



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE USA/0517/S-96, REVISION 4

1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

This certifies that the sources described have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in the regulations of the International Atomic Energy Agency¹ and United States of America² for the transport of radioactive material.

1. Source Identification - Eckert & Ziegler Isotope Products source capsule Models 3224-04, 3224-14, 3901-1 and 3901-2.
2. Source Description - Cylindrical single encapsulations made of Type 304 or 304L stainless steel (Models 3224-04 and 3901-2) or titanium (Models 3224-14 and 3901-1) with a 0.25 mm (0.010 in.) thick integral window at one end and fusion seal welded. Approximate outer dimensions are 3.0 mm (0.12 in.) in diameter and 5.0 mm (0.2 in.) in length. Construction of the Models 3224-04 and 3224-14 shall be in accordance with either attached IPL Drawing No. 3224, Rev. B, Sheet 3 of 6 or Drawing No. 3224-REG, Rev. -, Sheet 1 of 1. Construction of the Models 3901-1 and 3901-2 shall be in accordance with either attached IPL Drawing No. 3901, Rev. -, Sheet 3 of 5 or Drawing No. 3901-REG, Rev. -, Sheet 1 of 1.
3. Radioactive Contents - The sources described by this certificate are authorized to contain any one of the following radionuclides limited to the activity shown. The radionuclides are in the form of chlorides, nitrates, or oxides in ceramic or resin bead; oxides in gold or aluminum; or metal plated onto substrate. The Na-22 may also be in the form of NaCl in gold. The Ge-68 may also be in the form of GeO₂ in silver. The Sr-90 may also be in the form of SrTiO₄ in silver. The Ba-133 may also be in the form of BaSO₄ in ceramic.

Radionuclide	Activity MBq	(mCi)
Na-22	185	(5)
Co-57	11,100	(300)
Co-58	11,100	(300)
Co-60	370	(10)
Ge-68	1,850	(50)
Sr-90	4,625	(125)
Ru-106	1,850	(50)
Ba-133	3,700	(100)
Cs-137	11,100	(300)
Ra-226	1,850	(50)
Lanthanides*	11,100	(300)
Actinides**	11,100	(300)

* (Isotopes of Ce, Pr, Sm, Eu, Gd, Tm, and Yb only)

** (Isotopes of Ac, Th, Pa, U, Pu, Am, and Cm only)

4. Quality Assurance - Records of Quality Assurance activities required by paragraph 310 of the IAEA regulations¹ shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the requirements of Subpart H of 10. CFR 71.

¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

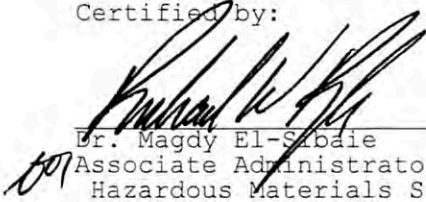
² Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

CERTIFICATE USA/0517/S-96, REVISION 4

5. Expiration Date - This certificate expires on January 31, 2021.

This certificate is issued in accordance with paragraph 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the December 18, 2015 petition by Eckert & Ziegler Isotope Products, Valencia, CA, and in consideration of other information on file in this Office.

Certified by:



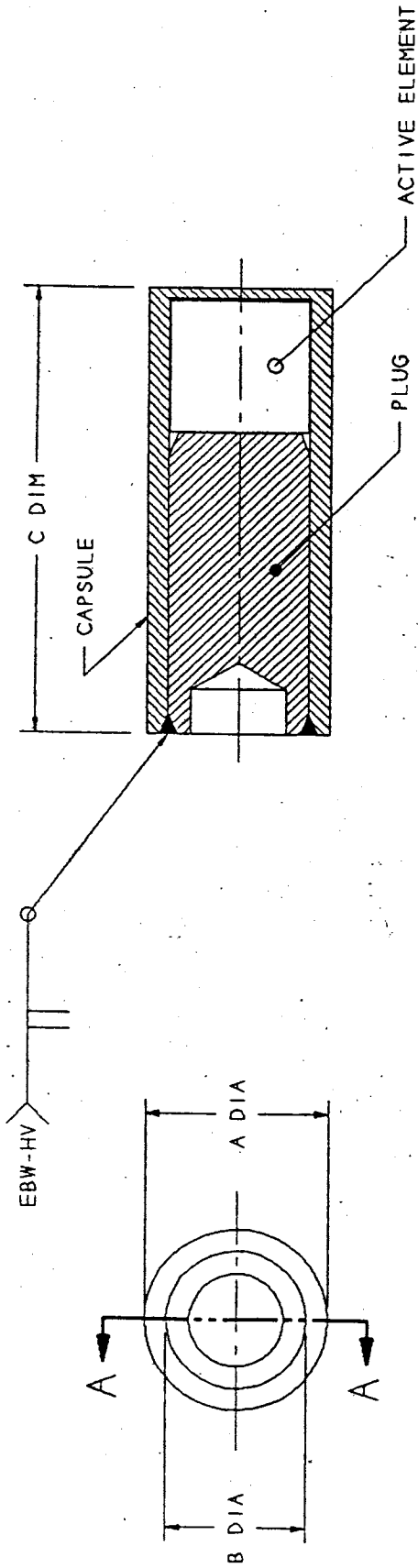
Dr. Magdy El-Sibaie
Associate Administrator for
Hazardous Materials Safety

JAN - 5 2016

(DATE)

Revision 4 - Issued to extend the expiration date.

GROUP #4



SECTION A-A

TABLE 1

Y	A DIA	B DIA	C DIM
1	0.118	0.080	0.394
2	0.157	0.120	0.394
3	0.275	0.187	0.394
4	0.118	0.098	0.197

TABLE 2

X	MATERIAL
0	304 or 304L STAINLESS STEEL
1	TITANIUM

P/N: A3224-XY ASSEMBLY

- INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
 - ENGRAVE SERIAL NUMBER - CHARACTER HEIGHT 0.062 AND 0.005 MAX DEPTH
 - TOLERANCES: 0.XXX ± 0.002, 0.XX ± 0.01, 0.X ± 0.1. ANGLE ± 0.5°
 - DIMENSIONS ARE IN INCHES
 - ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED
- NOTE: UNLESS OTHERWISE SPECIFIED

THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES, AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.

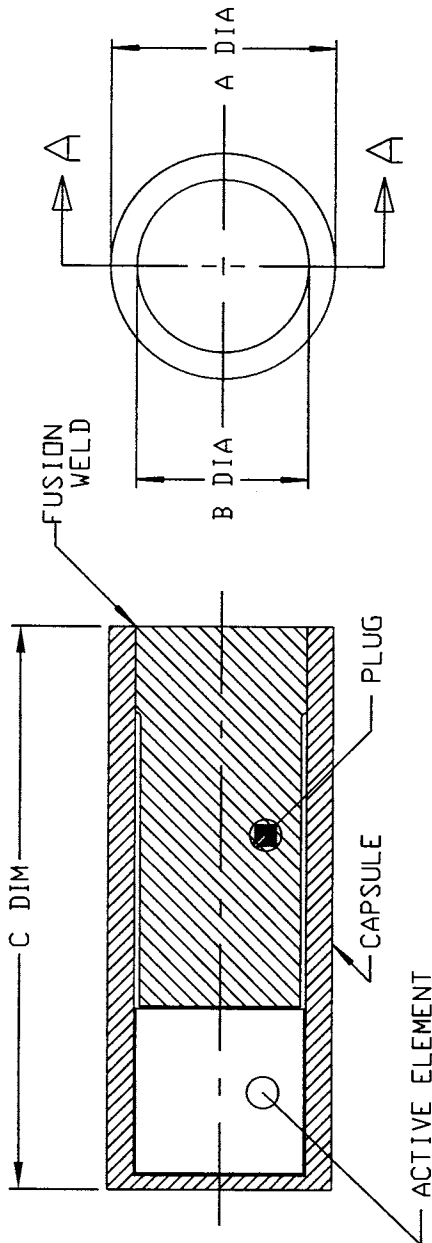
ISOTOPE PRODUCTS LABORATORIES BURBANK, CALIFORNIA 91504		APPROVED: <i>Michael Devine</i>	DESIGNED: JMD/RLT
		SCALE: NTS	REV/CHG: B
DATE: 01/11/94		SHEET: 3 OF 6	
TITLE: INDUSTRIAL PHOTON SOURCE		DRAWING NUMBER: 3224	
SERIES: GFS & XFB SOURCES			

TABLE 1

X	MATERIAL
0	304 or 304L STAINLESS STEEL
1	TITANIUM

TABLE 2

Y	A DIA	B DIA	C DIM
1	0.12	0.08	0.39
2	0.16	0.12	0.39
3	0.28	0.19	0.39
4	0.12	0.10	0.20
5	0.08	0.05	0.39



SECTION A-A

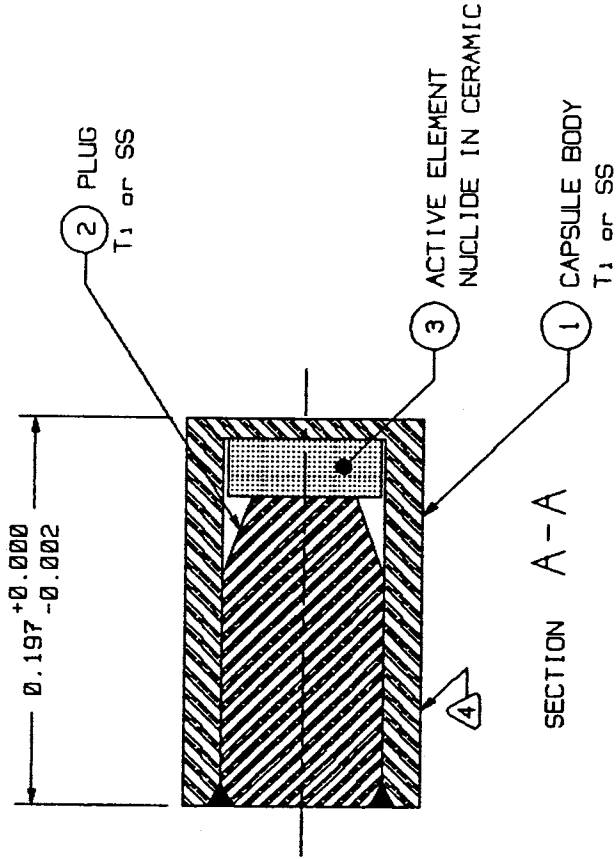
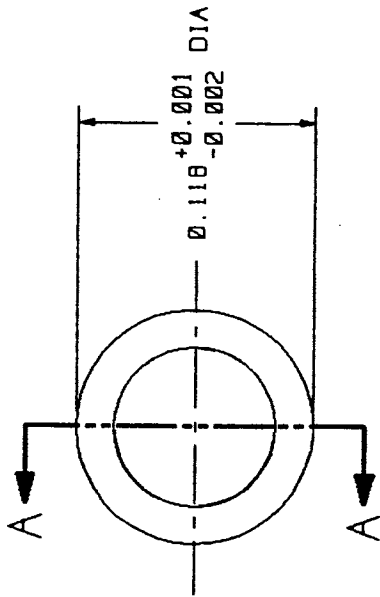
P/N: 3224-XY ASSEMBLY

- ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED
NOTE: UNLESS OTHERWISE SPECIFIED

 **Isotope Products**
Laboratories
An Eckert & Ziegler Company
VALENCIA, CALIFORNIA 91355

DESIGN LZ/DI	DRAWING TITLE GFS INDUSTRIAL PHOTON SOURCE
SCALE NONE	SERIES TITLE INDUSTRIAL SOURCES, GFS AND XFB
SIZE A	CAGE CODE 32993
	REVISION -
	DRAWING NUMBER 3224-REG
	SHEET 1 OF 1

GROUP #3



SECTION A-A
 1 CAPSULE BODY
 T1 or SS
 2 PLUG
 T1 or SS
 3 ACTIVE ELEMENT
 NUCLIDE IN CERAMIC
 4

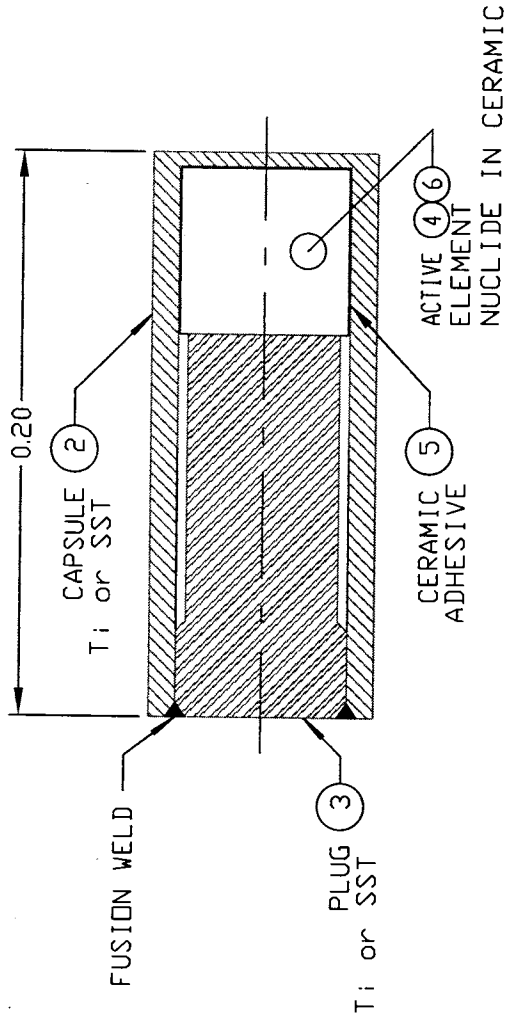
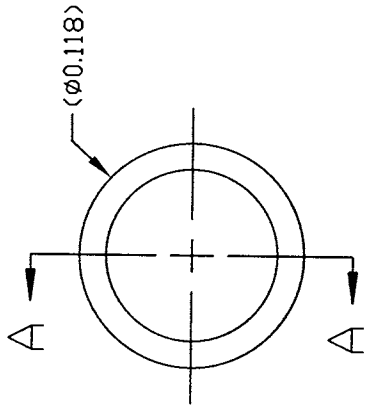
P/N: A3901-X ASSEMBLY

X	MATERIAL
1	TITANIUM
2	304 OR 304L SS

ISOTOPE PRODUCTS LABORATORIES BURBANK, CALIFORNIA 91504		DESIGNED: JMD/RLT
		REV/D: -
SCALE: NTS	APPROVED: <i>M. Devine</i> 12/20/94	SHEET: 3 OF 5
DATE: 09/15/94	TITLE: GAUGING SOURCE	DRAWING NUMBER: 3901
SERIES: CUSTOM SOURCES (290 SERIES)		

5. INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
 - ④ ENGRAVE: IPL, NUCLIDE, ACTIVITY, SERIAL NUMBER
 - CHARACTER HEIGHT 0.040 AND 0.003 MAX DEPTH
 3. TOLERANCES: 0.XXX ±0.002, 0.XX ±0.01, 0.X ±0.1, ANGLE ±0.5°
 2. DIMENSIONS ARE IN INCHES
 1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED
- NOTE: UNLESS OTHERWISE SPECIFIED

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SECTION A-A

X	MATERIAL
1	TITANIUM
2	304 DR 304L STAINLESS STEEL

- ASSEMBLE COMPLETE PER ENGINEERING DRAWING
ADD CERAMIC ADHESIVE TO PREVENT RATTLING
FUSION WELD AS REQUIRED

NOTE: UNLESS OTHERWISE SPECIFIED

P/N: A3901-X ASSEMBLY

	ISOTOPE PRODUCTS LABORATORIES BURBANK, CALIFORNIA 91504		DESIGN JMD/RLT	DRAWING TITLE GAUGING SOURCE		
	SCALE NONE	SERIES TITLE INDUSTRIAL SOURCES, CUSTOM	SIZE A	CAGE CODE 32993	REVISION -	DRAWING NUMBER 3901-REG



U.S. Department
of Transportation

East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590

**Pipeline and
Hazardous Materials
Safety Administration**

CERTIFICATE NUMBER: USA/0517/S-96, Revision 4

ORIGINAL REGISTRANT(S):

Ms. Frida Tan
Regulatory Affairs Manager
Eckert & Ziegler Isotope Products
24937 Avenue Tibbitts
Valencia, 91355
USA