WAC 246-236-021 Performance criteria for sealed sources. (1) Requirements. Sealed sources installed after July 1, 1993, must meet the following requirements:

(a) Must have a certificate of registration issued under 10 C.F.R. 32.210;

(b) Must be doubly encapsulated;

(c) 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 irradiator or underwater irradiator;

(d) 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

(e) In prototype testing of the sealed source, must have been leak tested and found leak-free after each of the tests described in subsections (2) through (7) of this section.

(2) Temperature. 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.

(3) Pressure. The test source must be twice subjected for at least five minutes to an external pressure (absolute) of two million newtons per square meter.

(4) Impact. A two-kilogram steel weight, two and one-half centimeters in diameter, must be dropped from a height of one meter onto the test source.

(5) Vibration. 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.

(6) Puncture. A fifty-gram weight and pin, three-tenths-centimeter pin diameter, must be dropped from a height of one meter onto the test source.

(7) Bend. 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.

[Statutory Authority: RCW 70.98.050, 70.98.110 and 58 F.R. 7728, 76 F.R. 56963, 77 F.R. 39906, 80 F.R. 54234. WSR 18-15-017, § 246-236-021, filed 7/9/18, effective 8/9/18.]