

SCHEDULE 8

REQUIREMENTS FOR RADIOACTIVE MATERIALS AND FOR PACKAGINGS AND PACKAGES

PART XI

REQUIREMENTS FOR TYPE B(U) PACKAGES

1. A Type B(U) package must be designed to meet the requirements of Part IV, and of paragraphs 2 to 13, and 15, of Part X, and of paragraph 14 of Part X except as specified in paragraph 7(a) below.

2. A package must be so designed that, under the ambient conditions specified in paragraphs 4 and 5, heat generated within the package by the radioactive contents must not, under normal conditions of transport, as demonstrated by the tests in paragraphs 7 – 12 of Part IV of Schedule 9, adversely affect the package in such a way that it would fail to meet the applicable requirements for containment and shielding if left unattended for a period of one week. Particular attention is to be paid to the effects of heat which may—

- (a) alter the arrangement, the geometrical form or the physical state of the radioactive contents or, if the radioactive material is enclosed in a can or receptacle (for example, clad fuel elements), cause the can, receptacle or radioactive material to deform or melt; or
- (b) lessen the efficiency of the packaging through differential thermal expansion or cracking or melting of the radiation shielding material; or
- (c) in combination with moisture, accelerate corrosion.

3. A package must be so designed that, under the ambient condition specified in paragraph 4, the temperature of its accessible surfaces must not exceed 50°C, unless the package is transported under exclusive use.

4. The ambient temperature must be assumed to be 38°C.

5. The solar insolation conditions must be assumed to be as specified in Table IX of Schedule 1.

6. A package which includes thermal protection for the purpose of satisfying the requirements of the thermal test specified in paragraph 16 of Part IV of Schedule 9 must be so designed that such protection will remain effective if the package is subjected to the tests specified in paragraphs 7 – 12 and 15(a) and (b) or 15(b) and (c) of Part IV of Schedule 9, as appropriate. Any such protection on the exterior of the package must not be rendered ineffective by ripping, cutting, skidding, abrasion, or rough handling.

7. A package must be so designed that, if it were subjected to—

- (a) the tests specified in paragraphs 7 – 12 of Part IV of Schedule 9, it would restrict the loss of radioactive contents to not more than $10^{-6}A_2$ per hour; and
- (b) the tests specified in paragraphs 14, 15(b), 16 and 17 of that Part of that Schedule and the test in paragraph—
 - (i) 15(c) of that Part of that Schedule, when the package has a mass not greater than 500 kg, an overall density not greater than 1000 kg/m^3 based on the external dimensions, and radioactive contents greater than $1000 A_2$ not as special form radioactive material, or
 - (ii) 15(a) of that Part of that Schedule for all other packages,

it would retain sufficient shielding to ensure that the radiation level at 1 metre from the surface of the package would not exceed 10 mSv/h with the maximum radioactive contents

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which the package is designed to contain and it would restrict the accumulated loss of radioactive contents in a period of one week to not more than $10 A_2$ for krypton-85 and not more than A_2 for all other radionuclides. Where mixtures of different radionuclides are present, the provisions of parts 4 and 5 of regulation 29 must apply except that for krypton-85 an effective $A_2(i)$ value equal to $10 A_2$ may be used. For the purposes of sub-paragraph (a) above, the evaluation must take into account the requirements of regulation 37(2)(a).

8. A package for radioactive contents with activity greater than $105 A_2$ must be so designed that if it were subjected to the water immersion test specified in paragraph 18 of Part IV of Schedule 9, there would be no rupture of the containment system.

9. Compliance with the permitted activity release limits must not depend either upon filters or upon a mechanical cooling system.

10. A package must not include a pressure relief system from the containment system which would allow the release of radioactive material to the environment under the conditions of the tests specified in paragraphs 7 – 12 and 14 – 17 of Part IV of Schedule 9.

11. A package must be so designed that if it were at the maximum normal operating pressure and it were subjected to the tests specified in paragraphs 7 – 12 and 14 – 17 of Part IV of Schedule 9, the level of strains in the containment system would not attain values which would adversely affect the package in such a way that it would fail to meet the applicable requirements.

12. A package must not have a maximum normal operating pressure in excess of a gauge pressure of 700 kPa.

13. The maximum temperature of any surface readily accessible during transport of a package must not exceed 85°C in the absence of insolation under the ambient condition specified in paragraph 4. Account may be taken of barriers or screens intended to give protection to persons without the need for the barriers or screens being subject to any test.

14. A package containing low dispersible radioactive material must be so designed that any features added to the low dispersible radioactive material that are not part of it, or any internal components of the packaging must not adversely affect the performance of the low dispersible radioactive material.

15. A package must be designed for an ambient temperature range from -40°C to $+38^{\circ}\text{C}$.