



U.S. Department
of Transportation

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

**Pipeline and
Hazardous Materials
Safety Administration**

**IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE USA/0516/S-96, REVISION 4**

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 (EZIP) source capsule Models 3224-01, 3224-02, 3224-03, 3224-11, 3224-12, 3224-13, and 3807.
2. Source Description - Cylindrical single encapsulations made of Type 304 or 304L stainless steel or titanium, with a 0.25 mm (0.010 in.) thick integral window at one end, and fusion seal welded. Approximate outer dimensions of the 3224 models are either 3.0 mm (0.12 in.), 4.0 mm (0.16 in.), or 7.0 mm (0.28 in.) in diameter and 10.0 mm (0.39 in.) in length. Approximate outer dimensions of the 3807 model are 3.0 mm (0.12 in.) in diameter and 10.2 mm (0.4 in.) in length. Construction of the 3224 models shall be in accordance with attached Eckert & Ziegler Isotope Products Drawing No. 3224-SFC0516, Rev. -, Sheet 1 of 1. Construction of the 3807 model shall be in accordance with attached Isotope Products Laboratories Drawing No. 3807, Rev. B, Sheet 3 of 6.
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)

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.

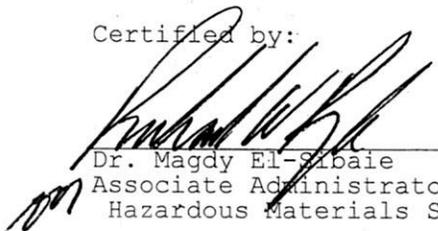
² Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

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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.
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 22, 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-Sibale
Associate Administrator for
Hazardous Materials Safety

FEB - 2 2016

(DATE)

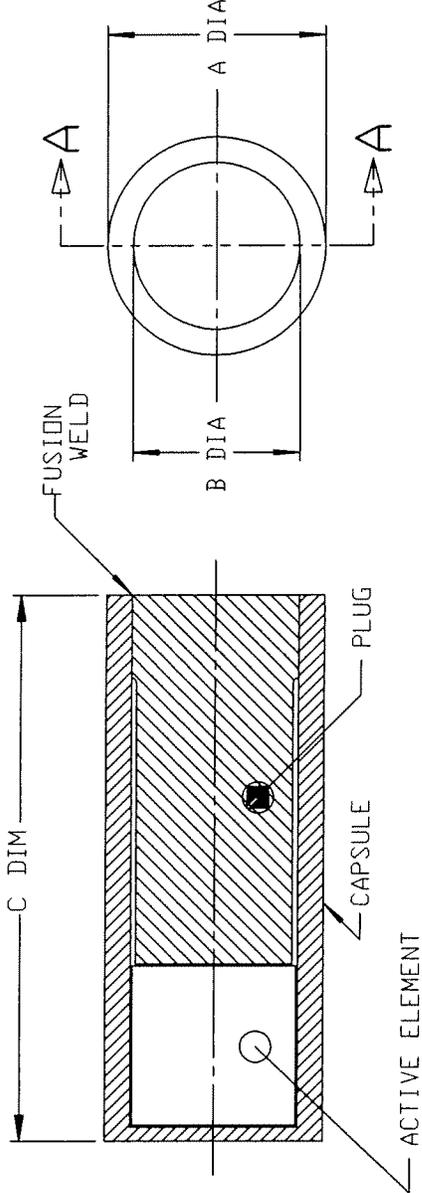
Revision 4 - Issued to extend the expiration date.

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



SECTION A-A

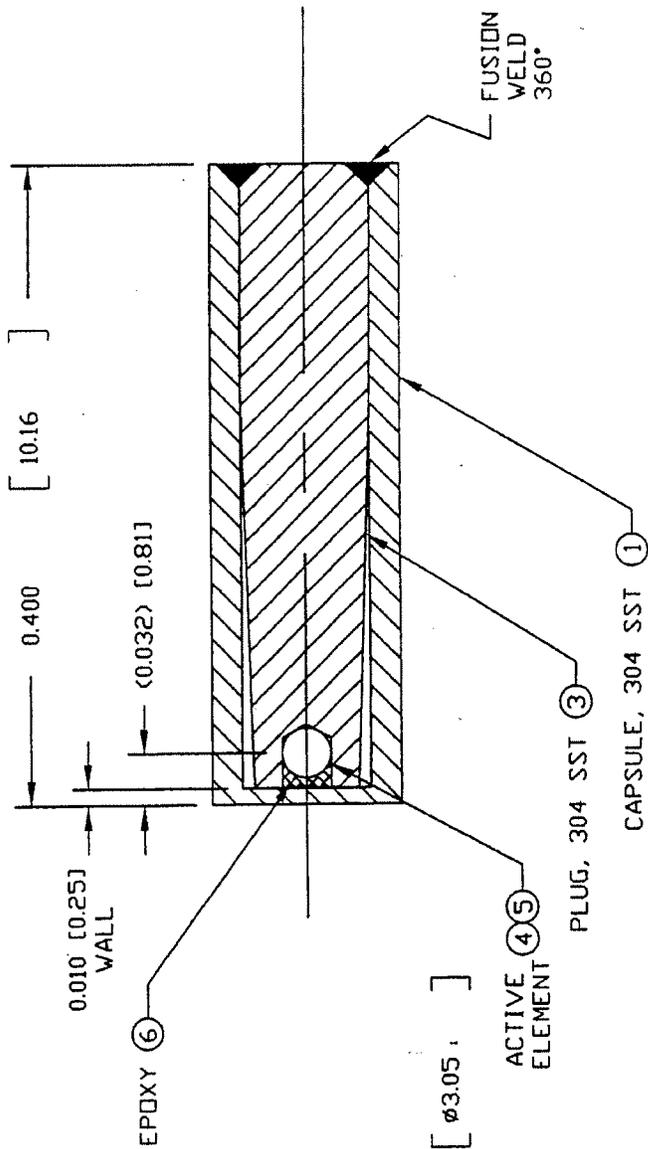
P/N: 3224-XY ASSEMBLY

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

 **Eckert & Ziegler**
Isotope Products

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-SFC0516
	SHEET 10F1



SECTION A-A

3807 ASSEMBLY

2. METRIC DIMENSIONS [mm] ARE IN MILLIMETERS.
 1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING.
 NOTES: UNLESS OTHERWISE SPECIFIED

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

DRAWN EW 12-JAN-87	TITLE CO-57 SOURCE
PR/CHECKER KA 16-JAN-87	AMERSHAM X.101/2 CAPSULE
ENGR EW 12-JAN-87	DRAWING NO. 3807
SCALE NONE	REV B
SIZE A	SHEET 3 OF 6
	SERIES TITLE INDUSTRIAL SOURCES, CUSTOM



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East Building, PHH-23
1200 New Jersey Avenue SE
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ORIGINAL REGISTRANT(S):

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