

DCS

NRC FORM 7 (3-94) 10 CFR 110		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0027 EXPIRES: 3-31-97	
<b>APPLICATION FOR LICENSE TO EXPORT NUCLEAR MATERIAL AND EQUIPMENT</b> (See instructions on Reverse)				ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 1.7 HOURS. THE MANDATORY SUBMITTAL IS REVIEWED TO ENSURE THAT THE APPLICABLE STATUTORY, REGULATORY, AND POLICY CONSIDERATIONS ARE SATISFIED. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-8 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0027), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.	
1. APPLICANT'S USE ----->	2. NRC USE ----->	3. APPLICANT'S NAME AND ADDRESS	4. SUPPLIER'S NAME AND ADDRESS (Complete if applicant is not supplier of material)	5. DOCKET NUMBER	6. LICENSE NUMBER
25 Feb 1997	968687	MEASUREX-DITC 15810 Gaithersburg Dr. Gaithersburg MD 20854	Amersham International plc White Lion Rd Buckinghamshire ENGLAND HP7 9LL / UK	11004938	XB001295
7. APPLICANT'S TELEPHONE NUMBER (Area Code - Number - Extension)	8. FIRST SHIPMENT SCHEDULED	9. FINAL SHIPMENT SCHEDULED	10. ULTIMATE FOREIGN CONSIGNEE	11. ULTIMATE END USE (Include plant or facility name)	12. U.S. DEPARTMENT OF ENERGY CONTRACT NO. (If known)
(301) 948-2450 ext 404	TBD	---	Hainan Hainan Tinsplate Ind. Co., Ltd. N. Longkun Rd. Haikou, Hainan PRC	Hainan Hainan Tinsplate Ind. Co., Ltd. Used for controlling thickness of tin layer on steel, two sides. 1 March 1997	
13. INTERMEDIATE FOREIGN CONSIGNEE	14. INTERMEDIATE FOREIGN CONSIGNEE	15. INTERMEDIATE FOREIGN CONSIGNEE	16. INTERMEDIATE FOREIGN CONSIGNEE	17. INTERMEDIATE END USE	18. INTERMEDIATE END USE
19. COM CODE	20. DESCRIPTION (Include chemical and physical form of nuclear material; give dollar value of nuclear equipment and components)			21. MAX. ELEMENT WEIGHT	22. MAX. ISOTOPE WEIGHT
	Curium-244 incorporated in a ceramic enamel and sealed in a welded metal capsule with a brazed beryllium window. The active ceramic is contained in a stainless steel insert w/ tungsten alloy backing. 270031			1.2 Curium (2 times)	
23. COUNTRY OF ORIGIN -- SOURCE MATERIAL	24. COUNTRY OF ORIGIN -- ENRICHED OR PRODUCED	25. COUNTRIES WHICH ATTACH SAFEGUARDS (If known)			
26. ADDITIONAL INFORMATION ON CONSIGNEES, END USES, AND PRODUCT DESCRIPTION (Use separate sheet if necessary)					
27. The applicant certifies that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information in this application is correct to the best of his/her knowledge.					
28. AUTHORIZED OFFICIAL	29. SIGNATURE	30. TITLE			
	[Signature]	Radiation Safety Officer.			

9702270375 970225  
PDR EXPORT  
XB00-1295

PDR

DF0391  
1-1-1  
EW  
Imp

Rec'd OIP 2/25/97 P.M. ARC

## Curium-244

$\gamma$  and primary X-ray sources

Curium-244 incorporated in a ceramic enamel and sealed in a welded monel capsule with a brazed beryllium window. X.130/7-the active ceramic is contained in a stainless steel insert which interlocks with the capsule lid to prevent internal movement. X.130/4, X.131/4 and X.135/2-the active ceramic is contained in a stainless steel insert with a tungsten alloy backing.

Type	Capsule	Nominal content activity GBq mCi	Typical photon output in photons/sec per steradian*	Code
			18keV Pu L X-rays	
X.	X.135/2	20-4 550	$3.3 \times 10^7$	CLC.13526

**Availability:** within 10 days

**Recommended working life:** 10 years

### Quality control

Wipe test A

Bubble test D

Immersion test L

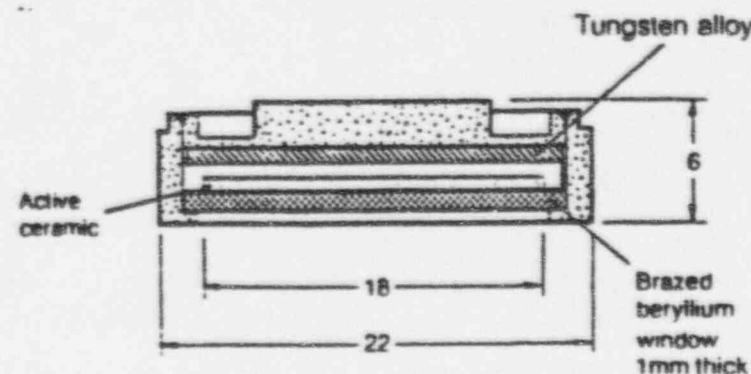
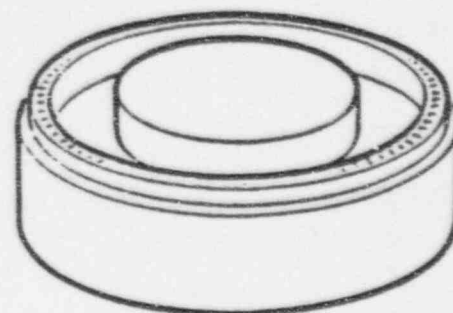
Photon emission checked on a Si(Li) detector. Impurity levels checked using a Ge(Li) detector.

### Neutron emission

All Curium-244 sources emit  $\sim 1.35 \times 10^5$  n/sec due to spontaneous fission and ( $\alpha$ , n) reactions with the low atomic number elements (for example Si, Al, O) in the active material.

**Recommended working life,** see page F2

*Amersham Catalogue (annotated)*



### Safety performance testing

ANSI/ISO classification	IAEA special form	ICNS Model No.
CS4344	GB/143/5	CLC.D1

### Quality control:

Leakage and Contamination tests. see page D1

A Test Report is supplied with each source or batch of sources

**Safety performance testing.** see page F1

Dimensions in mm

/CLC.D1 /  
Reference GB/143/S-85

Certificate Issue 2

# Certificate of Approval of Design for Special Form Radioactive Material

Title	
Low Energy Photon Disc Source - Capsule X.135/2	
Drawing Nos and Specification References	
Assembly: 3A 61803 Issue B Components: 3A 61796 Issue B 3A 61797 Issue D	
Ref: RSD/CTR/116 Dated 22 June 1981 QARS/DD/143/0995 dated 5 September 1995	
Q.A. Programme Ref: Amersham International's "Transport Safety Arrangements"	
Radioactive Material	Maximum Activity
Americium 241 Curium 244 Plutonium 238	55.5 GBq (1.5 Ci)

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 above mentioned Special Form Design. Radioactive material manufactured to the above-mentioned design qualifies as special form radioactive material and as such will meet the requirements of the regulations overleaf.

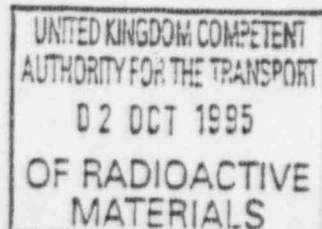
This Certificate of Approval applies only to the design as set out in the above named drawings and specifications submitted by Amersham International plc

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 30 September 1998

COMPETENT AUTHORITY  
IDENTIFICATION MARK:

GB/143/S-85



Transport Radiological Adviser  
Department of Transport  
2 Marsham Street  
London SW1P 3EE

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