



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration

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

IAEA CERTIFICATE OF COMPETENT AUTHORITY  
SPECIAL FORM RADIOACTIVE MATERIALS

CERTIFICATE USA/0502/S-96, REVISION 12

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 Agency<sup>1</sup> and the United States of America<sup>2</sup> for the transport of radioactive material.

1. Source Identification - QSA Global, Inc. Model Nos. X54 (Manufactured before January 1, 1998), X540 (Manufactured on or after February 17, 1981), and X540/1 (Manufactured on or after September 27, 2000).
2. Source Description - Tungsten inert gas or laser seal welded cylindrical single or double encapsulations. The outer encapsulation is made of titanium or stainless steel and the inner encapsulation, if used, is made of titanium, stainless steel, or aluminum. Approximate exterior dimensions are 5.15 mm (0.2 in.) maximum diameter and 15.15 mm (0.6 in.) in length (Model X54); and 5.16 mm (0.2 in.) in diameter and 7.65 mm (0.3 in.) in length (Models X540 and X540/1). Construction shall be in accordance with attached Amersham Drawing No. A10639, Issue C (Model X54) or QSA Global Inc. Drawing No. R87527, Rev. H (Models X540 and X540/1).

---

<sup>1</sup> "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

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

**CERTIFICATE USA/0502/S-96, REVISION 12**

3. Radioactive Contents - No more than 17.0 TBq (459.5 Ci) of Cobalt-60, in the form of a metal, in the Model X54. No more than either: 20.0 TBq (540.5 Ci) of Cobalt-60 in the form of a metal; 17.0 TBq (459.5 Ci) of Iridium-192 in the form of a metal; or 5.56 TBq (150.3 Ci) of Selenium-75 in the form of a physically inert and stable metal-selenide compound, in the Models X540 and X540/1. Only the activity of Ir-192 in special form may be determined from a measurement of the rate of decay or a measurement of the radiation level at a prescribed distance from the source.
4. Management System Activities - Records of Management System activities required by Paragraph 306 of the IAEA regulations 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 March 31, 2023. Previous editions which have not reached their expiration date may continue to be used.

This certificate is issued in accordance with paragraph(s) 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the February 22, 2018 petition by QSA Global, Inc., Burlington, MA, and in consideration of other information on file in this Office.

Certified By:



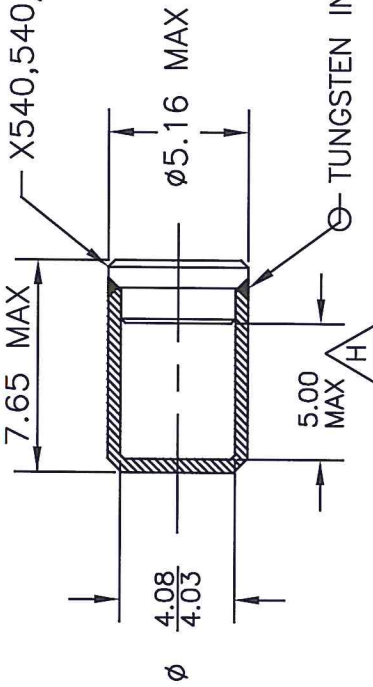
William Schoonover  
Associate Administrator for Hazardous  
Materials Safety

May 31, 2018  
(DATE)

Revision 12 - Issued to extend the expiration date, clarify Se-75 physical form, and update production drawings.



X540,540/1 LID SHANK



| MODEL  | MATERIAL             |
|--------|----------------------|
| X540   | 316L STAINLESS STEEL |
| X540/1 | TITANIUM             |

NOTES:

- INTERNAL VOID TO BE 0.010 mL OR GREATER.
- MATERIAL: SEE TABLE
- INNER CAVITY DIMENSIONS MAY VARY. METALLIC SPACERS, SPRINGS AND GUARDS WHICH SECURE AND/OR LOCATE THE RADIOACTIVE MATERIAL OR INNER SOURCE CAPSULE WITHIN THE CAPSULE MAY BE USED.
- MINIMUM WALL THICKNESS TO BE 0.22.
- DIMENSIONS ARE IN MILLIMETERS

NOTES:

- MATERIAL: SEE TABLE

|   |           |   |                        |
|---|-----------|---|------------------------|
| APPROVALS   | DATE      | <br>40 NORTH AVE, BURLINGTON, MA 01803 | DESCRIPTIVE<br>DRAWING |
| <i>R. Smith</i>   | 04 DEC 17 |   |                        |
|   | Dec 17    | TITLE   | X540 CAPSULE SERIES    |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS IN INCHES<br>TOLERANCES: |           | SIZE  | DWG. NO.               |
| FRACTIONS $\pm$ 1/8   |           | A   | R87527                 |
| X.X $\pm$ 0.12  |           | SCALE:  | NONE                   |
| X.XX $\pm$ 0.06   |           | SHEET   | 1 OF 1                 |
| X.XXX $\pm$ 0.020   |           | REV   | H                      |

ERF # 3726



U.S. Department of  
Transportation

**Pipeline and  
Hazardous Materials  
Safety Administration**

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

**CERTIFICATE NUMBER:** USA/0502/S-96

**ORIGINAL REGISTRANT(S) :**

QSA Global, Inc.  
30 North Avenue  
Burlington, MA, 01803  
USA

Industrial Nuclear Company, Inc.  
14320 Wicks Blvd.  
San Leandro, CA, 94577  
USA

Troxler Electronic Laboratories  
P.O. Box 12057  
3008 Cornwallis Road  
Research Triangle Park, NC, 27709  
USA