

**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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**HARMONIZATION WITH THE INTERNATIONAL ATOMIC ENERGY AGENCY  
(IAEA) REGULATIONS FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL**

**Transmitted by the International Atomic Energy Agency (IAEA)**

The IAEA Consultant Services Meeting (see INF.29) to produce the UN version of the approved and recommended changes to the IAEA Transport Regulations as of 23 November, also did some work summarizing miscellaneous reports concerning harmonization issues and making some recommendations on priority of harmonization issues to be addressed. These issues should be addressed by all organizations involved.

The harmonization report of the consultants could help to get some indication from the various organizations of their support concerning possible actions to address these issues.



**INTERNATIONAL ATOMIC ENERGY AGENCY  
DIVISION OF RADIATION AND WASTE SAFETY**

**Consultant Services Meeting  
on Structuring the Proposed Transport Safety Regulatory Revision into the UN  
Model Regulation Format**

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**THE HARMONIZATION OF  
THE IAEA REGULATIONS FOR THE SAFE TRANSPORT OF  
RADIOACTIVE MATERIAL, THE UN MODEL REGULATIONS  
AND INTERNATIONAL MODAL REGULATIONS FOR THE  
TRANSPORT OF DANGEROUS GOODS**

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## **NOTES ON THE HARMONIZATION OF THE IAEA REGULATIONS FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIAL, THE UN MODEL REGULATIONS AND INTERNATIONAL MODAL REGULATIONS FOR THE TRANSPORT OF DANGEROUS GOODS**

### **Part 1 Introduction**

The intent of this information paper is only to highlight some of the deviations between the IAEA Transport Regulations, UN Model Regulations and other international Modal Regulations. However, it is recognized that this is not a complete analysis of the harmonization process, but a step in the direction towards better understanding.

The paper outlines the history and origins of deviations between the IAEA Regulations for the Safe Transport of Radioactive Material (TS-R-1), the UN Recommendations on the Transport of Dangerous Goods Model Regulations and the Modal Regulations, it also identifies some of the related issues associated with harmonization.

The tenth revised edition of the UN Recommendations on the Transport of Dangerous Goods adopted a first version of the “Model Regulations” to facilitate the direct integration of the Model Regulations into all modal national and international regulations. Enhanced harmonization of the Regulations would facilitate regular up-dating of all legal instruments concerned.

The eleventh revised edition of the UN Regulations adopted various amendments to the Model Regulations, and for the first time included all the provisions from the IAEA Regulations for the Safe Transport of Radioactive Material, 1996 Edition ST-1.

The eleventh edition of the UN Model Regulations was the basis for the 2001 edition of the international modal regulations for air, sea, road and rail transport which now also include all the provisions of the IAEA Transport Regulations.

In doing that, some deviations from the IAEA-Regulations were made.

This paper provides a tool for the UN organizations and the various modal organizations for the transport of dangerous goods, to encourage further harmonization and consistency between the various regulations.

Some recommendations are made concerning priority issues.

### **Part 2 Responsibilities between the Organizations**

In 1959, the UN ECOSOC provided direction to the IAEA concerning its role in the development of standards of safety for the transport of radioactive material, [1].

That guidance, was issued at the “Report of the Transport and Communications Commission”, 724 (XXVIII), and regarding the “International Transport of Dangerous Goods, stated – inter alia – that the Commission requested the Secretary-General, in light of the relevant recommendations contained in the report of the Committee of Experts ... *“(g) To inform the International Atomic Energy Agency of the desire of the Council that the Agency be entrusted with the drafting of*

*recommendations on the transport of radio-active substances, provided that they are consistent with the framework and general principles of recommendations of the Committee of Experts on the Transport of Dangerous Goods of the United Nations and that they are established in consultation with the United Nations and the specialized agencies concerned;"*

The IAEA is authorized by its Statute to perform this function. The IAEA Statute states, at Article III *Functions, A*:

“The Agency is authorized:.....” [paragraph 6] “To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property (including such standards for labour conditions), and to provide for the application of these standards to its own operations as well as to operations making use of materials, services, equipment, facilities, and information made available by the Agency or at its request or under its control or supervision; and to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangement, or, at the request of a State, to any of that State’s activities in the field of atomic energy.....” [2]

This mandate from the ECOSOC to the IAEA remains in force today. It not only applies to the development and maintenance of the Transport Regulations by the IAEA, but also to the efforts to coordinate with “*the United Nations and the specialized agencies concerned*”.

Accordingly the IAEA should continue to take the lead on issues which are specific to Class 7 matters. The problem is, it is not always clear whether an issue is specifically a Class 7 matter or whether it may have more general application.

It is recommended that, emphasis should be placed on the annual Interagency Meetings and, in addition, the IAEA should be regularly represented at meetings of the UN ECOSOC Committee/Sub-Committee of Experts and the applicable modal organization dangerous goods regulatory meetings. Similarly, the UN Secretariat and the international modal transport organizations should be regularly represented at IAEA Meetings to aid harmonization.

IAEA recognizes that when proposals are made to IAEA, which are clearly mode specific, the mode concerned should be advised and should take the lead. This applies particularly where additional requirements are considered necessary for the particular mode concerned. However, where the issue concerns Class 7, but with a clear modal application, advice should be taken from the Secretariat of the mode concerned and that advice be taken into account during consideration of that proposal within the IAEA’s Review/Revision process.

### **Part 3 Examples of IAEA requirements not included in or different from the UN and Modal Regulations**

The IAEA Regulations for the Safe Transport of Radioactive Material, 2000 Edition (TS-R-1), were incorporated into the new structured modal regulations. The following part outlines the different types of IAEA recommendations, that the modal regulations do not incorporate. [3]

- 1) Some of the recommendations of IAEA, which contain provisions applicable to competent authorities, have not been incorporated in modal regulations, except in the IMDG Code.  
For instance : the assessment of radiation Protection Programme (TS-R-1, § 304) ; Emergency response (TS-R-1, § 308) and Compliance assurance (TS-R-1, § 311).
- 2) The references to related publications are generally not incorporated in the UN or modal regulations or are modified.  
For instance : the background and objectives and complementary guides (TS-R-1, §§ 101-105) ; precautions for implementation of other regulations (TS-R-1, § 108) and Structure (TS-R-1, § 110). If the safety guide about emergency instructions is not actually integrated in the modal regulations, some emergency response measures have been specified in all modal regulations.
- 3) Some mode specific requirements have not been incorporated by other modes:
  - the provisions related to postal transport are not transposed except in the ICAO -TI (TS-R-1, §§ 410, 515d, 535, 579 and 580) ; while transport by post could use any mode of transport.
  - the provisions of Type C are not uniformly incorporated : maritime and land transport regulations precise by an additive Note (before TS-R-1, § 417) : « Whilst Type C packages are not required for sea (land) transport of radioactive material [...] (Type B(U) or Type B(M) packages suffice), the following provisions are presented since such packages may also be transported by sea (land). » – Thus, IMDG Code incorporates the full provisions (except TS-R-1, § 412) related to Type C packages and Low dispersible material (LDM) when land transport just includes definitions, consignment procedures, approval and administrative requirements (TS-R-1, sections V and VIII) and deletes the material and package requirements (TS-R-1, §§ 605, 663 and 712 for LDM, §§ 617-619 for packages transported by air, §§ 667-670 for Type C and § 680 for fissile material transported by air) and the tests requirements (TS-R-1, §§ 730, 734-7).
  - the definition of multilateral approval varies for land or sea transport and air transport (TS-R-1, § 204);
  - the sea transport regulations incorporates all land transport provisions (namely TS-R-1, §§ 570-573).
- 4) The terminology differs from one mode of transport to another:
  - depending on the responsibilities of the persons involved in that mode of transport, for instance “carrier” or “operator” (TS-R-1, § 206), “consignor” or “shipper” (TS-R-1, § 212);
  - ADR/RID introduces a difference between small and large freight container and calls a freight container simply a “container” (TS-R-1, § 223);
  - in some cases, the IAEA definition differs from the UN definition, for instance “overpack” (TS-R-1, § 229) or “tank” (TS-R-1, § 242);
  - (TS-R-1, § 248) the definition of “vessel” is not used in UN or modal regulations
- 5) Some IAEA recommendations are not incorporated in any of the modal regulations
  - (TS-R-1, §§ 505, 551 and 581) due to feasibility issues for these requirements or to customs authority issue.

- 6) Modal regulations include interdictions for some kinds of package and the corresponding recommendations are not included in the modal regulations :
  - for air transport, tanks (TS-R-1, §§ 504, 625, 626), intermediate bulk containers (TS-R-1, §§ 504 and 628), unpackaged material (TS-R-1, §§ 523, 540, 547) and intermittent venting of Type B(M) packages (TS-R-1, § 666) are forbidden.
  - for air transport, temperature limit on packages are required (TS-R-1, §§ 652 and 662).
- 7) The recommendations related to subsidiary risks (TS-R-1, §§ 109; 506, 507) are not consistent throughout the applicable modal regulations.
- 8) The requirements relating to marking (TS-R-1, §§ 534-540), labelling (TS-R-1, §§ 541-545) and placarding (TS-R-1, §§ 546-547, 570-571) are sometimes modified
- 9) The definition of the responsibilities in the transport of radioactive material is not uniformly incorporated (TS-R-1, §§ 548, 550, 552 and 553)
- 10) Some administrative requirements are not incorporated in the air transport regulations (TS-R-1, §§ 805b, 807, 810, 813, 822 and 825, 828 to 833).
- 11) Transport documentation is not harmonized (TS-R-1, § 549) with requirements in UN or modal transport regulations.

#### **Part 4 Examples of UN and Modal Regulations not included in or different from the IAEA Regulations**

This part deals, through examples, with the requirements included in the UN Orange Book and also in the modal regulations, that are applicable to class 7 transport, even while these items are not included in the IAEA recommendations. [3]

**Note** : The following is not a comprehensive list.

#### **4.1 Interference of class 7 with other classes of dangerous goods**

##### **i) Precedence of classes**

The UN Orange Book specifies the precedence of hazard characteristics, so that materials presenting many risks are able to be classified by identifying a major risk and subsidiary risks. Then “apart from radioactive material transported 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 shall also be identified” (UN-OB, 1999, § 2.0.3.2). This requirement is completed by two Special Provisions (SP) in chapter 3.3 (UN-OB) : SP 290 for excepted packages and SP 172 for the other packages.

All modal regulations include also these two Special Provisions (as SP172 and SP290 for ADR/RID and IMDG Code; and as A78 and A130 for ICAO-TIs).

Attention should be paid to the limited quantities, which are defined for most of classes of dangerous goods. A radioactive material presenting another risk cannot be classified under the class of this risk, except if the amount of material exceeds the limited quantities.

## **ii) Subsidiary risk**

The renumbering of the UN numbers attributed to radioactive material in the 11<sup>th</sup> edition of UN Orange Book induces the loss of the information of the subsidiary risk for certain radioactive material (e.g. uranyl nitrate, pyrophoric uranium, ...), except for UF<sub>6</sub> for which the former UN numbers have been kept.

ADR/RID kept the information that the solid thorium nitrate, the liquid hex hydrated uranyl nitrate and the solid uranyl nitrate are class 7 material presenting a toxic subsidiary risk (ADR/RID : Special Provision 511, § 3.3.1).

Only IMDG Code kept the requirement related to pyrophoric radioactive materials, which “should be packaged in Type A, Type B(U), Type B(M) or Type C packages and should also be suitably inerted” (§ 4.1.9.1.6).

## **4.2 Forbidden radioactive material**

All modal regulations contain the same requirement : “Any substance which, as presented for transport, is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under conditions normally encountered in transport” are forbidden from transport (UN-OB: § 1.1.3.1; ADR/RID §§ 2.2.x.2; IMDG Code : § 1.1.4.1; ICAO-TIs: § 1;2.1).

For air transport, specific provisions are added related to forbidden dangerous goods:

“Radioactive material with a subsidiary risk of Class 2.1 [Flammable gas] are forbidden from transport on passenger aircraft and radioactive material with a subsidiary risk of Class 2.3 [Toxic gas] are forbidden from transport on passenger or cargo aircraft except with the prior approval of the State of origin under the conditions established by the authority [...]” (ICAO-TIs: A78 of 3;3).

The dangerous goods list of air transport regulations (ICAO-TIs: 3;2) indicates that all pyrophoric liquids or solids, alloys or metals, organic or inorganic, are forbidden from air transport.

## **4.3 Segregation and stowage requirements for class 7 packages**

### **i) Stowage categories and stowage of goods of class 7 for sea transport**

IMDG Code specifies stowage categories for the transport on ship (§ 7.1.1.2) : these categories depend on the type of ship, cargo or passenger, and on the total number of passengers on board. Five stowage categories are defined : A to E. The corresponding stowage category is defined in column 16 of the dangerous goods list (chapter 3.2). Radioactive material are concerned only by stowage categories A (on deck or under deck) and D (on deck only for cargo or passenger ships; prohibited on small passenger ships).

### **ii) Stowage in relation to undeveloped films and plates, and mailbags**

Modal regulations contain an information table, which defines the distance to be kept between radioactive cargo and photo sensitive films or plates, related to the total sum of transport indexes and the duration of the voyage/carriage (IMDG Code : § 7.2.9.8 and Tables II or III; ADR/RID : 7.5.11 CV33 or CW33 and Table B; ICAO-TIs : 7;2.9.6.2 and Table 7-7).

### **iii) Stowage in relation to foodstuffs**

Land and sea transport regulations require separation of radioactive material from foodstuffs (ADR/RID: 7.5.4 and 7.5.11 CV28; IMDG Code : 7.1.5.3).



**iv) Stowage in relation to live animals**

Only air transport regulations require separation of live animals from the II-yellow and III-yellow packages (ICAO-Tis : § 7;2.9.6.3).

**v) Separation from persons**

Modal regulations contain an information table and/or limits, which define the distance related to the total sum of transport indexes and the duration of the voyage/carriage (ICAO-TIs : 7;2.9.6.1 and Tables 7-5 or 7-6; IMDG Code : 7.2.9.6 to 7.2.9.10 and Tables I, II or III; ADR/RID : 7.5.11 CV33 or CW33 and Table B).

**vi) Segregation table (for packages containing dangerous goods of various classes)**

Land and sea transport regulations include a segregation table between packages containing dangerous goods of various classes (ADR/RID 7.5.2.1; IMDG Code: 7.2.1.16). Transportation of packages bearing an explosive label is not allowed with packages bearing a radioactive label. Such table does not exist in air transport regulations.

Due to the size of the conveyance, the sea transport regulations include some specific requirements related to the segregation for the various means of transport (IMDG Code : 7.2.1.17) :

- “segregation of packages (IMDG Code : 7.2.2),
- segregation of cargo transport units on board container ships (IMDG Code : 7.2.3),
- segregation of cargo transport units on board roll-on/roll-off ships (IMDG Code : 7.2.4),
- segregation in shipborne barges and on board barge-carrying ships (IMDG Code : 7.2.5),
- segregation between bulk materials possessing chemical hazards and dangerous goods in packaged form (IMDG Code : 7.2.6)”.

**vii) General provisions on segregation (precedence of segregation)**

“Where the Code indicates a single secondary risk (on subsidiary risk label), the segregation provisions applicable to that hazard should take precedence where they are more stringent than those of the primary hazard” (IMDG Code : 7.2.1.6.1). Some similar requirement applies for land transport (ADR/RID: § 7.5.2.1; UN-OB : 7.1.2.3).

#### **4.4 Training**

The only IAEA recommendation dealing with training concerns the radiation protection (TS-R-1, § 303). ”Workers shall receive appropriate training concerning the radiation hazards involved and the precautions to be observed in order to ensure restriction of their exposure and that of other persons who might be affected by their actions”.

UN Orange Book and modal regulations added important requirements related to training of the persons involved in the transport. “Persons engaged in the transport of dangerous goods shall receive training in the contents of dangerous goods requirements commensurate with their responsibilities” (UN-OB: § 1.3.1; ICAO-TIs : § 1;4; ADR/RID: 1.3.2.4). The corresponding provision of IMDG Code: (§ 1.3) is not mandatory.

In addition, ADR/RID (§ 1.8.3) requires that every company involved in transport of dangerous goods, loading or unloading of such materials, shall have a safety adviser, who has successfully passed an exam, appointed by the director of the company and responsible for the following tasks :

- to ensure the respect of the dangerous goods transport requirements;
- to advise the company in all operations related to transport of dangerous goods,
- to write an annual report on the activities related to transport of dangerous goods.

Note: Providing TRANSSC VII approves Major Change (IAEA 00/MAJ/02) more specific training requirements, in accordance with the regulations specified in the UN Model Regulations, will be incorporated into TS-R-1, Edition 2003.

#### **4.5 Maximum exempted quantity permitted per transport**

ADR/RID specifies five categories of transport related to the mass of transported dangerous goods (§ 1.1.3.6). An unlimited quantity of packages per transport unit (vehicle/wagon), is allowed for the category “4”, which corresponds to excepted packages (Nos UN 2908 to 2911). Even if the IAEA regulations may not forbid an unlimited quantity of excepted packages (except for fissile material), the categories of transport related to mass (for dangerous goods other than class 7 material) and to activity (for radioactive material) are not specified in IAEA regulations.

#### **4.6 IBC and tank requirements**

##### **i) IBC requirements**

The intermediate bulk containers (IBC) are common packages used as industrial packages for the transport of radioactive material. Most of the modal regulations include « General provisions applicable to all types of IBCs » which are presented in section 6.5.1 (UN-OB, IMDG Code, ADR/RID).

Note : IBCs are forbidden from air transport.

##### **ii) Tank requirements**

Tanks for the carriage of radioactive material shall meet the requirements of both IAEA regulations and UN Orange Book.

Most of the modal regulations include « General provisions for the use of portable tanks for the transport of substances of classes 3 to 9 » and « Application and general provisions for tanks » (respectively §§ 6.7.2 and 6.7.1.1 of UN-OB, IMDG Code, ADR and RID), which are completed by « general provisions for the use of portable tanks for the transport of substances of classes 3 to 9 » (section 4.2.1.1 to 4.2.1.9 and 4.2.1.15 of UN-OB, IMDG Code, ADR and RID ; and 4.2.1.18 of IMDG Code).

Specific requirements are applicable to road tank vehicle for sea transport for respectively long and short international voyages for substances of classes 3 to 9 (IMDG Code : §§ 6.8.2 and 6.8.3.1). These are completed by special provisions relating to tanks for the transport of solid substances (such as powdery or granulated substances) (IMDG Code : § 6.9).

Under UN numbers, tank requirements are indicated in the Dangerous Goods List in chapter 3.2 as “T5” and “TP4” for UN 2912, 2913 and 3321 (UN, IMDG Code, ADR/RID). Portable tank provisions and special provisions (like “T5” and “TP4”) are presented in § 4.2.4 (UN, IMDG Code, ADR/RID).

Note : Tanks are forbidden from air transport.

#### **4.7 Emergency response**

**These items are more or less covered by the TS-G.1.2 to be published.**

##### **i) Emergency schedules**

The IMDG Code includes in the dangerous goods list a reference to the relevant emergency schedule.

The air transport regulations (ICAO-TIs § 7;4.8) quote the cross reference to the ICAO Document “Emergency response Guidance for aircraft incidents involving dangerous goods” (Doc. 9481).

ADR/RID adopted the system of instructions in writing for the driver, which are regulatory but shall be provided by the consignor. The consignor shall be responsible for the content of these instructions (ADR/RID, § 5.4.3).

#### **ii) General provisions in the event of incidents and Special provisions for incidents involving radioactive material**

The modal regulations supplement the emergency schedules, when they exist, with General provisions in the event of incidents and Special provisions for incidents involving radioactive material (IMDG Code : §§ 7.3.1 and 7.3.4.4 and 7.3.4.6; ADR/RID : § 1.8.5.1; ICAO-TIs : 7;4).

#### **iii) General fire precautions and Special fire precautions and fire fighting for class 7**

IMDG Code developed special precautions for fire (§§ 7.3.5 and 7.3.9).

### **4.8 Samples**

The transport of samples occurs when “the hazard class of a substance is uncertain and it is being transported for further testing. In that case, a tentative hazard class, proper shipping name and identification number shall be assigned on the basis of the consignor’s knowledge of the substance and application of the classification criteria of the regulations and of the precedence of hazards.” (UN-OB : § 2.0.4; ADR/RID : 2.1.4.2 (b); IMDG Code : § 2.0.4.2.2.; ICAO-TIs : 2;0.5).

This case is partly solved for radioactive material through the table II of TS-R-1 when the radionuclides are not well identified. With the evolution of the definition of radioactive material, the measure of the specific activity in special laboratories could lead some consignors to use the samples to characterize the radioactive material to be transported.

### **4.9 Salvage packagings**

The use of salvage packagings is foreseen by the modal regulations in case of damaged, defective or leaking packages. A set of requirements are included in the modal regulations for the use (UN-OB : § 4.1.1.15; ADR/RID : § 4.1.1.17; IMDG Code : § 4.1.1.16) and the testing of such packagings (UN-OB, ADR/RID and IMDG Code : § 6.1.5.1.11). Some specific situation could lead a consignor, a carrier or a competent authority to have recourse to the use of salvage packagings for the transport of radioactive materials.

### **4.10 Dangerous goods packed in limited quantities**

Supplementary requirements apply to excepted packages (UN-OB, IMDG Code, ADR/RID and ICAO-TIs : § 3.4) as dangerous goods packaged in limited quantities.

Note: More information is provided in the Annex I.

### **Part 5 Recommendations**

It is recommended to improve the harmonization between the IAEA, UN and international modal Regulations, hence improving the safe transport of radioactive material and other dangerous goods.

For practical reasons the following matters have been identified as priority issues:

- 1 Terminology including definitions see 3.4
- 2 Subsidiary risk see 3.7 and 4.1 (ii)
- 3 Documentation see 3.11

### **Part 6: References**

- [1] IAEA TC-1156.3 (Information Paper No. 15) DIRECTION FROM UN ECOSOC TO AGENCY TO DEVELOP TRANSPORT RECOMMENDATIONS
- [2] IAEA TC-1156.3 (Working Paper No. 7 Rev. 1) REPORT OF WORKING GROUP 2 – ASSESSMENT OF/RECOMMENDATIONS ON ENHANCING THE HARMONIZATION OF TRANSPORT REGULATIONS DURING THE ADOPTION OF THE 2003 EDITION OF THE TRANSPORT REGULATIONS
- [3] J.-Y. RECULEAU, Ch. FASTEN: THE RESTRUCTURING OF THE MODAL REGULATIONS COMPILATION OF SOME DIFFERENCES BETWEEN THE IAEA AND MODAL REGULATIONS Patram'01 Chicago IL, September 2001

## Annex I

Table – Comparison of Regulatory Requirements – International Regulatory Documents – 2000/2001							
Not treated by IAEA TS-R-1 (ST-1, Revised) (1996 Edition as reissued 2000)	UN Committee of Experts Model Regulations (1999)	ICAO Technical Instructions (2001-2002)	IATA Dangerous Goods Regulations (2001)	IMO IMDG Code (Amendment 30-00)	ADR (2001 edition)	RID (2001 edition)	
Radioactive materials forbidden unless exempted	1.1.3.1		2.1.2 (a), 4.4 (A78), 10.2.1, 10.3.10 (App. G)	1.1.4.1	---	---	
Maximum exempted quantity per transport	---		2.7.2 (a)	---	1.1.3.6.1 and 1.1.3.6.3	1.1.3.6.1 and 1.1.3.6.3	
Training	1.3		1.5, 9.7	1.3 (not mandatory)	1.3.2.4	1.3.2.4	
Safety adviser	---		---	---	1.8.3.13 and 1.8.3.18	1.8.3.13 and 1.8.3.18	
Precedence of classes	2.0.3.1, 2.0.3.2		3.10.2, 3.10.3	2.0.3.5	2.1.3.5.3 (a)	2.1.3.5.3 (a)	
Samples	2.0.4		Table 2.3A	2.0.4.2.2	2.1.4.2 (b)	2.1.4.2 (b)	
Tanks requirements	UN 2912, UN 2913, UN 3321, UN3322 (T5 and TP4)		---	UN 2912, UN 2913, UN 3321 (T5 and TP4)	UN 2912, UN 2913, UN 3321 (T5 and TP4)	UN 2912, UN 2913, UN 3321 (T5 and TP4)	
Emergency schedules	---		4.1.6, 14, 4.2 (Column N of DGL)	3.2.1 (column 15)			
Predominant and subsidiary risks and related requirements	SP 172 – 3.3.1		4.4 (A78), 10.3.10 (App. G), 10.8.7, 3.4 M	SP 172 – 3.3.1	SP 172 – 3.3.1	SP 172 – 3.3.1	
Predominant and subsidiary risks and related requirements	SP 290 – 3.3.1		4.4 (A130), 10.5, 9.3 (App. G)	SP 290 – 3.3.1	SP 290 – 3.3.1	SP 290 – 3.3.1	
Toxic subsidiary risk	---			---	SP 511	SP 511	
Limited quantities	3.4 (x1.1.1.5)		2.7.2 (a)	3.4	3.2.1 (column 7), 3.4	3.2.1 (column 7), 3.4	
General provisions of packing instructions	4.1.3.1			4.1.3.1	4.1.3.1	4.1.3.1	
Pyrophoric radioactive material	---		2.1.2 (a), 4.4 (A78)	4.1.9.1.6	---	---	

Table – Comparison of Regulatory Requirements – International Regulatory Documents – 2000/2001						
Not treated by IAEA TS-R-1 (ST-1, Revised) (1996 Edition as reissued 2000) Item	UN Committee of Experts Model Regulations (1999)	ICAO Technical Instructions (2001-2002)	IATA Dangerous Goods Regulations (2001)	IMO IMDG Code (Amendment 30-00)	ADR (2001 edition)	RID (2001 edition)
General provisions for the use of portable tanks for the transport of substances of classes 3 to 9	4.2.1.1 to 4.2.1.9 and 4.2.1.15		---	4.2.1.1 to 4.2.1.9 and 4.2.1.15 and 4.2.1.18	4.2.1.1 to 4.2.1.9 and 4.2.1.15	4.2.1.1 to 4.2.1.9 and 4.2.1.15
Portable tank instructions and special provisions	4.2.4 (T5 and TP4)		---	4.2.4 (T5 and TP4)	4.2.4 (T5 and TP4)	4.2.4 (T5 and TP4)
Empty uncleaned packagings or units	5.1.3.1			5.1.3.3 and 5.4.1.1.10	1.1.3.6.1	1.1.3.6.1
Packages containing certain radioactive material possessing other dangerous properties or certain LSA material or SCO	6.1.1.1 (a)			6.1.1.1.2	6.1.1.1 (a)	6.1.1.1 (a)
General provisions applicable to all types of IBCs	6.5.1.1.1 (x4.1.3.1)			6.5.1.1.1 (x4.1.3.1)	6.5.1.1.1 (x4.1.3.1)	6.5.1.1.1 (x4.1.3.1)
Application and general provisions for tanks	6.7.1.1		---	6.7.1.1 (x4.2.1.1)	6.7.1.1	6.7.1.1
Provisions for the design, construction, inspection and testing of portable tanks intended for the transport of substances of classes 3 to 9	6.7.2		---	6.7.2	6.7.2	6.7.2
Road tank vehicles for long international voyages for substances of classes 3 to 9	---		---	6.8.2	6.8.2	6.8.2
Road tank vehicles for short international voyages for substances of classes 3 to 9	---		---	6.8.3.1	---	---
Special provisions relating to tanks for the transport of solid substances (such as powdery or granulated substances)	---		---	6.9	---	---
Stowage categories and stowage of goods of class 7	---		---	7.1.1.2 (x3.2.3 column (16) of DGI) and 7.1.14.1	---	---
Stowage in relation to undeveloped films and plates, and mailbags	---		Table 9.3.F	7.1.3	7.5.11 CV33 Table B	7.5.11 CV33 Table B

Table – Comparison of Regulatory Requirements – International Regulatory Documents – 2000/2001							
Not treated by IAEA TS-R-1 (ST-1, Revised) (1996 Edition as reissued 2000) Item	UN Committee of Experts Model Regulations (1999)	ICAO Technical Instructions (2001-2002)	IATA Dangerous Goods Regulations (2001)	IMO IMDG Code (Amendment 30-00)	ADR (2001 edition)	RID (2001 edition)	
Stowage in relation to foodstuffs	---			7.1.5.3	7.5.4 and 7.5.11 CV28	7.5.4 and 7.5.11 CV28	
Marking on overpacks	---		10.7.1.4.1, 10.7.1.4.2, 10.7.1.5 (App. G)	---	---	---	
General provisions on segregation (precedence of segregation)	7.1.2.3 ©			7.2.1.6.1			
Segregation table	---		---	7.2.1.16	7.5.2.1	7.5.2.1	
Segregation provisions for the various means of transport	---		---	7.2.1.17	---	---	
Segregation table between bulk materials possessing chemical hazards and dangerous goods in packages form	---		---	7.2.6.1.2	7.5.2.1	7.5.2.1	
Segregation for goods of class 7	7.1.2.2		Table 9.3.D, Table 9.3.E	7.2.9.6 to 7.2.9.10 and Tables I, II and III	7.5.11 CV33 Table B	7.5.11 CV33 Table B	
General provisions in the event of incidents and Special provisions for incidents involving radioactive material			9.6.1, 9.6.2 (App. G)	7.3.1 and 7.3.4,4 and 7.3.4.6	1.8.5.1	1.8.5.1	
General fire precautions and Special fire precautions and fire fighting for class 7	---		---	7.3.5 and 7.3.9	---	---	
Transport of wastes	---		---	7.8.2.2	---	---	
Use of dry ice	---		9.3.12, 10.7.1.3.1, 10.7.1.3.2 (App. G)	---	---	---	
Definition of the responsibilities	“2.0.0”		1.3, 1.4, 10.7.1.1, 10.7.2.1 (App. G)	“2.0.0”	1.4.2	1.4.2	