

3M Cesium-137 Tube Sources

Description

All of 3M's afterloading applicators for treating uterine/cervical cancer use 3M Cesium-137 tube sources.

All 3M tube sources are constructed of two stainless steel capsules – an inner core and an outer casing. This double encapsulation maintains the integrity of the source and helps ensure user safety. Each source is loaded with thousands of ceramic microspheres labeled with Cs-137 which are tightly packed along the source's active length, resulting in a consistently uniform dose distribution pattern.

3M Cesium-137 tube sources are available in standard or miniaturized size.

Each tube source is nickel plated and engraved with a nominal activity and serial number. In addition, each source is color coded on the eyelet end for quick, safe identification of source strength, resulting in minimal exposure during handling.

How Supplied

5 mg Ra equivalent	Blue
10 mg Ra equivalent	Green
15 mg Ra equivalent	Yellow
20 mg Ra equivalent	Orange
25 mg Ra equivalent	Red
30 mg Ra equivalent	Violet
35 mg Ra equivalent	White
40 mg Ra equivalent	Black

Leak Test Interval

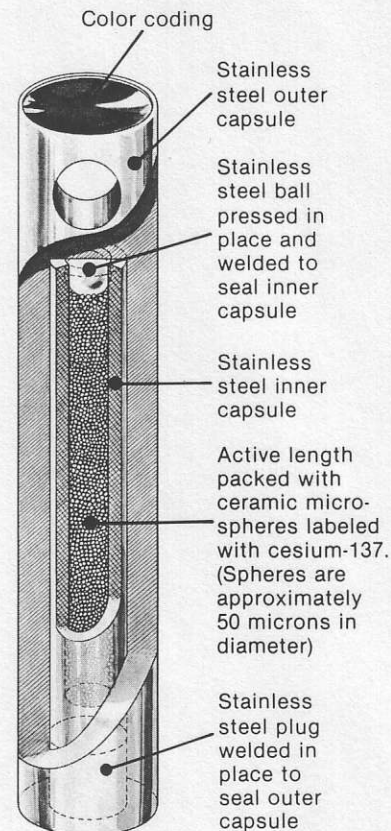
The U.S. Nuclear Regulatory Commission (NRC) has granted a three-year leak test interval on 3M standard Cs-137 tube sources (models 6500-6507). The NRC has specified the normal six-month leak test interval for the miniaturized tube sources (models 6510-6513).

Calibration

3M Cesium-137 sources are calibrated in units of millicuries cesium-137. Output from each source is compared directly with that from a National Bureau of Standards (NBS) calibrated cesium-137 source in a 4π ionization chamber. Calibration accuracy is within $\pm 5\%$.

Milligram radium equivalent values for the Cs-137 sources are calculated by multiplying the cesium-137 millicurie value by 0.398. This factor is a ratio of exposure rate constants for cesium-137 ($3.28 \text{ R}\cdot\text{cm}^2/\text{hr}\cdot\text{mCi}$) and radium-226 ($8.25 \text{ R}\cdot\text{cm}^2/\text{hr}\cdot\text{mCi}$) as found in National Council on Radiation Protection and Measurement (NCRP) Report No. 41.

A certification sheet accompanies each order and lists the nominal and actual activities for each serialized source at the date of calibration. The certification also guarantees that bubble leak, immersion soak, and wipe tests have met 3M's stringent quality control standards.



Actual source activity at time of shipment is 0 to 10% above the nominal activity. Tube source activities in an order are grouped within $\pm 5\%$ of the mean activity of those sources.

There is no additional charge for calibration and certification.

Standard Tube Source

20 mm long x 3.1 mm diameter
14 mm active length, 0.93 mm wall thickness



Catalog No.	mg Ra equivalent
6500	5
6501	10
6502	15
6503	20
6504	25
6505	30
6506	35
6507	40
6509	dummy source

Miniaturized Tube Source

19 mm long x 1.65 mm diameter
12 mm active length, 0.42 mm wall thickness



Catalog No.	mg Ra equivalent
6510	5
6511	10
6512	15
6513	20
6519	dummy source

Lead Shipping Container

