

**Performance criteria for sealed sources.**

- (A) The requirements for sealed sources installed after July 1, 1993:
- (1) Must have a certificate of registration issued in accordance with rule 3701:1-46-49 of the Administrative Code or equivalent United States nuclear regulatory commission or agreement state regulations;
  - (2) Must be doubly encapsulated;
  - (3) Must use radioactive material that is as nondispersible as practical and that is as insoluble as practical if the source is used in a wet-source-storage or wet-source-change irradiator;
  - (4) Must be encapsulated in a material resistant to general corrosion and to localized corrosion, such as 316L stainless steel or other material with equivalent resistance, if the sources are for use in irradiator pools; and
  - (5) Must, in prototype testing of the sealed source, have been leak tested and found leak-free after each of the tests described in paragraphs (B) to (G) of this rule.
- (B) The test source must be held at minus forty degrees celsius for twenty minutes, six hundred degrees celsius for one hour, and then be subjected to a thermal shock test with a temperature drop from six hundred degrees celsius to twenty degrees celsius within fifteen seconds.
- (C) The test source must be twice subjected for at least five minutes to an external pressure (absolute) of two megapascals.
- (D) A two-kilogram steel weight, 2.5 centimeters in diameter, must be dropped from a height of one meter onto the test source.
- (E) The test source must be subjected three times for ten minutes each to vibrations sweeping from twenty-five hertz to five hundred hertz with a peak amplitude of five times the acceleration of gravity. In addition, each test source must be vibrated for thirty minutes at each resonant frequency found.
- (F) A fifty gram weight and pin, 0.3 centimeter pin diameter, must be dropped from a height of one meter onto the test source.
- (G) If the length of the source is more than fifteen times larger than the minimum cross-sectional dimension, the test source must be subjected to a force of two thousand newtons at its center equidistant from two support cylinders, the distance between which is ten times the minimum cross-sectional dimension of the source.

Effective: 01/15/2017  
Five Year Review (FYR) Dates: 10/31/2016 and 10/15/2021

CERTIFIED ELECTRONICALLY

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Certification

01/05/2017

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Date

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