

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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COOPERATION WITH THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

Guidance for the Security in Transport of Radioactive Material

Transmitted by the International Atomic Energy Agency (IAEA)

1. By resolution 724 (XXVIII) of 17 July 1959, the Economic and Social Council informed the IAEA of its desire that the Agency be entrusted with the drafting of recommendations on the transport of radioactive 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:
2. Since then, the IAEA has elaborated, in close cooperation with the United Nations and its specialized agencies, the Regulations for the Safe Transport of Radioactive Material, the provisions of which were incorporated in the UN Model Regulations on the transport of Dangerous Goods (11th revised edition, 1999).
3. In 2002, the UN Sub-Committee of Experts on the Transport of Dangerous Goods adopted provisions concerning security, which were included in the 13th revised edition of the Model Regulations (2003) as Chapter 1.4 and section 7.2.4. The IAEA had been consulted and provided provisional criteria for classification of radioactive material as high consequence dangerous goods, namely a quantity threshold of 3000 A₁ (special form) or 3000 A₂, as applicable, in Type B(U) or Type B(C) or Type C packages.
4. Since then, the IAEA has also worked on security of the transport of radioactive material, taking account of the security provisions contained in the UN Model Regulations, and has now published (2008) an Implementing Guide in the IAEA Nuclear Security Series No. 9, entitled "Security in the Transport of Radioactive Material", (www-pub.iaea.org/MTCD/publications/PDF/Pub1348_web.pdf).
5. This guidance has been developed in close cooperation with members States and agreed for publication by consensus.

6. It contains in particular new suggested thresholds for identification of radioactive material as high consequence dangerous goods. The new threshold values are intended to identify, as high-consequence dangerous goods all radioactive material which, if not safety managed or security protected, could cause permanent injury to a person who handled them, or were otherwise in contact with them for a short time.

7. The IAEA Code of conduct for the safety and security of radioactive sources lists 25 nuclides and their associated threshold values (D-values). The IAEA Nuclear Security Series no.9 sets the threshold for these 25 nuclides at 10D and at 3000 A₂ for all other nuclides.

8. More information on the D-values may be found in the IAEA document TECD0C-1344, Categorization of radioactive sources (www-pub.iaea.org/MTCD/publications/PDF/te_1344_web.pdf) and Safety Guide No. RS-G-1.9 (www-pub.iaea.org/MTCD/publications/PDF/Pub1227_web.pdf).

9. An example on how these thresholds can be incorporated into Chapter 1.4 of the UN Model Regulations has been prepared in consultation with the secretariat of the Sub-Committee and is reproduced in the annex hereto.

10. Attention is also drawn to the fact that document INFCIRC/225 (Rev.4) referred to in current paragraph 1.4.3.2.3 should be corrected. A proposal of new text will be prepared by the IAEA after legal consultation.

11. The Sub-Committee may also wish to consider the provisions contained in the IAEA Implementing Guide on “Security in the Transport of Radioactive Material”, which are based on Chapter 1.4 of the UN Model Regulations but which differ to a certain extent. On the basis of the feedback provided by the Sub-Committee, the IAEA would consider submitting in a second step, a more detailed proposal of harmonization of the UN Model Regulations and the IAEA Implementing Guide.

12. In order to allow IAEA to prepare an official document for the new session, comments may be sent by e-mail to Mrs Ann-Margret Eriksson at the following address: A.Eriksson@iaea.org.

Annex

Example of amendment to Chapter 1.4 of the UN Model Regulations on the
Transport of Dangerous Goods

1. Insert a new 1.4.3.1 to read as follows:

1.4.3.1 Definition of high consequence dangerous goods.

1.4.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist incident and which may, as a result, product serious consequences such as mass casualties or mass destruction.

1.4.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in the table below.

Table 1.4.1: List of high consequence dangerous goods (other than radioactive material) [Existing Table 1.4.1, with the existing NOTE, but without the introductory text and without the entry for Class 7.].

1.4.3.1.3 For dangerous goods of Class 7, high consequence radioactive material are those with an activity exceeding a transport security threshold of 3000 A₂ per single package (see also 2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in table 1.4.2 below.

Table 1.4.2: Transport security thresholds for specific radionuclides

Radionuclide	Transport security threshold (TBq)
Am-241	0.6
Au-198	2
Cd-109	200
Cf-252	0.2
Cm-244	0.5
Co-57	7
Co-60	0.3
Cs-137	1
Fe-55	8000
Ge-68	7
Gd-153	10
Ir-192	0.8
Ni-63	600
Pd-103	900
Pm-147	400
Po-210	0.6
Pu-238	0.6
Pu-239	0.6
Ra-226	0.4
Ru-106	3
Se-75	2
Sr-90	10
Tl-204	200
Tm-170	200
Yb-169	3

1.4.3.1.4 For mixtures of radionuclides, determination of whether or not the transport security radioactivity threshold has been met or exceeded can be calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide. If the sum of the fractions is less than 1, then the radioactivity threshold for the mixture has not been exceeded.

This calculation can be made with the formula:

$$\sum_i \frac{A_i}{T_i} < 1$$

Where:

A_i = activity of radionuclide i that is present in a package (TBq)

T_i = transport security threshold for radionuclide i (TBq).

1.4.3.1.5 When radioactive material possess subsidiary risks of other classes or divisions, the criteria of table 1.4.1 shall also be taken into account (see also 1.5.5.1).

Insert a new title:

“1.4.3.2 General provisions.”

1.4.3.2.1 Existing 1.4.3.1, but delete last sentence.

1.4.3.2.2 Existing 1.4.3.2.3, new text will be submitted by the IAEA after legal consultation.
