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Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 6 (e) of the provisional agenda
Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: other miscellaneous proposals

"Hazard" vs. "Risk"

Transmitted by the International Air Transport Association (IATA)[1]

Introduction

1. The provisions of the Model Regulations use the terms "hazard" and "risk" interchangeably in a way that the terms appear to mean the same thing. There is a difference in meaning however, with "hazard" generally being the inherent properties of a substance or article that has the potential to do harm to persons, property or the environment and "risk" being the likelihood that that the harm may occur.

2. This difference is clearly stated in paragraph 1.1.2.6.2 of the current edition of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). In the GHS risk equates to hazard multiplied by exposure.

3. In the context of consumer and workplace safety where there is the actual or potential physical exposure to the substances, this definition is entirely appropriate.

4. However for transport, where the dangerous goods are typically contained in a packaging, intermediate bulk container (IBC), large packaging or tank, the potential for exposure is limited as any exposure should be prevented by the performance of the packaging, IBC, large packaging or tank. Instead, for transport, risk really equates to probability multiplied by the consequence.

[1] In accordance with the programme of work of the Sub-Committee for 2015-2016 approved by the Committee at its seventh session (refer to ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15).

5. This differentiation between the use of “hazard” vs. “risk” becomes much more important as States and organisations implement a systems approach to safety. Under a safety management system (SMS), managing and mitigating risk is a fundamental principle of a SMS and therefore it becomes important the people involved in the application of a SMS within their organisation correctly understand the difference between a hazard and the potential risk presented by the hazard.

6. For this reason it is suggested that there should be a consistent use of the correct terminology in the Model Regulations, and that the term “risk” should not be used where the correct term to use is “hazard”. An example of this misuse, is in the term “subsidiary risk”, the correct term should be “subsidiary hazard”, i.e. a substance has two or more inherent hazards, which for the purposes of the regulations are ranked, being the primary hazard and subsidiary hazard(s).

Proposal

7. The Sub-Committee is invited to consider aligning the language in the Model Regulations to correctly use “hazard” in place of “risk” as set out in the following:

Reference	Text
Recommendations, paragraph 6	The classification of goods by type of ~~risk~~hazard involved has been drawn up to meet technical conditions while at the same time minimizing interference with existing regulations. It should be noted that the numerical order of the classes is not that of the degree of danger.
Recommendations, paragraph 11	Many consignments of goods are treated with fumigants that pose a ~~risk~~hazard during transport, in particular to workers who may be exposed unknowingly when they open cargo transport units. The Model Regulations address fumigated cargo transport units as consignments that are subject to special documentation and warning sign requirements in the consignment procedures of Part 5.
Recommendations, paragraph 12	Whenever dangerous goods are offered for transport certain measures should be taken to ensure that the [potential] ~~risks~~hazards of the dangerous goods offered are adequately communicated to all who may come in contact with the goods in the course of transport. This has traditionally been accomplished through special marking and labelling of packages to indicate the hazards of a consignment and through the inclusion of relevant information in the transport documents and by placarding of cargo transport units. Requirements in this regard are provided in the Model Regulations annexed to this document.
Recommendations, Figure 1, 1.5.2	1.5 Proposed classification for the Recommendations 1.5.1 proper shipping name (3.1.2[1]) ……..... 1.5.2 class/division ……subsidiary ~~risk~~hazard(s) ..... packing group ……..
1.4.3.1.5	When radioactive material possesses subsidiary ~~risks~~hazards of other classes or divisions, the criteria of table 1.4.1 shall also be taken into account (see also 1.5.5.1).
1.5.5.1	In addition to the radioactive and fissile properties, any subsidiary ~~risk~~hazard of the contents of a package, such as explosiveness, flammability, pyrophoricity, chemical toxicity and corrosiveness, shall also be taken into account in the documentation, packing, labelling, marking, placarding, stowage, segregation and transport, in order to be in compliance with all relevant provisions for dangerous goods of these regulations.

Reference	Text
2.0.0.2	A consignor who has identified, on the basis of test data, that a substance listed by name in column 2 of the Dangerous Goods List in Chapter 3.2 meets classification criteria for a hazard class or division that is not identified in the list, may, with the approval of the competent authority, consign the substance: … — Under the same UN number and name but with additional hazard communication information as appropriate to reflect the additional subsidiary ~~risk~~hazard(s) (documentation, label, placard) provided that the primary hazard class remains unchanged and that any other transport conditions (e.g. limited quantity, packaging and tank provisions) that would normally apply to substances possessing such a combination of hazards are the same as those applicable to the substance listed.
2.0.1.5	Dangerous goods presenting a danger of a single class and division are assigned to that class and division and the degree of danger (packing group), if applicable, determined. When an article or substance is specifically listed by name in the Dangerous Goods List in Chapter 3.2, its class or division, its subsidiary ~~risk~~hazard(s) and, when applicable, its packing group are taken from this list.
2.0.1.6	Dangerous goods meeting the defining criteria of more than one hazard class or division and which are not listed by name in the Dangerous Goods List, are assigned to a class and division and subsidiary ~~risk~~hazard(s) on the basis of the precedence of hazards in 2.0.3.
2.0.2.2	… Each entry in the Dangerous Goods List is characterized by a UN number. This list also contains relevant information for each entry, such as hazard class, subsidiary ~~risk~~hazard(s) (if any), packing group (where assigned), packing and tank transport requirements, etc. Entries in the Dangerous Goods List are of the following four types:
2.0.2.5(c)	The hazard class or division, subsidiary ~~risk~~hazard(s), packing group, or physical state of the mixture or solution is different from that of the substance named in the Dangerous Goods List; or
2.0.2.9	A mixture or solution meeting the classification criteria of these Regulations that is not identified by name in the Dangerous Goods List and that is composed of two or more dangerous goods shall be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary ~~risk~~hazard(s) and packing group that most precisely describe the mixture or solution.
2.0.3.1	The table below shall be used to determine the class of a substance, mixture or solution having more than one ~~risk~~hazard, when it is not named in the Dangerous Goods List in Chapter 3.2. For goods having multiple ~~risks~~hazards which are not specifically listed by name in the Dangerous Goods List, the most stringent packing group denoted to the respective hazards of the goods takes precedence over other packing groups, irrespective of the precedence of hazard table in this Chapter. The precedence of hazard characteristics of the following have not been dealt with in the Precedence of hazards Table in 2.0.3.3, as these primary characteristics always take precedence:

Reference	Text
2.0.3.2	Apart from radioactive material in excepted packages (where the other hazardous properties take precedence) radioactive material having other hazardous properties shall always be classified in Class 7 and the subsidiary ~~risk~~hazard shall also be identified. For radioactive material in excepted packages, except for UN 3507, URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, special provision 290 of Chapter 3.3 applies.
2.1.1.4 (f) Note	***NOTE:*** *The ~~risk~~hazard from articles of Division 1.6 is limited to the explosion of a single article.*
2.1.1.2.1 Row "L"	Explosive substance or article containing an explosive substance and presenting a special ~~risk~~hazard (e.g. due to water-activation or presence of hypergolic liquids, phosphides or a pyrophoric substance) and needing isolation of each type (see 7.1.3.1.5)
2.1.3.1.2 (c), Note	***NOTE:*** *The importance of this can be overlooked unless it is realized that a relatively minor change in an inner or outer packaging can be critical and can convert a lesser ~~risk~~hazard into a mass explosion ~~risk~~hazard.*
2.1.3.6.3	Where a substance is assigned to Class 1 but is diluted to be excluded from Class 1 by Test Series 6, this diluted substance (hereafter referred to as desensitized explosive) shall be listed in the Dangerous Goods List of Chapter 3.2 with an indication of the highest concentration which excluded it from Class 1 (see 2.3.1.4 and 2.4.2.4.1) and if applicable, the concentration below which it is no longer deemed subject to these Regulations. New solid desensitized explosives subject to these Regulations shall be listed in Division 4.1 and new liquid desensitized explosives shall be listed in Class 3. When the desensitized explosive meets the criteria or definition for another class or division, the corresponding subsidiary ~~risk~~hazard(s) shall be assigned to it.
2.1.3.6.4, Note 2	***NOTE 2:*** *The competent authority may require testing in packaged form if it is determined that, as packaged for transport, the article may pose a greater ~~risk~~hazard.*
2.2.2.1 (c), Note	***NOTE:*** *Gases meeting the above criteria owing to their corrosivity are to be classified as toxic with a subsidiary corrosive ~~risk~~hazard.*
2.2.3 (c)	A gas mixture has a subsidiary ~~risk~~hazard of corrosivity when the mixture is known by human experience to be destructive to the skin, eyes or mucous membranes or when the LC_{50} value of the corrosive components of the mixture is equal to or less than 5 000 ml/m^3 (ppm) when the LC_{50} is calculated by the formula:
2.3.2.1	The criteria in 2.3.2.6 are used to determine the hazard grouping of a liquid that presents a ~~risk~~hazard due to flammability.
2.3.2.1.1	For liquids whose only ~~risk~~hazard is flammability, the packing group for the substance is the hazard grouping shown in 2.3.2.6.
2.3.2.1.2	For a liquid with additional ~~risk~~hazard(s), the hazard group determined from 2.3.2.6 and the hazard group based on the severity of the additional ~~risk~~hazard(s) shall be considered, and the classification and packing group determined in accordance with the provisions in Chapter 2.0.
2.4, Introductory Notes, Note 3	***NOTE 3:*** *Since organometallic substances can be classified in divisions 4.2 or 4.3 with additional subsidiary ~~risks~~hazards, depending on their properties, a specific classification flow chart for these substances is given in 2.4.5.*

Reference	Text
2.4.2.3.2.2	Self-reactive substances permitted for transport in packagings are listed in 2.4.2.3.2.3, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the appropriate generic entry of the Dangerous Goods List (UN Nos. 3221 to 3240) is assigned, and appropriate subsidiary ~~risks~~hazards and remarks providing relevant transport information are given. The generic entries specify:
2.4.2.3.2.3, Table, Remarks	(2) "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No 1, see 5.2.2.2.2) required.
2.4.2.3.3.2 (b)	Any substance possessing explosive properties and which, as packaged for transport, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package, shall also bear an "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No. 1, see 5.2.2.2.2). Such a substance may be packaged in amounts of up to 25 kg unless the maximum quantity has to be limited to a lower amount to preclude detonation or rapid deflagration in the package (defined as self-reactive substance type B, exit box B of Figure 2.4.1);
2.4.2.3.3.2 (c)	Any substance possessing explosive properties may be transported without an "EXPLOSIVE" subsidiary ~~risk~~hazard label when the substance as packaged (maximum 50 kg) for transport cannot detonate or deflagrate rapidly or undergo a thermal explosion (defined as self-reactive substance type C, exit box C of Figure 2.4.1);
2.5.2.1.2	For substances having other ~~risks~~hazards, e.g. toxicity or corrosivity, the requirements of Chapter 2.0 shall be met.
2.5.3.2.3	Organic peroxides permitted for transport in packagings are listed in 2.5.3.2.4, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the generic entry of the Dangerous Goods List (UN Nos. 3101 to 3120) is assigned, appropriate subsidiary ~~risks~~hazards and remarks providing relevant transport information are given. The generic entries specify:
2.5.3.2.4, Table header, last column	Subsidiary ~~risks~~hazards and remarks
2.5.3.2.4, Table, Note 3	*3) "EXPLOSIVE" subsidiary ~~risk~~hazard label required (Model No.1, see 5.2.2.2.2).*
2.5.3.2.4, Table, Note 13	*13) "CORROSIVE" subsidiary ~~risk~~hazard label required (Model No 8, see 5.2.2.2.2).*
2.5.3.2.4, Table, Note 18	*18) No "CORROSIVE" subsidiary ~~risk~~hazard label required for concentrations below 80%.*
2.5.3.2.4, Table, Note 27	*27) For concentrations more than 56%, "CORROSIVE" subsidiary ~~risk~~hazard label (Model No 8, see 5.2.2.2.2) required.*
2.5.3.3.2 (b)	Any organic peroxide formulation possessing explosive properties and which, as packaged for transport, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package, shall bear an "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No 1, see 5.2.2.2.2). Such an organic peroxide may be packaged in amounts of up to 25 kg unless the maximum quantity has to be limited to a lower amount to preclude detonation or rapid deflagration in the package (defined as ORGANIC PEROXIDE TYPE B, exit box B of Figure 2.5.1);

Reference	Text
2.5.3.3.2 (c)	Any organic peroxide formulation possessing explosive properties may be transported without an “EXPLOSIVE” subsidiary ~~risk~~hazard label when the substance as packaged (maximum 50 kg) for transport cannot detonate or deflagrate rapidly or undergo a thermal explosion (defined as ORGANIC PEROXIDE TYPE C, exit box C of Figure 2.5.1);
2.6.2.2.1 (a)	*Packing group I*: Substances and preparations presenting a very severe toxicity ~~risk~~hazard;
2.6.2.2.1 (b)	*Packing group II*: Substances and preparations presenting a serious toxicity ~~risk~~hazard;
2.6.2.2.1 (c)	*Packing group III*: Substances and preparations presenting a relatively low toxicity ~~risk~~hazard.
2.6.2.4.1	All active pesticide substances and their preparations for which the LC_{50} and/or LD_{50} values are known and which are classified in Division 6.1 shall be classified under appropriate packing groups in accordance with the criteria given in 2.6.2.2. Substances and preparations which are characterized by subsidiary ~~risks~~hazards shall be classified according to the precedence of hazard table in Chapter 2.0 with the assignment of appropriate packing groups.
2.6.2.4.3	The proper shipping name used in the transport of the pesticide shall be selected on the basis of the active ingredient, of the physical state of the pesticide and any subsidiary ~~risks~~hazards it may exhibit.
2.6.3.2.3.3	Substances in a form that any present pathogens have been neutralized or inactivated such that they no longer pose a [hazard to] health [~~risk~~] are not subject to these Regulations unless they meet the criteria for inclusion in another class.
2.8.2.2	Allocation of substances listed in the Dangerous Goods List in Chapter 3.2 to the packing groups in Class 8 has been made on the basis of experience taking into account such additional factors as inhalation ~~risk~~hazard (see 2.8.2.3) and reactivity with water (including the formation of dangerous decomposition products). New substances, including mixtures, can be assigned to packing groups on the basis of the length of time of contact necessary to produce full thickness destruction of human skin in accordance with the criteria in 2.8.2.4. Liquids, and solids which may become liquid during transport, which are judged not to cause full thickness destruction of human skin shall still be considered for their potential to cause corrosion to certain metal surfaces in accordance with the criteria in 2.8.2.5 (c) (ii).

Reference	Text
3.1.1.2	Where a substance or article is specifically listed by name in the Dangerous Goods List, it shall be transported in accordance with the provisions in the List which are appropriate for that substance or article. A “generic” or “not otherwise specified” entry may be used to permit the transport of substances or articles which do not appear specifically by name in the Dangerous Goods List. Such a substance or article may be transported only after its dangerous properties have been determined. The substance or article shall then be classified according to the class definitions and test criteria and the name in the Dangerous Goods List which most appropriately describes the substance or article shall be used. The classification shall be made by the appropriate competent authority when so required or may otherwise be made by the consignor. Once the class of the substance or article has been so established, all conditions for dispatch and transport, as provided in these Regulations shall be met. Any substance or article having or suspected of having explosive characteristics shall first be considered for inclusion in Class 1. Some collective entries may be of the “generic” or “not otherwise specified” type provided that the regulations contain provisions ensuring safety, both by excluding extremely dangerous goods from normal transport and by covering all subsidiary ~~risks~~hazards inherent in some goods.
3.1.2.8.1.2	When a mixture of dangerous goods is described by one of the “N.O.S.” or “generic” entries to which special provision 274 has been allocated in the Dangerous Goods List, not more than the two constituents which most predominantly contribute to the hazard or hazards of a mixture need to be shown, excluding controlled substances when their disclosure is prohibited by national law or international convention. If a package containing a mixture is labelled with any subsidiary ~~risk~~hazard label, one of the two technical names shown in brackets shall be the name of the constituent which compels the use of the subsidiary ~~risk~~hazard label.
3.1.3.2 (c)	The hazard class or division, subsidiary ~~risk~~hazard(s), packing group, or physical state of the mixture or solution is different from that of the substance named in the Dangerous Goods List; or
3.1.3.3	3.1.3.3 A mixture or solution meeting the classification criteria of these Regulations that is not identified by name in the Dangerous Goods List and that is composed of two or more dangerous goods shall be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary ~~risk~~hazard(s) and packing group that most precisely describe the mixture or solution.
3.2.1, Column 4	“Subsidiary ~~risk~~hazard” - this column contains the class or division number of any important subsidiary ~~risks~~hazards which have been identified by applying the classification system described in Part 2.
Dangerous Goods List, header, Column 4	Subsidiary ~~risk~~hazard
3.3, Special Provision 63	The division of Class 2 and the subsidiary ~~risks~~hazards depend on the nature of the contents of the aerosol dispenser. The following provisions shall apply: … (e) Where the contents other than the propellant of aerosol dispensers to be ejected are classified as Division 6.1 packing groups II or III or Class 8 packing groups II or III, the aerosol shall have a subsidiary ~~risk~~hazard of Division 6.1 or Class 8; … (g) Subsidiary ~~risk~~hazard labels may be required for air transport.

Reference	Text
Special provision 122	The subsidiary ~~risks~~hazards, control and emergency temperatures if any, and the generic entry number for each of the currently assigned organic peroxide formulations are given in 2.5.3.2.4, 4.1.4.2 packing instruction IBC520 and 4.2.5.2.6 portable tank instruction T23.
Special provision 133	If over-confined in packagings, this substance may exhibit explosive behaviour. Packagings authorized under packing instruction P409 are intended to prevent overconfinement. When a packaging other than those prescribed under packing instruction P409 is authorized by the competent authority of the country of origin in accordance with 4.1.3.7, the package shall bear an "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No 1, see 5.2.2.2.2) unless the competent authority of the country of origin has permitted this label to be dispensed with for the specific packaging employed because test data have proved that the substance in this packaging does not exhibit explosive behaviour (see 5.4.1.5.5.1). The provisions of 7.1.3.1 shall also be then considered.
Special provision 172	Where a radioactive material has (a) subsidiary risk(s): (a) The substance shall be allocated to Packing Group I, II or III, if appropriate, by application of the packing group criteria provided in Part 2 corresponding to the nature of the predominant subsidiary ~~risk~~hazard; (b) Packages shall be labelled with subsidiary ~~risk~~hazard labels corresponding to each subsidiary ~~risk~~hazard exhibited by the material; corresponding placards shall be affixed to transport units in accordance with the relevant provisions of 5.3.1; (c) For the purposes of documentation and package marking, the proper shipping name shall be supplemented with the name of the constituents which most predominantly contribute to this (these) subsidiary ~~risk~~hazard (s) and which shall be enclosed in parenthesis; …
Special provision 181	Packages containing this type of substance shall bear the "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No 1, see 5.2.2.2.2) unless the competent authority of the country of origin has permitted this label to be dispensed with for the specific packaging employed because test data have proved that the substance in this packaging does not exhibit explosive behaviour (see 5.4.1.5.5.1). The provisions of 7.1.3.1 shall also be considered.
Special provision 204	Articles containing smoke-producing substance(s) corrosive according to the criteria for Class 8 shall be labelled with a "CORROSIVE" subsidiary ~~risk~~hazard label (Model No 8, see 5.2.2.2.2). Articles containing smoke-producing substance(s) toxic by inhalation according to the criteria for Division 6.1 shall be labelled with a "TOXIC" subsidiary ~~risk~~hazard label (Model No 6.1, see 5.2.2.2.2), except that those manufactured before 31 December 2016 may be transported until 1 January 2019 without a "TOXIC" subsidiary label.

Reference	Text
Special provision 271	Lactose or glucose or similar materials, may be used as a phlegmatizer provided that the substance contains not less than 90%, by mass, of phlegmatizer. The competent authority may authorize these mixtures to be classified in Division 4.1 on the basis of a test Series 6(c) of Section 16 of Part I of the *Manual of Tests and Criteria* on at least three packages as prepared for transport. Mixtures containing at least 98%, by mass, of phlegmatizer are not subject to these Regulations. Packages containing mixtures with not less than 90%, by mass, of phlegmatizer need not bear a TOXIC subsidiary ~~risk~~hazard label.
Special provision 290 (b)	Where the quantity exceeds the limits specified in 3.5.1.2 the substance shall be classified in accordance with the predominant subsidiary ~~risk~~hazard. The dangerous goods transport document shall describe the substance with the UN number and proper shipping name applicable to the other class supplemented with the name applicable to the radioactive excepted package according to Column 2 in the Dangerous Goods List of Chapter 3.2, and the substance shall be transported in accordance with the provisions applicable to that UN number. An example of the information shown on the dangerous goods transport document is:
Special provision 362 (b)	Gases of Division 2.3 and gases with a subsidiary ~~risk~~hazard of 5.1 shall not be used as a propellant in a chemical under pressure;
Special provision 362 (c)	Where the liquid or solid components are classified as dangerous goods of Division 6.1, packing groups II or III, or Class 8, packing groups II or III, the chemical under pressure shall be assigned a subsidiary ~~risk~~hazard of Division 6.1 or Class 8 and the appropriate UN number shall be assigned. Components classified in Division 6.1, packing group I, or Class 8, packing group I, shall not be used for transport under this proper shipping name;
Special provision 363	In accordance with 2.0.3.2, this radioactive material in an excepted package possessing toxic and corrosive properties is classified in Division 6.1 with radioactive material and corrosivity subsidiary ~~risks~~hazards. Uranium hexafluoride may be classified under this entry only if the conditions of 2.7.2.4.1.2, 2.7.2.4.1.5, 2.7.2.4.5.2 and, for fissile-excepted material, of 2.7.2.3.6 are met. In addition to the provisions applicable to the transport of Division 6.1 substances with a corrosivity subsidiary ~~risk~~hazard, the provisions of 5.1.3.2, 5.1.5.2.2, 5.1.5.4.1 (b), 7.1.8.5.1 to 7.1.8.5.4 and 7.1.8.6.1 shall apply. No Class 7 label is required to be displayed.
Appendix A: List of Generic or n.o.s. Proper Shipping Names, header, column 2	Subsidiary ~~risk~~hazard
Packing Instruction P200, Table 1, header, column 4	Subsidiary ~~risk~~hazard
Packing Instruction P200, Table 2, header, column 4	Subsidiary ~~risk~~hazard
Packing Instruction P200, Table 3, header, column 4	Subsidiary ~~risk~~hazard

Reference	Text
Packing Instruction P203, (7)	Compatibility Materials used to ensure the leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents. In the case of receptacles intended for the transport of oxidizing gases (i.e. with a subsidiary ~~risk~~hazard of 5.1), these materials shall not react with these gases in a dangerous manner.
Packing Instruction P208, Table 1, header, column 4	Subsidiary ~~risk~~hazard
Packing Instruction P520, Additional requirements, 4	The packaging of an organic peroxide or self-reactive substance required to bear an "EXPLOSIVE" subsidiary ~~risk~~hazard label (Model No.1, see 5.2.2.2.2) shall also comply with the provisions given in 4.1.5.10 and 4.1.5.11.
4.1.6.1.4	Refillable pressure receptacles shall not be filled with a gas or gas mixture different from that previously contained unless the necessary operations for change of gas service have been performed. The change of service for compressed and liquefied gases shall be in accordance with ISO 11621:1997, as applicable. In addition, a pressure receptacle that previously contained a Class 8 corrosive substance or a substance of another class with a corrosive subsidiary ~~risk~~hazard shall not be authorized for the transport of a Class 2 substance unless the necessary inspection and testing as specified in 6.2.1.6 have been performed.
4.1.9.1.5	For radioactive material having other dangerous properties the package design shall take into account those properties. Radioactive material with a subsidiary ~~risk~~hazard, packaged in packages that do not require competent authority approval, shall be transported in packagings, IBCs, tanks or bulk containers fully complying with the requirements of the relevant chapters of Part 6 as appropriate, as well as applicable requirements of chapters 4.1, 4.2 or 4.3 for that subsidiary ~~risk~~hazard.
4.2.1.19.1	Solid substances transported or offered for transport above their melting point which are not assigned a portable tank instruction in Column 10 of the Dangerous Goods List or when the assigned portable tank instruction does not apply to transport at temperatures above their melting point may be transported in portable tanks provided that the solid substances are classified in Divisions 4.1, 4.2, 4.3, 5.1 or 6.1 or Classes 8 or 9 and have no subsidiary ~~risk~~hazard other than that of Division 6.1 or Class 8 and are in packing group II or III.
Portable Tank Instruction T23, footnote d	*Formulation derived from distillation of peroxyacetic acid originating from peroxyacetic acid in concentration of not more than 41% with water, total active oxygen (peroxyacetic acid+H_2O_2) ≤ 9.5%, which fulfils the criteria of 2.5.3.3.2 (f). "CORROSIVE" subsidiary ~~risk~~hazard placard required (Model No 8, see 5.2.2.2.2).*
5.1.4	When two or more dangerous goods are packed within the same outer packaging, the package shall be labelled and marked as required for each substance. Subsidiary ~~risk~~hazard labels need not be applied if the hazard is already represented by a primary ~~risk~~hazard label.
5.2.2.1.1	Labels identifying primary and subsidiary ~~risks~~hazards shall conform to models Nos. 1 to 9 illustrated in 5.2.2.2.2. The "EXPLOSIVE" subsidiary ~~risk~~hazard label is model No. 1.

Reference	Text
5.2.2.1.2	Where articles or substances are specifically listed in the Dangerous Goods List, a danger class label shall be affixed for the hazard shown in Column 3. A subsidiary ~~risk~~hazard label shall also be affixed for any ~~risk~~hazard indicated by a class or division number in the Column 4 of the Dangerous Goods List. However, special provisions indicated in Column 6 may also require a subsidiary ~~risk~~hazard label where no subsidiary ~~risk~~hazard is indicated in Column 4 or may exempt from the requirement for a subsidiary ~~risk~~hazard label where such a ~~risk~~hazard is indicated in the Dangerous Goods List.
5.2.2.1.3	Except as provided in 5.2.2.1.3.1, if a substance which meets the definition of more than one class is not specifically listed by name in the Dangerous Goods List in Chapter 3.2, the provisions in Chapter 2.0 shall be used to determine the primary ~~risk~~hazard class of the goods. In addition to the label required for that primary ~~risk~~hazard class, subsidiary ~~risk~~hazard labels shall also be applied as specified in the Dangerous Goods List.
5.2.2.1.3.1	Packages containing substances of Class 8 need not bear subsidiary ~~risk~~hazard label model No. 6.1 if the toxicity arises solely from the destructive effect on tissue. Packages containing substances of Division 4.2 need not bear subsidiary ~~risk~~hazard label model No. 4.1.
5.2.2.1.4	*Labels for Class 2 gases with subsidiary ~~risk~~hazard(s)* Revise table header as follows: **Subsidiary ~~risk~~hazard(s) shown in Chapter 2.2** **Primary ~~risk~~hazard label** **Subsidiary ~~risk~~hazard label(s)**
5.2.2.1.5	Three separate labels have been provided for Class 2, one for flammable gases of Division 2.1 (red), one for non-flammable, non-toxic gases of Division 2.2 (green) and one for toxic gases of Division 2.3 (white). Where the Dangerous Goods List indicates that a Class 2 gas possesses single or multiple subsidiary ~~risks~~hazards, labels shall be used in accordance with the table in 5.2.2.1.4.
5.2.2.1.6 (c)	When primary and subsidiary ~~risk~~hazard labels are required, be displayed next to each other.
5.2.2.1.9	An “EXPLOSIVE” subsidiary ~~risk~~hazard label (Model No. 1) shall be applied for type B self-reactive substances, unless the competent authority has permitted this label to be dispensed with for a specific packaging because test data have proved that the self-reactive substance in such a packaging does not exhibit explosive behaviour.
5.2.2.1.10	The Division 5.2 label (model No. 5.2) shall be affixed to packages containing organic peroxides classified as types B, C, D, E or F. This label also implies that the product may be flammable and hence no “FLAMMABLE LIQUID”, subsidiary ~~risk~~hazard label (model No. 3) is required. In addition, the following subsidiary ~~risk~~hazard labels shall be applied: (a) An “EXPLOSIVE” subsidiary ~~risk~~hazard label (model No. 1) for organic peroxides type B, unless the competent authority has permitted this label to be dispensed with for a specific packaging because test data have proved that the organic peroxide in such a packaging does not exhibit explosive behaviour; (b) A “CORROSIVE” subsidiary ~~risk~~hazard label (model No. 8) is required when packing group I or II criteria of Class 8 are met.
5.2.2.1.11	In addition to the primary ~~risk~~hazard label (model No. 6.2), infectious substances packages shall bear any other label required by the nature of the contents.

Reference	Text
5.2.2.2.1.5	On labels other than those for material of Class 7, the insertion of any text (other than the class or division number) in the space below the symbol shall be confined to particulars indicating the nature of the ~~risk~~hazard and precautions to be taken in handling. For label 9A, no text other than the class mark shall be included in the bottom part of the label.
5.2.2.2.2	** Place for division - to be left blank if explosive is the subsidiary ~~risk~~hazard
5.3.1.1.2	Placards shall be affixed to the exterior surface of cargo transport units to provide a warning that the contents of the unit are dangerous goods and present ~~risks~~hazards. Placards shall correspond to the primary ~~risk~~hazard of the goods contained in the cargo transport unit except that: … (b) Placards indicating the highest ~~risk~~hazard only need be affixed on cargo transport units carrying substances and articles of more than one division in Class 1.
5.3.1.1.3	Placards shall also be displayed for those subsidiary ~~risks~~hazards for which a subsidiary ~~risk~~hazard label is required according to 5.2.2.1.2. However, cargo transport units containing goods of more than one class need not bear a subsidiary ~~risk~~hazard placard if the hazard represented by that placard is already indicated by a primary ~~risk~~hazard placard.
5.4.1.4.1 (d)	Subsidiary hazard class or division number(s) corresponding to the subsidiary ~~risk~~hazard label(s) required to be applied, when assigned, shall be entered following the primary hazard class or division and shall be enclosed in parenthesis. The words “Class” or “Division” may be included preceding the subsidiary hazard class or division numbers;
5.4.1.5.5.1	When for certain self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 the competent authority has permitted the “EXPLOSIVE” subsidiary ~~risk~~hazard label (model No. 1) to be dispensed with for the specific package, a statement to this effect shall be included.
6.1.1.1 (a)(i)	Radioactive material possessing other dangerous properties (subsidiary ~~risks~~hazards) shall also comply with special provision 172; and
7.1.2.3 (c)	For packages required to bear a subsidiary ~~risk~~hazard label, the segregation appropriate to the subsidiary hazard shall be applied when it is more stringent than that required by the primary hazard.