

**CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGE
9365	1	71-9365	USA/9365/B(U)-96	1 OF	4

2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO (*Name and Address*)

Robatel Technologies, LLC
5115 Bernard Drive
Suite 304
Roanoke, VA 24018

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Robatel Technologies, LLC, application, Revision No. 4, dated February 13, 2014.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: RT-100

(2) Description

A cylindrical stainless steel, lead shielded, packaging, with a 35 mm thick outer and 30 mm thick inner stainless-steel shell, designed for the transport of radioactive waste materials. The internal cavity of the packaging is 1,956 mm high, with a diameter of 1,730 mm. The annular space between the inner and outer shells is filled with a 90 mm thick lead for shielding. The cylindrical shell is attached to a circular forged bottom plate, with a full penetration weld, while the inner shell is attached to a circular forged flange, with a full penetration weld, at the top of the packaging. The base of the packaging consists of a 30 mm thick stainless steel outer bottom plate, a 75 mm thick gamma shield of poured lead, and a 50 mm thick stainless steel inner bottom forging.

The primary lid, consisting of a 210 mm thick stainless steel forging, is fastened to the packaging body with thirty-two M48 hex head bolts. The secondary lid, made of a 100 mm thick stainless steel upper plate, a 60 mm thick lead gamma shield and a 10 mm thick lower stainless steel plate, is attached to the primary lid with eighteen M36 hex head bolts.

Two tie-down arms, welded to the external shell, are considered as a structural part of the packaging. When not in use for package tie-down, shear pins prevent the tie-down arms from being used to lift the package. Removable lifting lugs are utilized for removal and handling of the primary and secondary lids, as well as of the impact limiters.

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9365	1	71-9365	USA/9365/B(U)-96	2 OF	4

5(a)(2) Packaging Description (Continued)

The stainless steel impact limiters have an outside diameter of 2,587 mm: the lower impact limiter extends 494 mm beyond the base of the packaging; the upper impact limiter extends 498 mm beyond the primary lid. The volume inside the impact limiter shells is filled with crushable shock-absorbing and thermal-insulating polyurethane foam.

The maximum gross weight of the package, including impact limiters, is 41,500 kg. The maximum (empty) weight of the packaging, including impact limiters, is 34,696 kg.

The containment boundary consists of the inner shell, the bottom forging, the top flange, the primary lid, the primary lid inner O-ring, the stainless steel vent port cover plate and its inner O-ring, the secondary lid and the secondary lid inner O-ring. A vent port penetrates the primary lid into the main cask cavity. The vent penetration contains a quick disconnect valve and is sealed with the vent port cover plate. The primary lid, secondary lid, and the cover plate are sealed with O-rings.

(3) Drawings

The packaging is constructed and assembled in accordance with Robatel Technologies, LLC, Drawing Nos:

RT100 PE 1001-1 Rev. H - RT-100 General Assembly Sheet 1/2

RT100 PE 1001-2 Rev. H - RT-100 General Assembly Sheet 2/2

RT100 PRS 1011 Rev. E - RT-100 Cask Sub Assembly Weld Map Cask Body

RT100 PRS 1013 Rev. C - RT-100 Cask Sub Assembly Weld Map Secondary Lid

RT100 PRS 1031 Rev. D - RT-100 Cask Sub Assembly Weld Map Lower Impact Limiter

RT100 PRS 1032 Rev. D - RT-100 Cask Sub Assembly Weld Map Upper Impact Limiter

102885 MD 1031-06 Rev. F - RT-100 Sub Assembly Fabrication Drawing Impact Limiter Foam

(b) Contents

(1) Type and form of material: dispersible solids, in the form of both dewatered and grossly dewatered resins and filters, contained within secondary containers.

(2) Maximum quantity of material per package

(i) Activity not to exceed 3,000 times a Type A quantity, along with the following limits:

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	9365	1	71-9365	USA/9365/B(U)-96	3 OF	4

- (1) As prescribed by the procedure in Section No. 7.6 of the application, for beta and gamma emitting radionuclides.
- (2) As prescribed by 10 CFR 71.15, for exempting materials from classification as fissile material.
- (3) A maximum total package neutron source of 3.5×10^{-6} Ci/g for materials that produce neutrons (other than fissile materials) through any means, including spontaneous fission, alpha-neutron reactions, and gamma-neutron reactions.

- (ii) Maximum decay heat: 200 watts.
- (iii) Maximum weight of contents: 6,804 kg including shoring and secondary containers.

6. In addition to the requirements of Subpart G of 10 CFR Part 71:
 - (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures of Chapter 7 of the application.
 - (b) The packaging must be tested and maintained in accordance with the acceptance tests and maintenance program described in Chapter 8 of the application.
7. Except for close fitting contents, shoring must be placed between the secondary container and the package cavity's walls to prevent both radial and axial movements during transport.
8. Flammable gas (e.g., hydrogen) concentration is limited to less than 5% by volume.
9. A pre-shipment leakage rate test is required for all shipments.
10. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
11. Expiration date: March 31, 2019.

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9365	1	71-9365	USA/9365/B(U)-96	4	OF 4

REFERENCES

Robatel Technologies, LLC, application, Revision No. 4, February 13, 2014.

Supplements dated: January 30, March 5, and May 21, 2015.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Mark Lombard, Director
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: July 27, 2015

