



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

**COMPETENT AUTHORITY CERTIFICATION  
FOR A TYPE B(U)  
RADIOACTIVE MATERIALS PACKAGE DESIGN  
CERTIFICATE USA/0169/B(U), REVISION 8**

**REVALIDATION OF UNITED KINGDOM COMPETENT AUTHORITY CERTIFICATE GB/0666S/B(U)**

This certifies that the radioactive materials package design described below is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency<sup>1</sup> and the United States of America<sup>2</sup>.

1. Package Identification - U.K. Design No. 0666S.
2. Packaging Description and Authorized Radioactive Contents - as described in United Kingdom Certificate of Competent Authority GB/0666S/B(U), Issue 8 (attached).
3. General Conditions -
  - a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation in accordance with the endorsed certificate.
  - b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (DHM-23), Research and Special Programs Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.
  - c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.
4. Marking and Labeling - The package shall bear the marking USA/0169/B(U) in addition to other required markings and labeling.
5. Expiration Date - This certificate expires on July 31, 2003.

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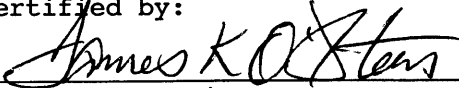
1 "Safety Series No. 6, Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition, as amended," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

2 Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

**CERTIFICATE USA/0169/B(U), REVISION 8**

This certificate is issued in accordance with paragraph 806 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the petition and information dated July 28, 2000 submitted by AEA Technology QSA, Inc., Burlington, MA, and in consideration of other information on file in this Office.

Certified by:



*du*  
Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

**AUG 9 2000**

(DATE)

Revision 8 - Issued to endorse United Kingdom Certificate of Approval No. GB/0666S/B(U), Issue 8, and to extend the expiration date.



Reference GB/0666S/B(U)  
Issue 8  
Page 1 of 8 Pages

## Certificate of Approval of Package Design for the Carriage of Radioactive Materials

1. **THIS IS TO CERTIFY** that the Secretary of State for Transport being, for the purposes of the Regulations of the International Atomic Energy Agency, the Competent Authority of Great Britain in respect of inland surface transport and of the United Kingdom of Great Britain and Northern Ireland in respect of sea and air transport and the Department of the Environment for Northern Ireland being the Competent Authority of Northern Ireland in respect of inland surface transport, have approved the package design as described in paragraphs 2-4 of this certificate as submitted, for approval, by Nycomed Amersham International plc, Amersham, Bucks

as Type B(U) (see paragraph 8)

for the transport of encapsulated gamma sources

by all modes of transport

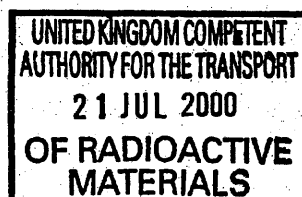
Packages manufactured to this design meet the requirements of the regulations and codes on page 2, relevant to the mode of transport, subject to the following general condition and to the conditions in the succeeding pages of this certificate.

In the event of any alteration in the composition of the package, the package design or in any of the facts stated in the application for approval, this certificate will cease to have effect unless the Competent Authority is notified of the alteration and the Competent Authority confirms the certificate notwithstanding the alteration.

**This Certificate Cancels all Previous Issues** and is valid until 31 July 2003.

**COMPETENT AUTHORITY IDENTIFICATION MARK:**

GB/0666S/B(U)



Transport Radiological Adviser  
Department of the Environment,  
Transport and the Regions,  
Great Minster House  
76 Marsham Street  
London SW1P 4DR

*On behalf of the Secretary of State  
for Transport and the Department of  
the Environment for Northern Ireland*

**REGULATIONS AND CODES OF PRACTICE GOVERNING THE TRANSPORT OF RADIOACTIVE MATERIALS**

**INTERNATIONAL**

International Atomic Energy Agency (IAEA) Safety Series No 6 Regulations for the Safe Transport of Radioactive Materials 1985 Edition (As Amended 1990).

International Maritime Organisation (IMO). International Maritime Dangerous Goods Code – Class 7 Radioactive Substances.

International Civil Aviation Organisation (ICAO). Technical Instructions for the Safe Transport of Dangerous Goods by Air.

**ROAD**

**GREAT BRITAIN ONLY.** The Radioactive Material (Road Transport)(Great Britain) Regulations 1996 SI No 1350: The Ionising Radiations Regulations 1999 SI No 3232: and Approved Code of Practice.

**NORTHERN IRELAND ONLY.** The Radioactive Substances (Carriage by Road) Regulations (Northern Ireland) 1983 SR 1983 No 344: The Radioactive Substances (Carriage by Road)(Amendment) Regulations (Northern Ireland) 1986 SR 1986 No 61.

**EUROPE ONLY.** European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), Class 7.(ed 1999).

**RAIL**

**GREAT BRITAIN ONLY.** The Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations (RAMRail) 1996 (SI 1996 No 2090): Approved Requirements for the packaging, labelling and carriage of radioactive material by rail 1996 Edition. The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations (CDGCPL) 1996 (SI 1996 No 2092). The Carriage of Dangerous Goods (Amendment) Regulations 1999 (SI 1999 No 303).

**EUROPE ONLY.** Convention concerning the International carriage by rail (COTIF), Appendix B, Uniform Rules concerning the International Carriage of Goods by Rail (CIM), Annex 1, Regulations concerning the International carriage of dangerous goods by rail (RID), Class 7.(ed 1999).

**SEA**

British registered ships. All other ships whilst in United Kingdom territorial waters. The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 SI No 2367: Merchant Shipping Notice No M 1620, "The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form on Ships".

**PORT: UK ONLY.**

**AIR**

**UK ONLY.** The Air Navigation (No 2) Order 1995 SI No 1970: The Air Navigation (Dangerous Goods) Regulations 1994 SI No 3187 and Amendments 1996 SI No 3100 and 1998 SI No 2536. International Civil Aviation Organisation (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air.

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**NOTES**

1. Attention is drawn to the labelling and marking requirements of Section IV of the 1985 Edition of the IAEA Regulations, one provision of which is that the outside of each package shall be clearly and durably marked with the Competent Authority's Package Design Identification Mark.

2. Any questions relating to this Certificate should be addressed to:--  
The Transport Radiological Adviser,  
Department of the Environment, Transport and the Regions,  
Great Minster House  
76 Marsham Street, London SW1P 4DR.  
Telephone 020 7 944 5795.  
Fax 020 7 944 2187.

3. This Certificate does not relieve the consignor from compliance with any requirements of this Government or any other Government of any country through or into which the package may be transpo

**2. SPECIFICATION OF PACKAGING**

Item No.	Packaging	Design Number	Quantity per Assembly
1	Outer	0666	One
2	Intermediate	Cork liner	Three Units
3	Inner	0667	One
4	Innermost	IAEA SFC	One or more

The containment system comprises item Nos. 3 & 4

**Package Design Details**

Design No.	Title	Drawing List	Issue
0666	Steel Drum	)	E
--	Cork liner and spacers	)DL 21753	
0667	P500/P501 Lead Pot lid (and shielding inserts as required)	)	
		)	
IAEA SFC	Any IAEA Special Form Capsule (see paragraph 13C)		

The package design specification shall be in accordance with the Amersham International plc "Application for Approval of Design 0666S" dated 11 April 1978.

**3. PERMITTED CONTENTS**

Metallic Iridium or Caesium chloride encapsulated in IAEA Special Form Capsules.

**4. RESTRICTIONS ON CONTENTS**

- a) Any single radionuclide in sub-paragraph c) below, limited to the quantity shown, approved as Special Form Material;

- b) More than one radionuclide in sub-paragraph c) below, limited such that the sum of the proportionate amounts of each radionuclide present with respect to the quantities shown, does not exceed one, approved as Special Form Material;
- c) The maximum activity of the permitted contents may be up to either 21 TBq of Iridium 192 or 2.6 TBq of Caesium 137.

#### 5. INSTRUCTIONS ON THE USE OF THE PACKAGE

- a). When a single source is carried it shall be located in the source cavity in such a way as to prevent gross movement during both normal and accident conditions of transport and in such a position as to minimise the external radiation dose.
- b). When more than one source is carried they shall be located in the source cavity in such a way as to prevent them impacting on each other during both normal and accident conditions of transport and in such a position as to minimise the external radiation dose.
- c). Inspection and maintenance shall be carried out in accordance with Amersham International's Quality Control Procedures for Transport Containers.

QCP002 Issue 10 General Maintenance Procedures for Reusable Transport Containers.

- d). Handling and operating instructions for the package shall be provided to the consignee (HPI 21 Issue 5).

#### 6. ACTION PRIOR TO DESPATCH

- a). All nuts and bolts shall be checked for tightness.
- b). All locking wires and security seals shall be checked and replaced as necessary.

#### 7. EXCLUSIVE USE CONDITIONS

- a) If the Transport Index of the package exceeds 10 the shipment must take place under EXCLUSIVE USE Conditions.
- b) If the maximum radiation level at any point on the surface of the package exceeds 2 mSv/h the shipment shall be carried out under EXCLUSIVE USE Conditions.

#### 8. GRANDFATHERING PROVISIONS

Packages to this design may continue to be used subject to multilateral approval in accordance with the requirements of paragraph 714 of the 1985 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material (SS6).

No Supplementary Operational Controls are required.

## 9. QUALITY ASSURANCE

a) Quality Assurance (QA) programmes applicable to this Design are;

i) Nycomed Amersham International plc's "Transport Safety Arrangements"; and

ii) All other Quality Assurance programmes associated with the manufacture, modification, use, maintenance and transport of this package not invoked or associated with (i). These must comply with National and International Standards for Quality Assurance which are acceptable to the United Kingdom Competent Authority (or other appropriate National Competent Authorities when international package movements occur outside the jurisdiction of the UK Competent Authority).

b) Failure to comply with any of the provisions of sub-paragraphs (a)(i) and (ii) above may render this certificate invalid.

## 10. RESTRICTIONS ON SHIPMENT

Road in GB If, for any reason, the vehicle is subject to a speed restriction of less than 20 mph the carrier shall instruct the driver of the vehicle that before crossing any automatic half-barrier railway crossing, he shall notify the railway signalman of his intention to cross and await the signalman's instructions.

## 11. LABELLING, MARKING AND PLACARDING

Labelling and marking of packages and the placarding of vehicles shall be in accordance with the regulations listed on page 2 of this approval certificate.

## 12. EMERGENCY ARRANGEMENTS

a) Road/Rail, Ports and Airports in GB

### RADSAFE member

In the event of an emergency the procedures set out in RADSAFE, the Nuclear Industry's emergency shall apply.

The police shall be informed that RADSAFE has been initiated.

### Non RADSAFE member

Before shipment takes place suitable emergency plans shall have been drawn up by the consignor copies of which shall be supplied to the UK Competent Authority on demand. In the event of an emergency these emergency plans shall be initiated and the police informed.

If RADSAFE or the consignor's emergency plans cannot be initiated, for any reason, then the police shall be informed immediately and requested to call the local NAIR (National Arrangements for Incidents involving Radioactive material) establishment.

b) Rail in GB (non-RADSAFE member)

The procedure to be followed should an emergency occur is set out in British Railways publication BR 30054 "Working Manual for Rail Staff, Part 3, Handling and Conveyance of Dangerous Goods" (Pink Pages). NAIR procedures shall apply.

c) Sea

In the event of an emergency the procedure set out in Section 9 of Class 7 of IMDG Code shall apply.

## 12. ADMINISTRATIVE ARRANGEMENTS

A. The Consignor shall be responsible for fulfilling the conditions set out in any Competent Authorities' certificates of approval associated with the shipment of this package and for compliance with the administrative requirements of paragraphs 446-459 of the 1985 Edition of the IAEA Regulations.

### B. Competent Authority Approval Certificates

Copies of Competent Authority certificates of approval associated with the shipment of this package must be available at places of loading, unloading and transshipment.

### C. Serial Numbers

The Competent Authority must be informed by the owner or operator, of the serial numbers applied to all packages covered by this Certificate.

## 13. ADMINISTRATIVE ARRANGEMENTS

A. The Consignor shall be responsible for fulfilling the conditions set out in any Competent Authorities' certificates of approval associated with the shipment of this package and for compliance with the administrative requirements of paragraphs 446-459 of the 1985 Edition of the IAEA Regulations.

### B. Competent Authority Approval Certificates

Copies of Competent Authority certificates of approval associated with the shipment of this package must be available at places of loading, unloading and transshipment.

C. In all cases where item 4 specified in paragraph 2 of this certificate constitutes Special Form material, the consignor shall be in possession of a valid Competent Authority Certificate of approval in accordance with the provisions of the 1985 Edition of the IAEA Regulations.

### D. Serial Numbers

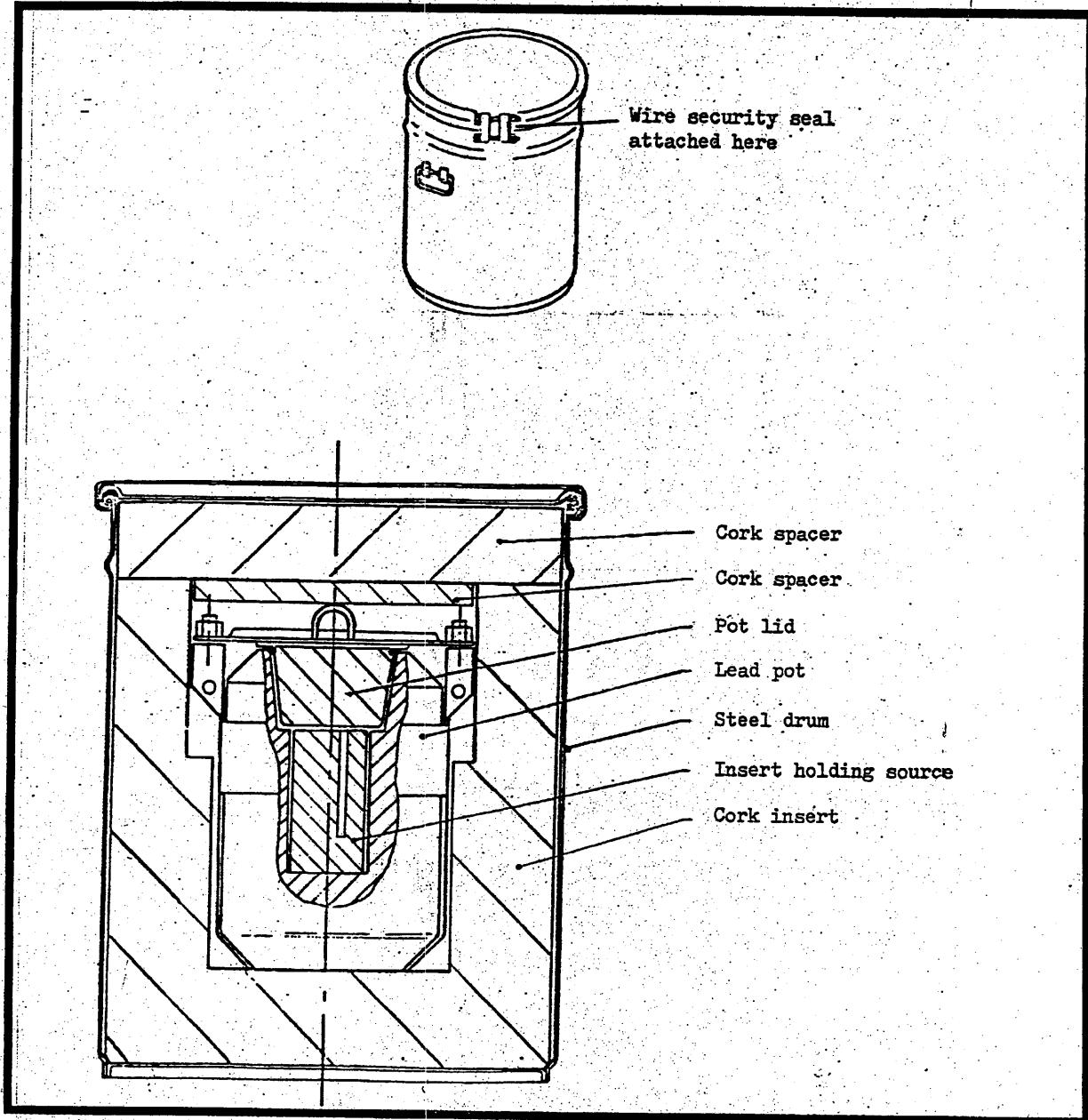


The Competent Authority must be informed by the owner or operator, of the serial numbers applied to all packages covered by this Certificate.

#### 14. RENEWAL OF CERTIFICATES

If the period of validity is required to be extended, application shall be made at least six weeks in advance of expiry.

**Package Illustration**



**Description of Package, Dimensions and Weights**

**Packaging:** Mild steel cork lined drum with inner lead source pot.

**Dimensions:** 327 mm diameter x 403 mm high.

**Gross Weight:** 51 kg.