.2.3.1.1 and 1.2.3.1.2;
- c) if the surface radiation level is greater than 2 mSv/h, the package or overpack must be transported under exclusive use and under the provisions of 7.2.10.5.3, as appropriate;
- d) a package transported under a special arrangement must be assigned to category III-YELLOW except under the provisions of 1.2.3.1.5;
- e) an overpack or freight container which contains packages transported under special arrangement must be assigned to category III-YELLOW except under the provisions of 1.2.3.1.5.

## UN Model Regulations, Table 5.1.5.3.4, ST/SG/AC.10/40/Add.1

**Table 5-2. Categories of packages and overpacks and freight containers**

<i>Conditions</i>		
<i>Transport index</i>	<i>Maximum radiation level at any point on external surface</i>	<i>Category</i>
0*	Not more than 0.005 mSv/h	I-WHITE
More than 0 but not more than 1*	More than 0.005 mSv/h but not more than 0.5 mSv/h	II-YELLOW
More than 1 but not more than 10	More than 0.5 mSv/h but not more than 2 mSv/h	III-YELLOW
More than 10	More than 2 mSv/h but not more than 10 mSv/h	III-YELLOW**
* If the measured transport index is not greater than 0.05, the value quoted may be zero in accordance with 1.2.3.1.1 c).		
** Must be transported under exclusive use and special arrangement <u>except for freight containers (see Table 7-6)</u> .		

## UN Model Regulations, paragraph 5.1.5.3.5, ST/SG/AC.10/40/Add.1

1.2.3.1.5 In all cases of international transport of packages requiring competent authority approval of design or shipment approval, for which different approval types apply in the different countries concerned by the shipment, the categorization must be in accordance with the certificate of the country of origin of design.

## UN Model Regulations, paragraph 5.1.5.4, ST/SG/AC.10/40/Add.1

**1.2.4 Specific provisions for excepted packages of radioactive material of Class 7**

1.2.4.1 Excepted packages of radioactive material of Class 7 must be legibly and durably marked on the outside of the packaging with:

- a) the UN number preceded by the letters "UN";
- b) an identification of either the shipper or consignee, or both; and
- c) the permissible gross mass if this exceeds 50 kg.

## UN Model Regulations, paragraph 5.1.5.4.2, ST/SG/AC.10/40/Add.1

1.2.4.2 The documentation requirements of 5:4 do not apply to excepted packages of radioactive material of Class 7, except that ~~information must be shown on a transport document such as an air waybill or other similar document. The information required is as follows and should be shown in the following order:~~

- a) the UN number preceded by the letters "UN" and the name and address of the shipper and the consignee and, if relevant, the identification mark for each competent authority certificate of approval (see 5:4.1.5.7.1 g)) must be shown on a transport document such as a bill of lading, air waybill or other similar document complying with the requirements of 5:4.1.2.1 to 5:4.1.2.4; and
- b) ~~the proper shipping name~~ the requirements of 5:4.1.6.2 and, if relevant, those of 5:4.1.5.7.1 g), 5:4.1.5.7.3 and 5:4.1.5.7.4 must apply; and
- c) the requirements of 5.4.4 must apply.

Where an agreement exists with the operator, the shipper may provide the information by EDP or EDI techniques.

## UN Model Regulations, paragraph 5.1.5.4.3, ST/SG/AC.10/40/Add.1

1.2.4.3 The requirements of 5:2.4.5.2 and 5:3.5.1.1.11.3 must apply if relevant.

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### 1.5 SALVAGE PACKAGINGS

Before a person offers any salvage packaging for transport by air, that person must ensure that:

- it is marked with the proper shipping name and UN number of, and bear all the labels appropriate for, the dangerous goods contained therein;

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UN Model Regulations, paragraph 5.2.1.3, ST/SG/AC.10/40/Add.1

- it is marked with the word “Salvage” and the lettering of the “Salvage” marking must be at least 12 mm high;
- the words “Salvage package” are added after the description of the goods in the dangerous goods transport document required by 4.1; and
- where the package contains dangerous goods restricted to transport on cargo aircraft only, it bears a “Cargo aircraft only” label and the dangerous goods transport document contains the necessary statement according to 4.1.5.7.1 b).

In addition, that person must ensure that all other applicable requirements are met.

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UN Model Regulations, paragraph 5.2.1.3, ST/SG/AC.10/40/Add.1

*Note.— The size requirement for the “Salvage” marking must apply as from 1 January 2016.*

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### 1.6 EMPTY PACKAGINGS

1.6.1 Other than for Class 7, a packaging which previously contained dangerous goods must be identified, marked, labelled and placarded as required for those dangerous goods unless steps such as cleaning, purging of vapours or refilling with a non-dangerous substance are taken to nullify any hazard.

1.6.2 Before an empty packaging which had previously contained an infectious substance is returned to the shipper, or sent elsewhere, it must be disinfected or sterilized to nullify any hazard, and any label or marking indicating that it had contained an infectious substance must be removed or obliterated.

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UN Model Regulations, paragraph 5.1.3.2, ST/SG/AC.10/40/Add.1

1.6.3 Freight containers as well as other P-packagings and overpacks used for the transport of radioactive material must not be used for the storage or transport of other goods unless decontaminated below the level of 0.4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters and 0.04 Bq/cm<sup>2</sup> for all other alpha emitters.

## Chapter 2

### PACKAGE MARKINGS

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#### 2.4 MARKING SPECIFICATIONS AND REQUIREMENTS

##### 2.4.1 Marking with proper shipping name and UN or ID number

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UN Model Regulations, paragraph 5.2.1.1, ST/SG/AC.10/40/Add.1

2.4.1.1 Unless otherwise provided in these Instructions, the proper shipping name of the dangerous goods (supplemented with the technical name(s) if appropriate, see Part 3, Chapter 1) and, when assigned, the corresponding UN number preceded by the letters “UN” or “ID”, as appropriate, must be displayed on each package. The UN number and the letters “UN” or “ID” must be at least 12 mm high, except for packagings of 30 litres capacity or less or of 30 kg maximum net mass and for cylinders of 60 litres water capacity ~~or less~~, when they must be at least 6 mm in height and except for packagings of 5 litres or 5 kg or less when they must be of an appropriate size. In the case of unpackaged articles, the

marking must be displayed on the article, on its cradle or on its handling, storage or launching device. A typical package marking would be:

“Corrosive liquid, acidic, organic, n.o.s. (caprylyl chloride) UN 3265”.

*Note.*— *The size requirements for the UN number marking will become mandatory from 1 January 2014.*

2.4.1.2 For solid substances, unless the word “molten” is already included in the proper shipping name, it must be added to the proper shipping name on the package when a substance is offered for air transport in the molten state (see Part 3, Chapter 1).

*Note.*— *Additional descriptive text in the entries in column 1 of the Dangerous Goods List (Table 3-1) are not part of the proper shipping name but may be used in addition to the proper shipping name.*

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#### 2.4.5 Special marking requirements for radioactive material

UN Model Regulations, paragraph 5.2.1.5.1, ST/SG/AC.10/40/Add.1

Changes in addition to those introduced into the 18th Revised Edition of the Model Regulations are proposed for current paragraph 2.4.5.1 of the Instructions for the sake of alignment with the UN text. The additional changes are highlighted in yellow.

2.4.5.1 Each package must be legibly and durably marked on the outside of the packaging with an identification of either the shipper or consignee, or both. Each overpack must be legibly and durably marked on the outside of the overpack with an identification of either the shipper or consignee or both unless these markings of all packages within the overpack are clearly visible.

UN Model Regulations, paragraph 5.2.1.5.2, ST/SG/AC.10/40/Add.1

Moved from current 5;2.4.5.1 e):

2.4.5.2 The marking of excepted packages of radioactive material of Class 7 must be as required by 5;1.2.4.1.

a) 2.4.5.3 ~~e~~ Each package of gross mass exceeding 50 kg must have its permissible gross mass legibly and durably marked on the outside of the packaging;

b) 2.4.5.4 ~~e~~ Each package which conforms to:

- i a) a Type IP-1 package, a Type IP-2 package or a Type IP-3 package design must be legibly and durably marked on the outside of the packaging with “TYPE IP-1”, “TYPE IP-2” or “TYPE IP-3” as appropriate;
- ii b) a Type A package design must be legibly and durably marked on the outside of the packaging with “TYPE A”;
- iii c) a Type IP-2 package, a Type IP-3 package or a Type A package design must be legibly and durably marked on the outside of the packaging with the international vehicle registration code (VRI Code) of the country of origin of design and either the name of the manufacturer, or other identification of the packaging specified by the competent authority of the country of origin of design.

UN Model Regulations, paragraph 5.2.1.5.5, ST/SG/AC.10/40/Add.1

e) 2.4.5.5 ~~e~~ Each package which conforms to a design approved by the competent authority under one or more of paragraphs 5;1.2.2.1, 6;7.21 to 6;7.21.4, 16.4.23.4 to 6.4.23.7 of the UN Model Regulations] and 6;7.23.2.1 must be legibly and durably marked on the outside of the packaging with the following information:

i a) the identification mark allocated to that design by the competent authority;

ii b) a serial number to uniquely identify each packaging which conforms to that design; and

iii c) “Type B(U)”, “Type B(M)” or “Type C” in the case of a Type B(U)-~~or~~ Type B(M) or Type C package design, ~~with “TYPE B(U)” or “TYPE B(M)”;~~ and

~~iv) in the case of a Type C package design, with “TYPE C”.~~



~~e) 2.4.5.6~~ Each package which conforms to a Type B(U), Type B(M) or Type C package design must have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol, as shown in Figure 5-1 below:

Moved above (5;2.4.5.2):

~~e) The marking of excepted packages must be as required by 1.2.4.~~

~~2.4.5.2.7~~ In all cases of international transport of packages requiring competent authority approval of design or shipment approval, for which different approval types apply in the different countries concerned by the shipment, the marking must be in accordance with the certificate of the country of origin of the design.

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UN Model Regulations, paragraph 5.2.1.5.1, ST/SG/AC.10/40/Add.1

#### 2.4.9 Special marking provisions for environmentally hazardous substances

2.4.9.1 ~~Unless otherwise specified in these Instructions,~~ Packages containing environmentally hazardous substances meeting the criteria of 2.9.2.1 a) (UN Nos. 3077 and 3082) must be durably marked with the environmentally hazardous substance mark, with the exception of single packagings and combination packagings where such single packagings or inner packagings of such combination packagings have:

- ~~— a net quantity of 5 L or less for liquids; or~~
- ~~— a net mass of 5 kg or less for solids.~~

2.4.9.2 The environmentally hazardous substance mark must be located adjacent to the markings required by 2.4.1.1. The requirements of 2.2.2 must be met.

UN Model Regulations, paragraph 5.2.1.6.3, ST/SG/AC.10/40/Add.1

2.4.9.3 The environmentally hazardous substance mark must be as shown in Figure 5-2. The marking must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The symbol (fish and tree) must be black on white or suitable contrasting background. For packagings, the minimum dimensions must be 100 mm × 100 mm and the minimum width of line forming the diamond must be 2 mm, except in the case of packages of such dimensions that they can only bear smaller marks. If the size of the package so requires, the dimensions/line thickness may be reduced, provided the marking remains clearly visible. Where dimensions are not specified, all features must be in approximate proportion to those shown.

Note 1.— The labelling provisions of 5.3 apply in addition to any requirement for packages to bear the environmentally hazardous substance mark.

Note 2.— The provisions of 5.2.4.9.3 from the 2013-2014 Edition of these Instructions may continue to be applied until 31 December 2016.

2.4.9.4 Regardless of the application of 2.4.9.1, all packages containing environmentally hazardous substances (UN Nos. 3077 and 3082) must bear a Class 9 hazard label.

UN Model Regulations, Figure 5.2.2 and paragraph 5.1.2.1, ST/SG/AC.10/40/Add.1

Replace mark for environmentally hazardous substances with the following:



Figure 5-2. Symbol (fish and tree): black on white or suitable contrasting background

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### 2.4.10 Marking of overpacks

An overpack must be marked with the word “Overpack”, with the proper shipping name, UN number, and special handling instructions appearing on interior packages for each item of dangerous goods contained in the overpack unless markings and labels representative of all dangerous goods in the overpack are visible, except as required in 3.2.6 and 3.5.1.1 h) to i). Packaging specification markings must not be reproduced on the overpack. When packages containing dangerous goods in limited quantities are placed in an overpack, the overpack must also be marked with the limited quantity marking shown in Figure 3-1 unless the markings representative of all dangerous goods in the overpack are visible. The lettering of the “Overpack” marking must be at least 12 mm high.

Note.— The size requirement for the “Overpack” marking must apply as from 1 January 2016.

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## Chapter 3

### LABELLING

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UN Model Regulations, paragraph 5.2.2.1.12.1, ST/SG/AC.10/40/Add.1

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3.2.6 Except when enlarged labels are used in accordance with 3.6, each package, overpack and freight container containing radioactive material must bear ~~at least the two labels which conforming to Figures 5-189, 5-1920 and 5-201 as~~ according to the appropriate ~~according to the category (see 5.1.2.3.1.4) of that package, overpack or freight container.~~ Labels must be affixed to two opposite sides on the outside of the package or overpack or on the outside of all four sides of the a freight container. Each overpack containing radioactive material must bear at least two labels on opposite sides of the outside of the overpack. In addition, each package, overpack and freight container containing fissile material, other than fissile material excepted under the provisions of ~~6.7.40.2~~ 2.7.2.3.5 must bear labels ~~which conforming to the model shown in Figure 5-21; such labels, where applicable, must be affixed adjacent to the labels for radioactive material conforming to Figure 5-19, 5-20, or 5-21, as applicable.~~ Labels must not cover the markings specified in Chapter 2. Any labels which do not relate to the contents must be removed or covered.

### 3.5 LABEL SPECIFICATIONS

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#### 3.5.1 Class hazard label specifications

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Changes in addition to those introduced into the 18th Revised Edition of the Model Regulations are proposed for current paragraph 3.5.1 of the Instructions for the sake of alignment with the UN text. Changes to paragraph levels are also proposed. The additional changes are highlighted in yellow.

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3.5.1.1 Class hazard labels must conform to the following specifications: Labels must satisfy the provisions of this section and conform, in terms of colour, symbols and general format, to the specimen labels shown in Figures 5-3 to 5-24.

Note.— Where appropriate, labels in Figures 3-3 to 3-24 are shown with a dotted outer boundary as provided for in 3.5.1.1.1.2. This is not required when the label is applied on a background of contrasting colour.

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UN Model Regulations, paragraph 5.2.2.2.1.1, ST/SG/AC.10/40/Add.1

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~~— a) 3.5.1.1.1 Labels must be configured as shown in Figure 5-2.~~

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UN Model Regulations, paragraph 5.2.2.2.1.1.1, ST/SG/AC.10/40/Add.1

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3.5.1.1.1.2 Labels must be displayed on a background of contrasting colour, or must have either a dotted or solid outer boundary line.

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UN Model Regulations, paragraph 5.2.2.2.1.1.2, ST/SG/AC.10/40/Add.1

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3.5.1.1.1.3 The label must be in the form of a square set at an angle of 45 degrees (diamond shaped). The with minimum dimensions of must be 100 mm × 100 mm and the minimum width of the line inside the edge forming the diamond must be 2 mm, set at an angle of 45° (diamond shaped) except that labels of 50 mm × 50 mm may be used on packages containing infectious substances where the packages are of dimensions such that they can only bear smaller labels. They

~~The line inside the edge must be parallel and must have a line 5 mm inside the edge and running parallel with it from the outside of that line to the edge of the label. The line inside the edge on the upper half of a label must have the same colour as the symbol, and the line inside the edge on the lower half of the label must have the same colour as the figure in the bottom corner class or division number in the bottom corner. Labels are divided into halves. With the exception of Divisions 1.4, 1.5 and 1.6, the upper half of the label must contain the pictorial symbol and the lower half must contain the class or division number (and for goods of Class 1, the compatibility group letter) as appropriate. The label may include text such as the UN number or words describing the hazard class or division (e.g. "flammable") in accordance with f) provided the text does not obscure or detract from the other required label elements. Where dimensions are not specified, all features must be in approximate proportion to those shown.~~

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UN Model Regulations, paragraph 5.2.2.1.1.3, ST/SG/AC.10/40/Add.1

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3.5.1.1.1.4 If the size of the package so requires, the dimensions may be reduced, provided the symbols and other elements of the label remain clearly visible. The line inside the edge must remain 5 mm to the edge of the label. The minimum width of the line inside the edge must remain 2 mm. Dimensions for cylinders must comply with 3.5.1.1.1.5.

*Note.— The provisions of 3.5.1.1 a) from the 2013-2014 Edition of these Instructions may continue to be applied until 31 December 2016. When so applied, 3.5.1.1.1.2, 3.5.1.1.1.3 and 3.5.1.1.1.4 must not apply until 31 December 2016.*

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Reorder the following paragraphs as shown. 5;3.5.1.1.1.5 = UN 5.2.2.2.1.2, 5;3.5.1.1.6=UN 5.2.2.2.1.3, 5;3.5.1.1.7 ≈ UN 5.2.2.2.1.4, 5;3.5.1.1.8 ≈ UN 5.2.2.2.1.5, 5;3.5.1.1.9 ≈ UN 5.2.2.2.1.6, 5;3.5.1.1.10 not in UN, 5;3.5.1.1.11 = UN 5.2.2.1.12.2

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— b) — 3.5.1.1.1.9 The symbols, texts and numbers must be shown in black on all labels except:

- 1) the Class 8 label, where the text (if any) and class number must appear in white;
- 2) labels with entirely green, red or blue backgrounds, where they may be shown in white; and
- 3) the Division 5.2 label, where the symbol may be shown in white; and

4) the Division 2.1 label displayed on cylinders and gas cartridges for liquefied petroleum gases, where they may be shown in the background colour of the receptacle if adequate contrast is provided.

— c) — 3.5.1.1.1.7 In addition, Except for Divisions 1.4, 1.5 and 1.6, labels for Class 1 must show in the lower half, above the class number, the division number and compatibility group letter for the substance or article. Labels for Divisions 1.4, 1.5 and 1.6 must show in the upper half the division number and in the lower half the class number and the compatibility group letter.

— d) — 3.5.1.1.1.5 Cylinders for Class 2 may, on account of their shape, orientation and securing mechanisms for transport, bear labels representative of those specified in this chapter, which have been reduced in size, according to ISO 7225:2005, for display on the non-cylindrical part (shoulder) of such cylinders. Labels may overlap to the extent provided for by ISO 7225:2005 "Gas cylinders — Precautionary labels"; however, in all cases the labels representing the primary hazard and the numbers appearing on any label must remain fully visible and the symbols recognizable.

— e) — 3.5.1.1.1.6 With the exception of labels for Divisions 1.4, 1.5 and 1.6 of Class 1, the upper half of the label must contain the pictorial symbol and the lower half must contain the class or division number. In the case of labels for Class 5, the division number of the substance must be shown in the bottom corner of the label, as appropriate. For all other labels, the class number must be shown in the bottom corner of the label. The label may include such text as the UN number, or words describing the hazard class (e.g. "flammable") in accordance with 3.5.1.1.1.8 provided that the text does not obscure or detract from the other required label elements.

— f) — 3.5.1.1.1.8 Unless otherwise provided for in these Instructions, only text indicating the nature of the risk may be inserted in the lower half of the label (in addition to the class or division number or compatibility group).

— g) — 3.5.1.1.1.10 A label may contain form identification information, including the name of its maker, provided that information is printed outside of the solid line border in no larger than 10-point type.

Labelling of radioactive material

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UN Model Regulations, paragraph 5.2.2.1.12.2, ST/SG/AC.10/40/Add.1

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— h) — 3.5.1.1.1.11 Each label conforming to the applicable Figures 5-18~~19~~, 5-19~~20~~ and or 5-20~~21~~ must be completed with the following information:

4a) Contents:

A1) except for LSA-I material, the name(s) of the radionuclide(s) as taken from Table 2-12, using the symbols prescribed therein. For mixtures of radionuclides, the most restrictive nuclides must be listed to the extent the space on the line permits. The group of LSA or SCO must be shown following the name(s) of the

radionuclide(s). The terms “LSA-II”, “LSA-III”, “SCO-I” and “SCO-II” must be used for this purpose;

~~B2~~) for LSA-I material, the term “LSA-I” is all that is necessary; the name of the radionuclide is not necessary;

2b) Activity: The maximum activity of the radioactive contents during transport expressed in units of becquerels (Bq) with the appropriate SI prefix symbol. For fissile material, the total mass of fissile material (or mass of each fissile nuclide ~~s~~ for mixtures when appropriate) in units of grams (g), or multiples thereof, may be used in place of activity;

3c) For overpacks and freight containers the “contents” and “activity” entries on the label must bear the information required in 3.5.1.1 h) 1) A) and B), respectively, totalled together for the entire contents of the overpack or freight container except that on labels for overpacks or freight containers containing mixed loads of packages containing different radionuclides, such entries may read “See Transport Documents”;

4d) Transport index: The number determined in accordance with 1.2.3.1.1 and 1.2.3.1.2. (No transport index entry is required for category I-WHITE.)

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UN Model Regulations, paragraph 5.2.2.1.12.3, ST/SG/AC.10/40/Add.1

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~~j)~~ **3.5.1.1.11.1** Each label conforming to the Figure 5-24~~22~~ must be completed with the criticality safety index (CSI) as stated in the certificate of approval for special arrangement or the certificate of approval for the package design applicable in the countries through or into which the consignment is transported and issued by the competent authority.

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UN Model Regulations, paragraph 5.2.2.1.12.4, ST/SG/AC.10/40/Add.1

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~~j)~~ **3.5.1.1.11.2** For overpacks and freight containers, the label conforming to Figure 5-22 must bear the sum of the criticality safety indexes (CSI) on the label must bear the information required in h) above totalled together for the fissile contents of the overpack or freight container of all the packages contained therein.

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UN Model Regulations, paragraph 5.2.2.1.12.5, ST/SG/AC.10/40/Add.1

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~~k)~~ **3.5.1.1.11.3** In all cases of international transport of packages requiring competent authority approval of design or shipment ~~approval~~, for which different approval types apply in the different countries concerned by the shipment, the labelling must be in accordance with the certificate of the country of origin of design.

3.5.1.2 Illustrations of the class hazard labels, showing the approved symbols and colours, are given in Figures 5-3 to 5-23. The label descriptions used in column 5 of Table 3-1 are indicated in parentheses.

*Note 1.— The asterisk appearing in the bottom corner of the label indicates the location of the class or division number when the label is used to show the primary risk. See Figures 5-3 to 5-6 concerning the location of information on explosives labels.*

*Note 2.— Minor variations in the design of the symbol on labels or other differences such as the width of vertical lines on labels as shown in these Instructions or in regulations of other modes, which do not affect the obvious meaning of the label, are acceptable. For example the hand shown on the Class 8 label may be shown with or without shading, the extreme right and left vertical lines on the Division 4.1 and Class 9 label may extend to the edge of the label or there may be some white space at the edge, etc.*

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DGP-WG/12-WP/5:

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### 3.5.2 Handling labels

#### 3.5.2.1 Handling label specifications

An illustration of each of the handling labels showing the approved design and colour is given in Figures 5-24 to 5-26 and Figures 5-28 to 5-31. The minimum label dimensions are shown in the figures, Where dimensions or features are not specified, these must be in approximate proportion to those shown; however:

- a) labels having dimensions not smaller than half of those indicated may be used on packages containing infectious substances when the packages are of dimensions such that they can only bear smaller labels; and
- b) orientation labels may meet the specification of either Figure 5-26 or ISO Standard 780:1997.

3.5.2.2 Lithium battery handling label

Packages containing lithium batteries that meet the requirements of Section II of Packing Instructions 965 to 970 must bear a "Lithium battery" handling label shown in Figure 5-31, as required by the applicable packing instruction. The label must be a minimum dimension of 120 mm **wide** × 110 mm **high** except labels of **74105 mm wide** × **49574 mm high** may be used on packages containing lithium batteries where the packages are of dimensions such that they can only bear smaller labels. **When the reduced size label is used, the label features must be in approximate proportion to those shown on the full-size label (Figure 5-31).** The label must show "Lithium metal batteries" or "Lithium ion batteries", as applicable. Where the package contains both types of batteries, the label must show "Lithium metal and lithium ion batteries". Packages containing lithium batteries that meet the requirements of Section IB of Packing Instructions 965 and 968 must bear both a "Lithium battery" handling label shown in Figure 5-31 and a Class 9 hazard label (Figure 5-23).

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Insert the following new Figure 5-3:

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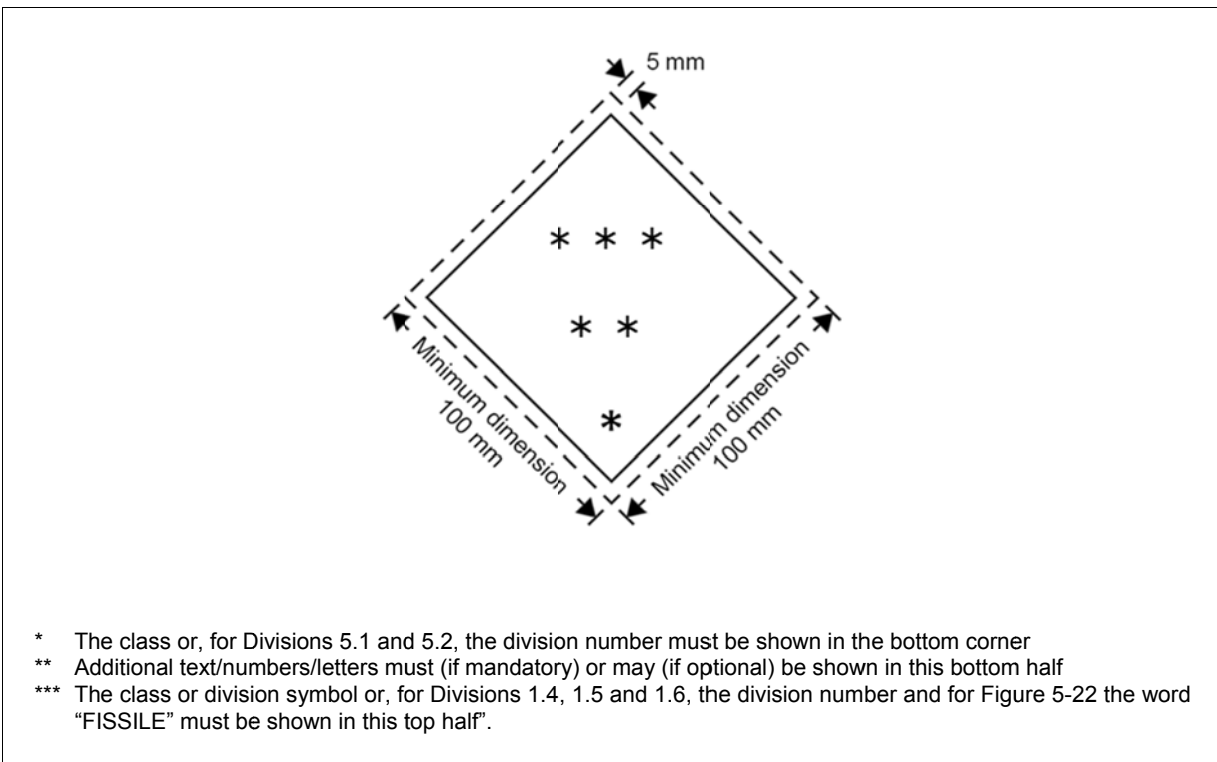


Figure 5-3. Class/division label

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Renumber subsequent figures accordingly

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UN Model Regulations, paragraph 5.2.1.7.1 (Figures 5.2.3 and 5.2.4), ST/SG/AC.10/40/Add.1

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Replace Figure 5-26 with the following:

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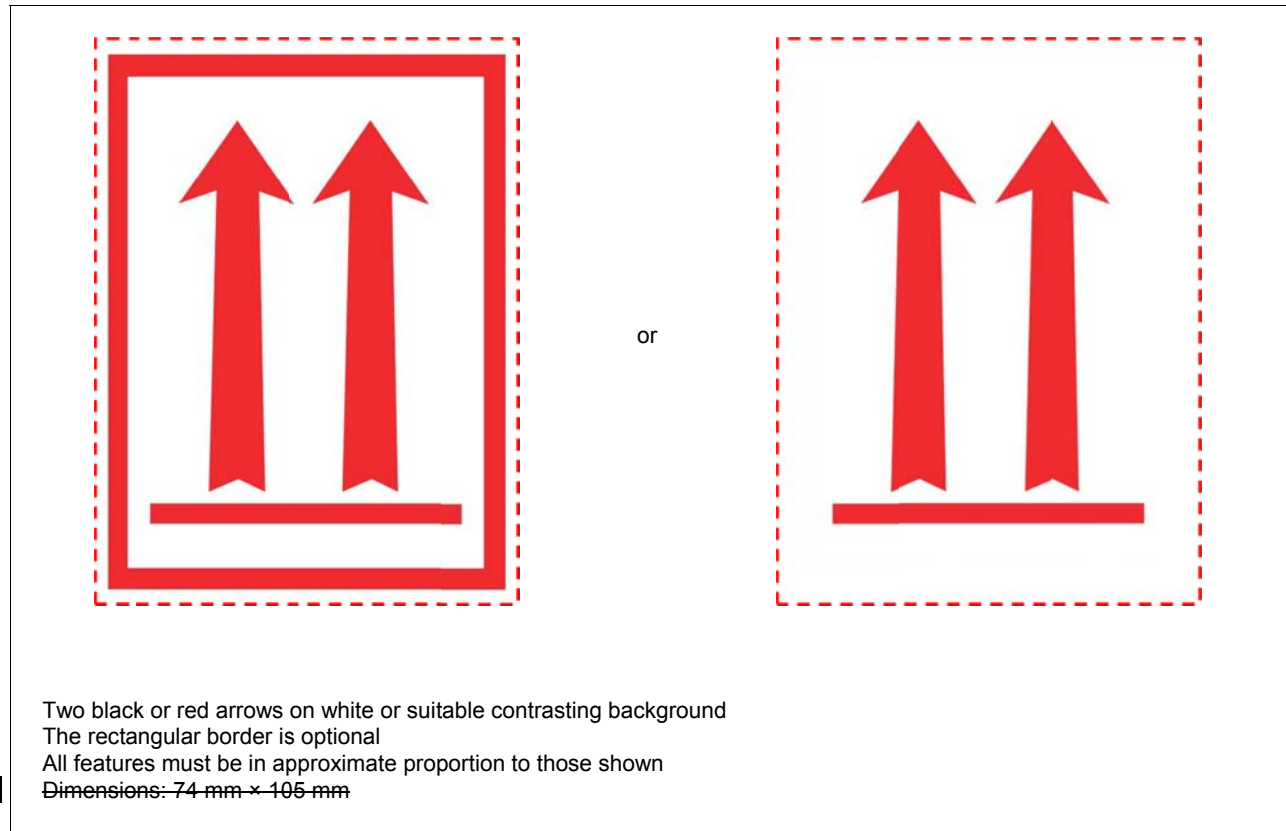


Figure 5-26~~26~~<sup>27</sup>. Package orientation

DGP-WG/12-WP/5:

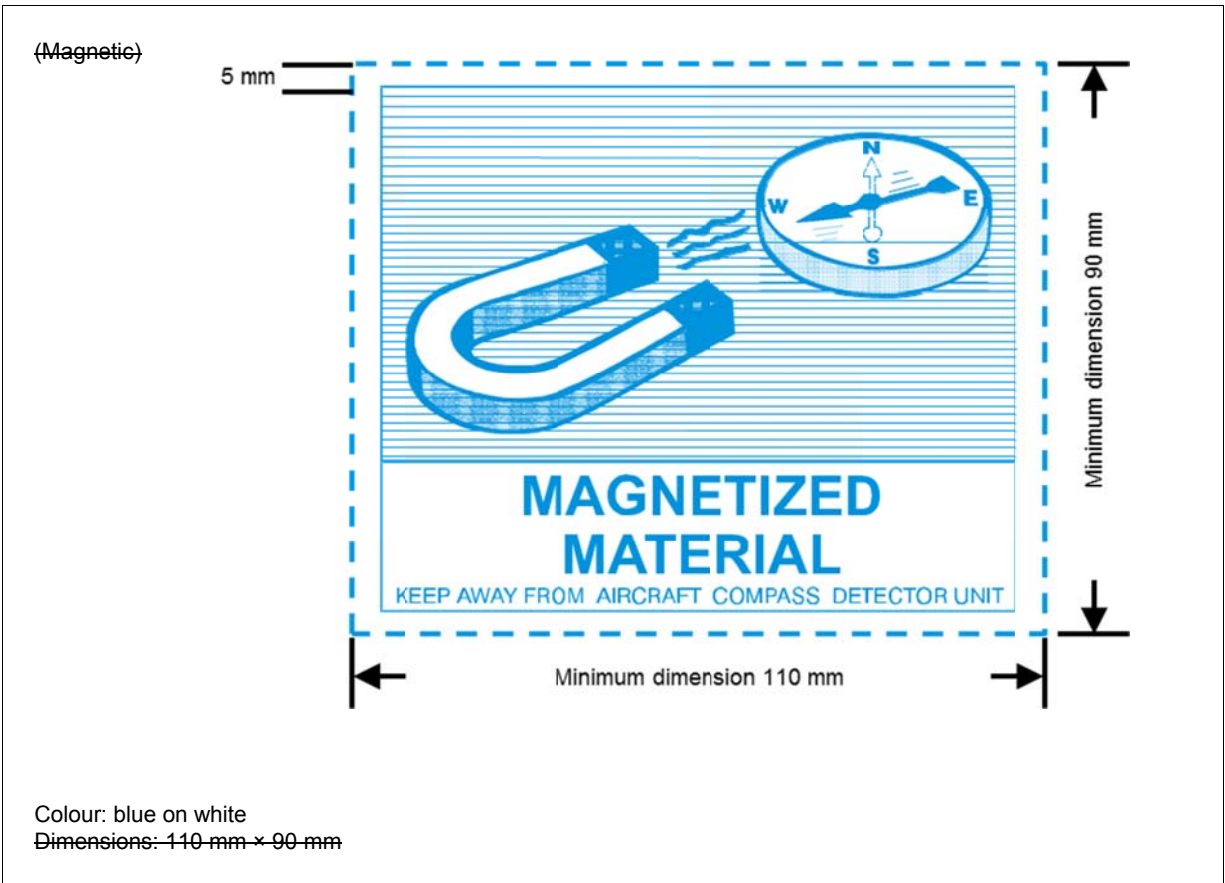


Figure 5-24~~25~~. Magnetized material



Figure 5-25~~25~~<sup>26</sup>. Cargo aircraft only



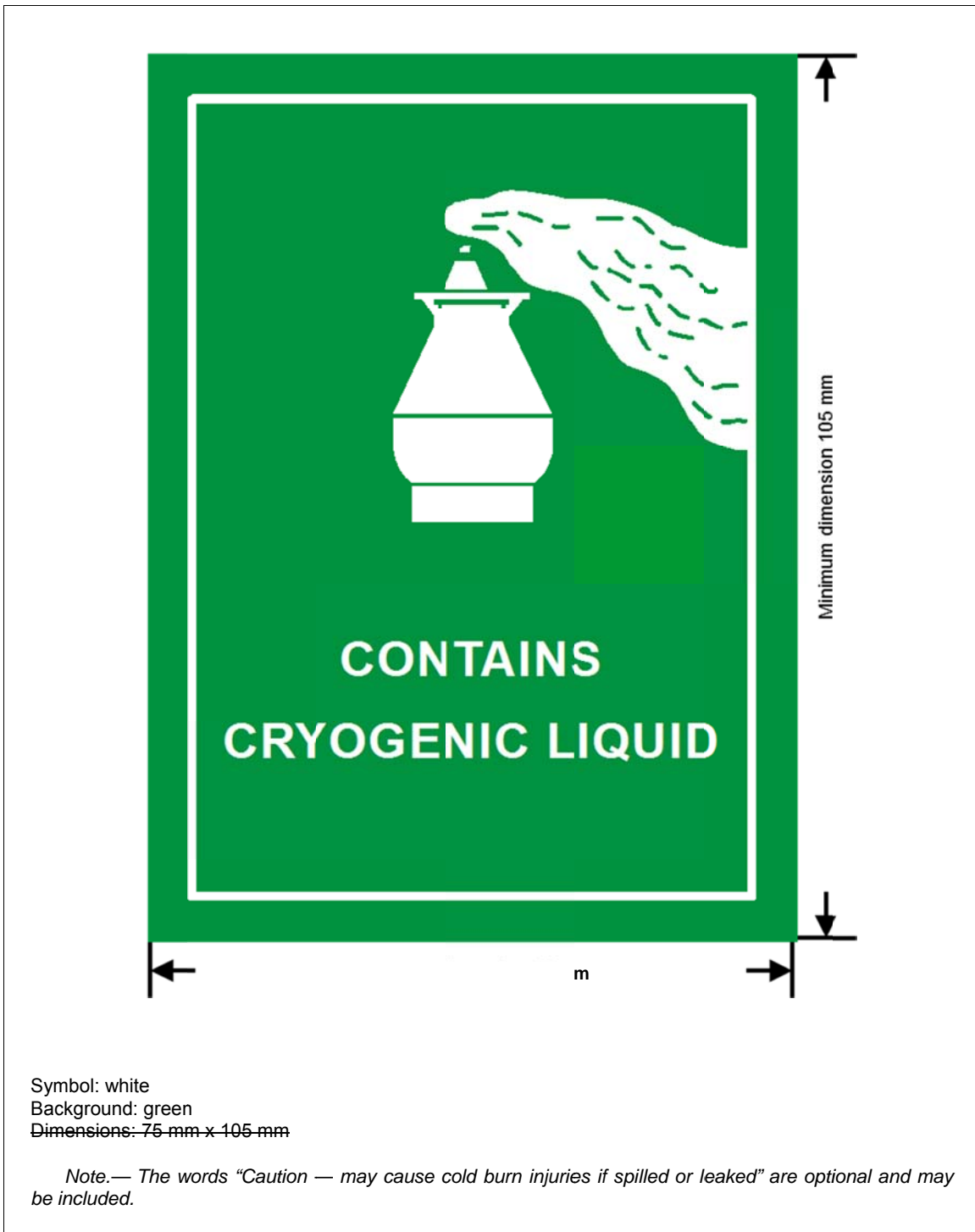


Figure 5-28~~29~~. Cryogenic liquid label

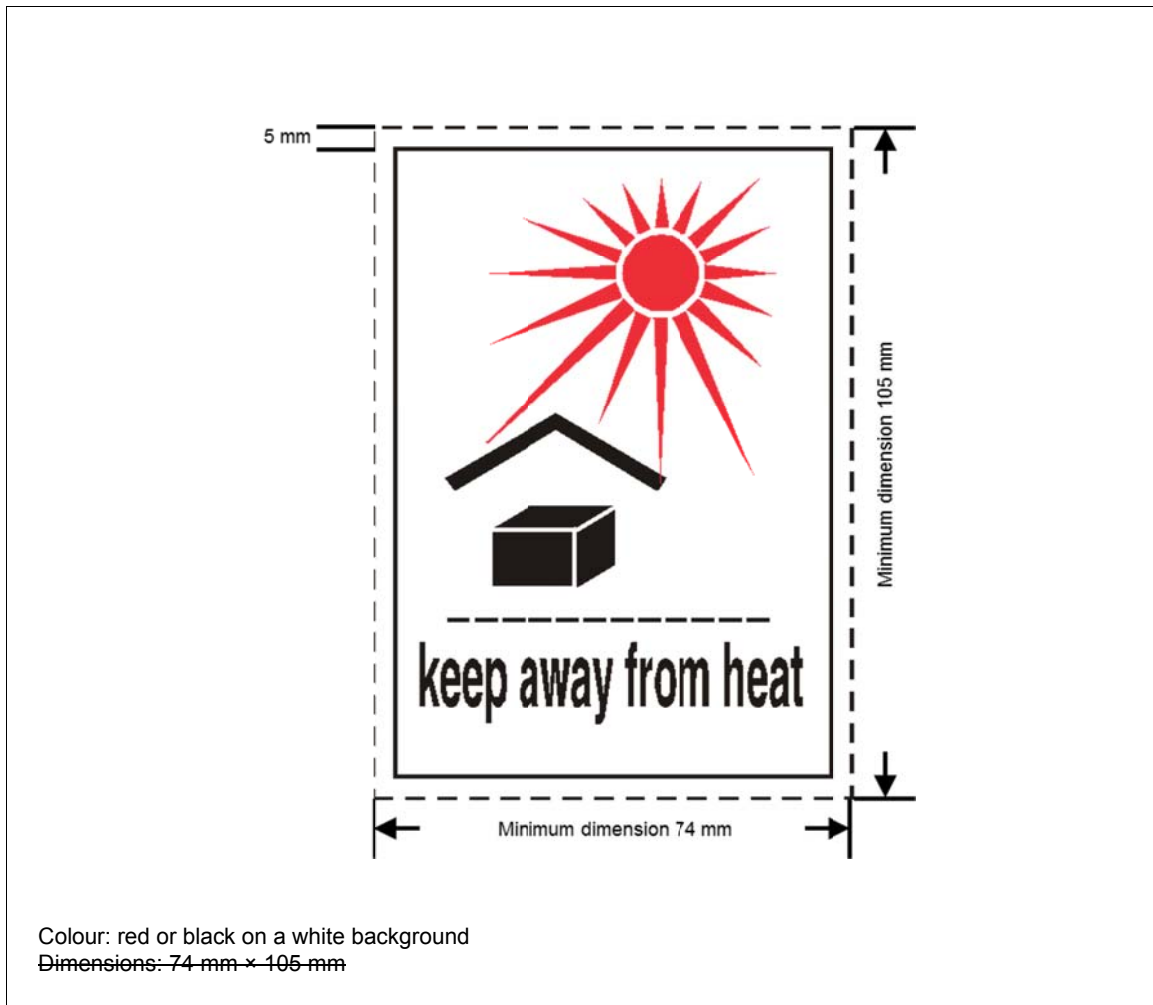
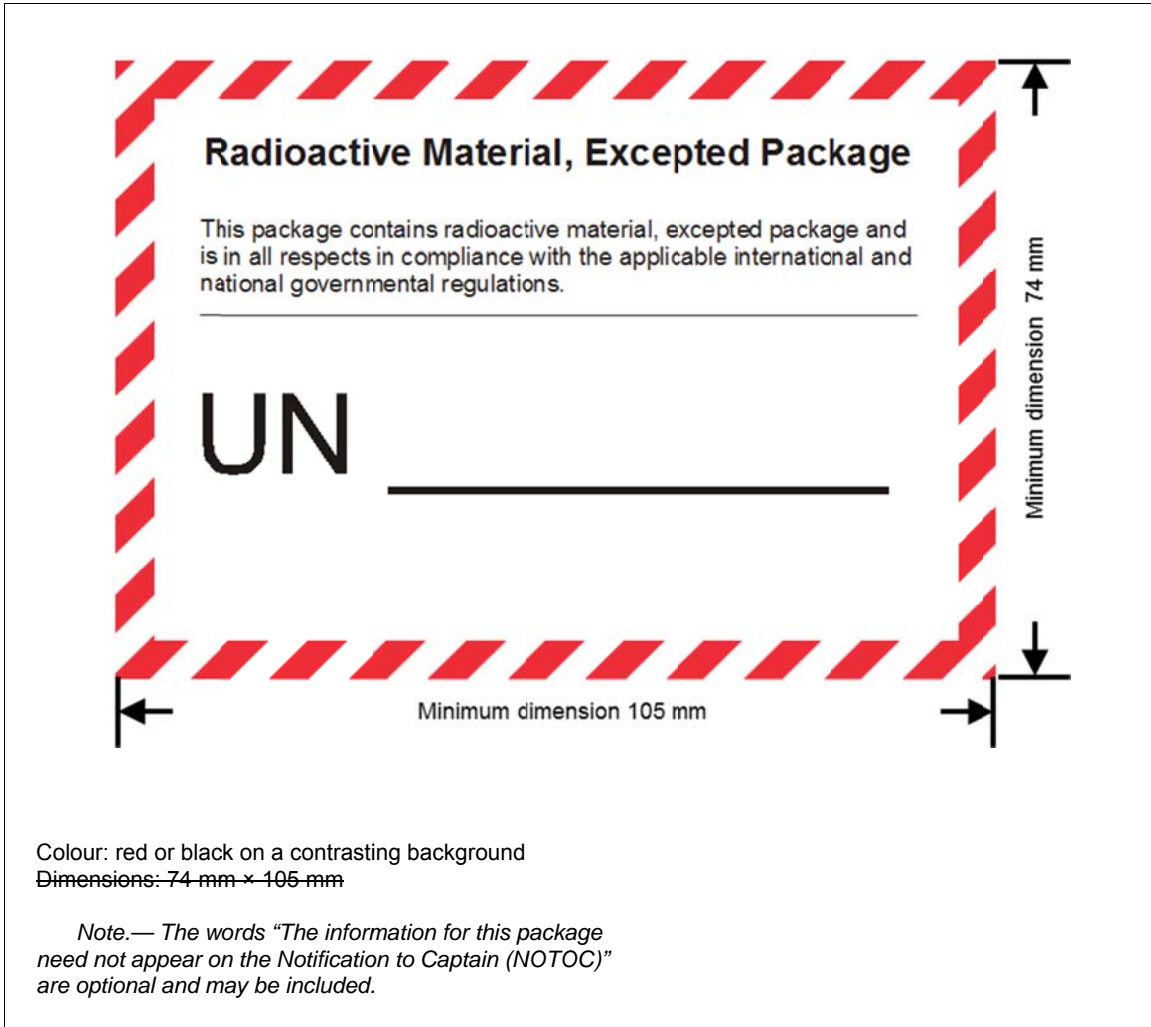


Figure 5-2930. Keep away from heat



**Figure 5-3031. Radioactive material, excepted package**



Figure 5-3432. Lithium battery handling label

## Chapter 4

### DOCUMENTATION

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#### 4.1.5.7 *Radioactive material*

4.1.5.7.1 The following information must be included for each consignment of Class 7 material, as applicable, in the order given:

- a) The name or symbol of each radionuclide or, for mixtures of radionuclides, an appropriate general description or a list of the most restrictive nuclides;
- b) A description of the physical and chemical form of the material, or a notation that the material is special form radioactive material or low dispersible radioactive material. A generic chemical description is acceptable for chemical form;
- c) The maximum activity of the radioactive contents during transport expressed in units of becquerels (Bq) with an appropriate SI prefix symbol (see 1;3.2). For fissile material, the mass of fissile material (or mass of each fissile nuclide for mixtures when appropriate) in units of grams (g), or appropriate multiples thereof, may be used in place of activity;
- d) The category of the package, i.e. I-WHITE, II-YELLOW, III-YELLOW;
- e) The transport index (categories II-YELLOW and III-YELLOW only);

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UN Model Regulations, paragraph 5.4.1.5.7.1, ST/SG/AC.10/40/Add.1

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- f) ~~For consignments including fissile material other than consignments excepted under 6;7.10.2, the criticality safety index;~~
  - 1) shipped under one exception of 2;7.2.3.5.1 a) to f), reference to that paragraph;
  - 2) shipped under 2;7.2.3.5.1 c) to e), the total mass of fissile nuclides;
  - 3) contained in a package for which one of 6;7.10.2 a) to c) or 6;7.10.3 is applied, reference to that paragraph; and
  - 4) the criticality safety index, where applicable.
- g) The identification mark for each competent authority certificate of approval ~~certificate~~ (special form radioactive material, low dispersible radioactive material, fissile material excepted under 2;7.2.3.5.1 f), special arrangement, package design, or shipment) applicable to the consignment;
- h) For consignments of more than one package, the information contained in 4.1.4.1 a) to c) and 4.1.5.7.1 a) to g) must be given for each package. For packages in an overpack or freight container, a detailed statement of the contents of each package within the overpack or freight container and, where appropriate, of each overpack or freight container must be included. If packages are to be removed from the overpack or freight container at a point of intermediate unloading, appropriate transport documents must be made available;
- i) Where a consignment is required to be shipped under exclusive use, the statement "EXCLUSIVE USE SHIPMENT"; and
- j) For LSA-II, LSA-III, SCO-I and SCO-II, the total activity of the consignment as a multiple of  $A_2$ . For radioactive material for which the  $A_2$  value is unlimited, the multiple of  $A_2$  must be zero.

4.1.5.7.2 The shipper must provide a statement regarding actions, if any, that are required to be taken by the carrier. The statement must be in the languages deemed necessary by the carrier or the authorities concerned, and must include at least the following points:

- a) Supplementary requirements for loading, stowage, carriage, handling and unloading of the package, overpack or freight container including any special stowage provisions for the safe dissipation of heat (see 7;2.10.3.2), or a statement that no such requirements are necessary;
- b) Restrictions on the type of aircraft and any necessary routing instructions;
- c) Emergency arrangements appropriate to the consignment.

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 UN Model Regulations, paragraph 5.4.1.5.7.3, ST/SG/AC.10/40/Add.1
 

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4.1.5.7.3 In all cases of international transport of packages requiring competent authorities by approval of design or shipment ~~approval~~, for which different approval types apply in the different countries concerned by the shipment, the UN number and proper shipping name required in 4.1.4.1 must be in accordance with the certificate of the country of origin of design.

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#### 4.1.6 Certification

4.1.6.1 The dangerous goods transport document must include a certification or declaration that the consignment is acceptable for transport and that the goods are properly packaged, marked and labelled, and in proper condition for transport in accordance with the applicable regulations and including additional air transport requirements of these Instructions (examples of additional air transport requirements are indicated in 5;1.1).

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 UN Model Regulations, paragraph 5.4.1.5.1, ST/SG/AC.10/40/Add.1
 

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The text for this certification is:

"I hereby declare that the contents of this consignment are fully and accurately described above<sup>2</sup> by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations."

<sup>2</sup> or below

For air transport the following additional statement is required:

"I declare that all of the applicable air transport requirements have been met."

The certification must be signed and dated by the shipper. Facsimile signatures are acceptable where applicable laws and regulations recognize the legal validity of facsimile signatures.

*Note.— The word "placarded" is not essential for shipments by air.*

4.1.6.2 If the dangerous goods documentation is presented to the operator by means of EDP or EDI transmission techniques, the signature(s) may be electronic signature(s) or may be replaced by the name(s) (in capitals) of the person authorized to sign. Where the original consignment details are provided to an operator, by EDP or EDI techniques, and subsequently the consignment is transhipped to an operator that requires a paper dangerous goods transport document, the operator must ensure the paper document indicates "Original Received Electronically" and the name of the signatory must be shown in capital letters.

4.1.6.3 In addition to the languages which may be required by the State of Origin, English should be used for the dangerous goods transport document.

— END —