

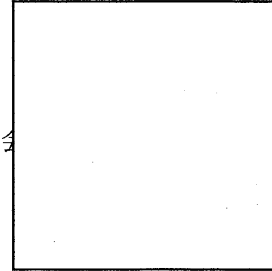
原規規発第 2102125 号

令和 3 年 2 月 12 日

国立研究開発法人日本原子力研究開発機構


理事長 児玉 敏雄 殿

原子力規制委員会



核燃料輸送物設計承認英文証明書について

核燃料物質等の工場又は事業所の外における運搬に係る核燃料輸送物設計承認及び容器承認等に関する申請手続ガイド（令和 2 年 2 月 26 日付け原規規発第 2002264 号）2.4. に基づき、令和 3 年 2 月 2 日付け令 02 原機（環保）010 をもって申請のあった標記の件について、添付のとおり証明します。



IDENTIFICATION MARK
J/2019/B(U)F-96 (Rev. 1)

COMPETENT AUTHORITY
OF
JAPAN

CERTIFICATE FOR APPROVAL OF
PACKAGE DESIGN
FOR THE TRANSPORT OF
RADIOACTIVE MATERIALS

ISSUED BY

NUCLEAR REGULATION AUTHORITY
1-9-9, ROPPOGI MINATO-KU
TOKYO, JAPAN

CERTIFICATE FOR APPROVAL OF PACKAGE DESIGN
FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

This is to certify, in response to the application by Japan Atomic Energy Agency, that the package design described herein complies with the design requirements for a package containing uranium and uranium aluminum alloy, specified in the 2012 Edition of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No.SSR-6) and the Japanese rules based on the Act on Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be transported.

COMPETENT AUTHORITY

IDENTIFICATION MARK: J/2019/B(U)F-96 (Rev. 1)

Feb. 12. 2021
Date

Hasegawa Kiyomitsu

Director, Division of Licensing for
Nuclear Fuel Facilities

Secretariat of Nuclear Regulation Authority
Competent Authority of JAPAN
for Package Design Approval

1. The Competent Authority Identification Mark : J/2019/B(U)F-96 (Rev. 1)
2. Name of Package :
3. Type of Package: Type B(U), Fissile Material
4. Specification of Package
 - (1) Materials of Packaging
 - (i) Drum assembly : Stainless Steel, Castable Refractory Material and Neutron Absorber
 - (ii) Containment vessel (CV) : Stainless Steel
 - (2) Total Weight of Packaging : kg (nominal value)
 - (3) Outer Dimensions of Packaging
 - (i) Outer Diameter : Approximately cm
 - (ii) Height : Approximately cm
 - (4) Total weight of Package : kg or less
 - (5) Illustration of Package : See the attached Figure-1 (3-Dimensional Section View)
5. Specification of Radioactive Contents : See the attached Table-1, Table-2
6. Description of Containment System

Containment system consists of CV body and Seal lid.
EPDM O-ring is used for the contact surface of Seal lid and CV body.
7. For Package containing Fissile Materials
 - (1) Restrictions on Package
 - (i) Restriction Number "N" : 25 (Uranium)
: No restriction (Uranium aluminum alloy)
 - (ii) Array of Package : No restriction
 - (iii) Criticality Safety Index (CSI) : 2.0 (Uranium)
: 0.0 (Uranium aluminum alloy)
 - (2) Description of Confinement System

Confinement system consists of a mass of Uranium or Uranium aluminum alloy, CV and Drum assembly of the packaging.
 - (3) Assumptions of Leakage of Water into Package

This critical calculation considers the event of water leaking into CV.

- (4) Special Features in Criticality Assessment
Not applicable

8. For Type B (M) Packages, a statement regarding prescriptions of Type B (U) Package that do not apply to this Package
Not applicable

9. Assumed Ambient Conditions

- (i) Ambient Temperature Range : $-40^{\circ}\text{C}\sim 38^{\circ}\text{C}$
- (ii) Insulation Data : Table 12 of IAEA Regulation

10. Handling, Inspection and Maintenance

(1) Handling Instructions

- (i) Package should be handled carefully in accordance with the schedule and procedures established properly taking all possible safety measures.
- (ii) Package should be handled using appropriate lifting accessory.
- (iii) Basically, packaging should not be stored outdoors.

(2) Inspections and Maintenance of Packaging

The following inspections should be performed not less than once a year (once for every ten times in a case where the packaging is used not less than ten times a year) and defect of packaging should be repaired, if any, in order to maintain the integrity of packaging.

- (i) Visual Appearance Inspection (ii) Pressure Durability Inspection
- (iii) Leakage Rate Measurement Inspection
- (iv) Shielding Inspection (v) Subcriticality Inspection
- (vi) Maintenance of O-ring Used for Containment System

(3) Actions prior to Shipment

The following inspections should be performed prior to shipment.

- (i) Visual Appearance Inspection (ii) Leakage Rate Measurement Inspection
- (iii) Radiation Dose Rate Inspection (iv) Subcriticality Inspection
- (v) Weight Measurement Inspection (vi) Contents Specification Check Inspection
- (vii) Surface Contamination Measurement Inspection

(4) Precautions for Loading of Package for Shipment

Package should be securely loaded to the Cargo Restraint Transporter (CRT). CRT should be tied-down to the container so as not move, roll down or fall down from the loading position during transport.

11. Issue Date and Expiry Date

(1) Issue Date : March 18, 2020

(2) Expiry Date : March 17, 2025

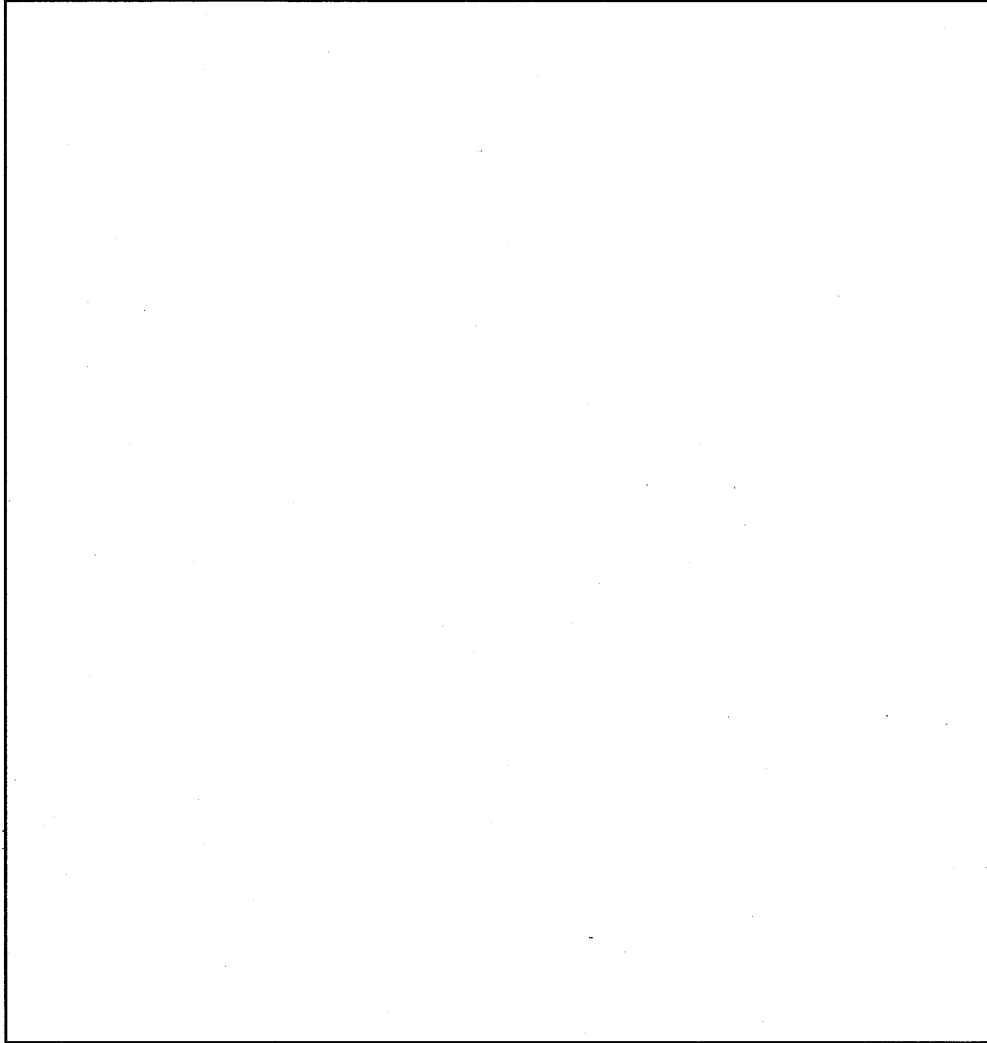



Figure-1  packaging 3-Dimensional Section View

Table-1 Specification of Content

		Specification	
Material of Nuclear Fuel		Uranium <input type="text"/>	
Physical State		<input type="text"/>	
Specification per package	Weight	Content(kg) ^{※1}	<input type="text"/> or less
		²³⁵ U (kg)	<input type="text"/> or less
	Activity	Total (Bq)	<input type="text"/> or less
		Principle Radionuclides (Bq)	²³⁵ U <input type="text"/> or less
	Uranium Enrichment (wt %)		<input type="text"/>
	Number of <input type="text"/> ^{※2} (Item)		240 or less / Package 80 or less / convenience can
	Heat Generation Rate (W)		5 or less
	Form		<input type="text"/>
<input type="text"/> size (mm)		<input type="text"/>	<input type="text"/>
Fuel weight (g)		<input type="text"/> or less	<input type="text"/> or less
Burn up Rate (%)		<input type="text"/> ^{※3}	
Cooling Time (days)		<input type="text"/> ^{※3}	

※1: The maximum weight of all contents (including fuel, convenience cans, can spacers, and packing materials).

※2: (mm) is regarded as (mm).

※3: For fuel used in FCA(Fast Critical Assembly of JAEA) of ultra-low output reactor (0 to 2 kW).

Table-2 Specification of Content

		Specification	
Material of Nuclear Fuel		Uranium aluminum alloy	
Physical State		Solid (metal)	
Specification per package	Weight	Content(kg) ^{*1}	<input type="text"/> or less
		²³⁵ U (kg)	<input type="text"/> or less
	Activity	Total (Bq)	<input type="text"/> or less
		Principle Radionuclides (Bq)	²³⁵ U <input type="text"/> or less
	Uranium Enrichment (wt %)		<input type="text"/>
	Number of cylinder (Item)		<input type="text"/> / Package
	Heat Generation Rate (W)		5 or less
	Form		<input type="text"/>
<input type="text"/> size (mm)		Maximum <input type="text"/> ^{*2}	
Fuel weight (kg)		<input type="text"/> or less	
Burn up Rate (%)		<input type="text"/> ^{*3}	
Cooling Time (days)		<input type="text"/> ^{*3}	

※1: The maximum weight of all contents (including fuel, convenience cans and packing materials).

※2: It is (mm),
 (mm), and (mm).
 (mm) and
 (mm).

※3: For fuel used in DCA(Deuterium Critical Assembly of JAEA) of ultra-low output reactor (0 to 1 kW).