



Ohio Administrative Code

Rule 3701:1-52-07 Performance criteria for sealed sources.

Effective: January 15, 2017

(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.