

Enclosure 1 to E-52912

RSI 1-1 Revised Response

RSI 1-1

Identify the content powder specification to ensure that pyrophoric reactions are not credible during all transport conditions.

In document No. DOS-06-0037028-100, Revision 2, the applicant notes that no leak-tightness inspection criterion is specified for use of the packaging. Since the powder environment does not appear to be controlled, it is not clear what materials specification controls would be in place to ensure that pyrophoricity of the contents is not a credible scenario during all transport conditions.

This information is necessary to ensure compliance with the requirements in paragraphs 614 and 644 of the International Atomic Energy Agency (IAEA) Specific Safety Requirements No. 6 (SSR-6), 2012 Edition.

TN International Revised Response to RSI 1-1

Safety Analysis Report (SAR) Chapter 0A, Description of the Content, DOS-06-0037028-006 Revision 7, provides a complete description of the material allowed in Content Number 8 (n°8). Materials other than those described in this chapter are not allowed.

Content 8 is in the following possible forms:

- (A) Material mainly in the form of lumps or fragments with possibly a very low quantity of powder due to the erosion of the material. The powder is not the main constituent of this type of content, as these residues have not been specifically processed to be reduced in thin powder (not powdered material),
- (B) Piece of material of large size (not powdered material). Traces of powder are not excluded.

Enclosure 2 provides pictures of the above 2 forms.

Forms (A) are shown in pictures 1 to 3.

Forms (B) are shown in pictures 4 to 14.

These residues have been stored stably for over 20 years in facilities.

Additionally, it should be emphasized that the temperature of the contents remains low with respect to the possibility of the pyrophoricity phenomenon (below 60 °C in normal conditions of transport and below 100 °C in accidental conditions of transport).

In the event that any of the material in the mixture of contents were pyrophoric, the U.S. Department of Transportation regulations, specifically 49 CFR 173.418, specify allowable means for inerting pyrophoric contents, as described below:

§173.418 Authorized packages—pyrophoric Class 7 (radioactive) materials.

Pyrophoric Class 7 (radioactive) materials, as referenced in the §172.101 table of this subchapter, in quantities not exceeding A2 per package must be transported in DOT Specification 7A packagings constructed of materials that will not react with, nor be decomposed by, the contents. Contents of the package must be—

- (a) In solid form and must not be fissile unless excepted by §173.453;
- (b) Contained in sealed and corrosion resistant receptacles with positive closures (friction or slip-fit covers or stoppers are not authorized);
- (c) Free of water and contaminants that would increase the reactivity of the material; and

(d) Inerted to prevent self-ignition during transport by either—

(1) Mixing with large volumes of inerting materials, such as graphite, dry sand, or other suitable inerting material, or blended into a matrix of hardened concrete; or

(2) Filling the innermost receptacle with an appropriate inert gas or liquid.

(e) Pyrophoric Class 7 (radioactive) materials transported by aircraft must be packaged in Type B packages.

[Amdt. 173-244, 60 FR 50307, Sept. 28, 1995, as amended at 68 FR 45038, July 31, 2003; 70 FR 56098, Sept. 23, 2005]

Based on 49 CFR 173.418(d)(1), highlighted above, Content n°8 is considered to be inerted.

Therefore, considering these conditions, the pyrophoricity risk is not a concern for Content n°8.

Impact

No change as a result of this RSI response.