

# IRIDIUM 192 (Ir-192) SEALED RADIOACTIVE SOURCES



The primary use of Ir-192 sealed source is in gamma radiography. In comparison to other sealed sources used in similar applications, the film resolution produced with the use of Ir-192 provides exposure of high quality which is of critical importance in the field of non-destructive testing.

These Ir-192 capsules, made of stainless steel and containing high purity activated Iridium, are manufactured according to strict ISO classification and each source is welded and tested to comply with Special Form Certification, also fully accredited by the IAEA.

- **Short Delivery Time:** 2-3 weeks.
- **Steel Working Thicknesses:** from 12 mm to 100 mm.
- **Exposure Rate Constant at 1 m:** 0,48 R-m<sup>2</sup>/hr-Ci.
- **Gamma Spectrum:** is from 206 keV to 612 keV giving a resultant average energy of 353 keV.
- **HVL:** Fe 28 mm, Tg 4,6 mm.
- **TVL:** Fe 69 mm, Tg 14 mm.

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## Description

Stainless steel capsule argon arc welded, containing Iridium pellets. The Iridium is centered in pellets of uniform size, and their thickness is selected for the best geometry. Using a combination of pellets, the source can be manufactured with an active diameter ranging from 1 mm to 3 mm and a height ranging from 1mm to 3mm which enables the versatility, to produce sources the exact dimensions and activities the customers require for their specific applications. Sources are mounted on pigtails or link type source holders.



## Technical Specifications

|                                   |                                                                      |
|-----------------------------------|----------------------------------------------------------------------|
| Main Application                  | Gamma radiography                                                    |
| Ir-192 Half Life                  | 74 days                                                              |
| Recommended Working Life          | 1 year                                                               |
| Ir-192 Capsule Type               | HA, HB, YA, HC                                                       |
| Single Encapsulation              | HA, HB, YA                                                           |
| Double Encapsulation              | HC = (HA+HC)                                                         |
| Material                          | Stainless Steel                                                      |
| Identification                    | Unique Serial Number                                                 |
| Certificate Material Special Form | PL/0017/S-05, PL/0018/S-05, PL/0019/S-05, PL/0024/S-12, PL/0025/S-12 |



HA Capsule HB Capsule YA Capsule HC Capsule

## Focal Spot Sizes

## Maximum Activity (±10%)

| Ir-192 Capsule Type | Active Diameter (mm) | Active Height (mm) | GBq   | Ci  |
|---------------------|----------------------|--------------------|-------|-----|
| HA, HB, YA, HC      | 1.0                  | 0.4                | 148   | 4   |
| HA, HB, YA, HC      | 1.0                  | 0.6                | 222   | 6   |
| HA, HB, YA, HC      | 1.0                  | 1.0                | 333   | 9   |
| HA, HB, YA, HC      | 1.5                  | 1.0                | 666   | 18  |
| HA, HB, YA, HC      | 1.5                  | 1.2                | 740   | 20  |
| HA, HB, YA, HC      | 1.5                  | 1.6                | 1,036 | 28  |
| HA, HB, YA, HC      | 2.0                  | 1.0                | 1,110 | 30  |
| HA, HB, YA, HC      | 2.0                  | 1.2                | 1,332 | 36  |
| HA, HB, YA, HC      | 2.0                  | 1.6                | 1,776 | 48  |
| HA, HB, YA, HC      | 2.0                  | 2.0                | 2,220 | 60  |
| HA, HB, YA, HC      | 3.0                  | 2.0                | 3,700 | 100 |
| HA, HB, YA, HC      | 3.0                  | 2.2                | 4,070 | 110 |
| HB, YA, HC          | 3.0                  | 2.4                | 4,440 | 120 |
| HB, YA              | 3.0                  | 3.0                | 5,920 | 160 |
| YA                  | 3.0                  | 4.0                | 7,400 | 200 |

## Capsule Dimensions and Safety Performance Testing

| Ir-192 Capsule Type | External Dimensions<br>Ø (mm) x h (mm) | External Capsule Material | ISO classification |
|---------------------|----------------------------------------|---------------------------|--------------------|
| HA                  | 4 x 5                                  | Stainless Steel 1H18N9T   | C 64344            |
| HB                  | 4 x 6                                  | Stainless Steel 1H18N9T   | C 64344            |
| YA                  | 5 x 8                                  | Stainless Steel 1H18N9T   | C 64344            |
| HC                  | 5 x 8                                  | Stainless Steel 1H18N9T   | C 66545            |

## Safety

All sealed sources conform to :

- Regulations for the Safe Transport & Radioactive Material 1996 Edition (as revised 2000) from the I.A.E.A.
- The International Standard Organisation recommendations ISO 2919:1999..



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