

4731.4030 PERFORMANCE REQUIREMENTS; INDUSTRIAL RADIOGRAPHY EQUIPMENT.

Subpart 1. ANSI standard.

A. This subpart applies to equipment used in industrial radiographic operations.

B. A radiographic exposure device, source assembly, or sealed source and all associated equipment must meet the requirements specified in American National Standard N432, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography," American National Standards Institute (ANSI) (1981). The ANSI standard is incorporated by reference, is not subject to frequent change, and is available through the Minitex interlibrary loan system.

C. Engineering analysis may be submitted by an applicant or licensee to demonstrate the applicability of previously performed testing on similar individual radiography equipment components. Upon review, the commissioner may find the engineering analysis an acceptable alternative to actual testing of the component according to the ANSI standard.

Subp. 2. Additional requirements.

A. In addition to the requirements under subpart 1, the requirements in this subpart apply to radiographic exposure devices, source changers, source assemblies, and sealed sources.

B. A licensee must ensure that a radiographic exposure device has attached to it a durable, legible, clearly visible label bearing:

- (1) the chemical symbol and mass number of the radionuclide in the device;
- (2) the activity and the date on which the activity was last measured;
- (3) the model or product code and serial number of the sealed source;
- (4) the manufacturer of the sealed source; and
- (5) the licensee's name, address, and telephone number.

C. Radiographic exposure devices intended for use as Type B transport containers must meet the applicable requirements under parts 4731.0400 to 4731.0455.

D. Modification of radiographic exposure devices, source changers, source assemblies, and associated equipment is prohibited, unless the design of a replacement component, including source holder, source assembly, controls, or guide tubes, would not compromise the design safety features of the system.

Subp. 3. **Removable sources and source changers; requirements.**

A. In addition to the requirements in subparts 1 and 2, the requirements in this subpart apply to radiographic exposure devices, source assemblies, and associated equipment that allow the source to be moved out of the device for radiographic operations or to source changers.

B. The coupling between the source assembly and the control cable must be designed so that the source assembly will not become disconnected if cranked outside the guide tube. The coupling must be such that it cannot be unintentionally disconnected under normal and reasonably foreseeable abnormal conditions.

C. The device must automatically secure the source assembly when it is cranked back into the fully shielded position within the device. This securing system may only be released by means of a deliberate operation on the exposure device.

D. The outlet fittings, lock box, and drive cable fittings on each radiographic exposure device must be equipped with safety plugs or covers that must be installed during storage and transportation to protect the source assembly from water, mud, sand, or other foreign matter.

E. A sealed source or source assembly must have attached to it or engraved on it a durable, legible, visible label with the words: "DANGEROUS-RADIOACTIVE" and the label may not interfere with the safe operation of the exposure device or associated equipment.

F. The guide tube must be:

(1) able to withstand a crushing test that closely approximates the crushing forces that are likely to be encountered during use; and

(2) able to withstand a kinking resistance test that closely approximates the kinking forces that are likely to be encountered during use.

G. Guide tubes must be used when moving the source out of the device.

H. An exposure head or similar device that is designed to prevent the source assembly from passing out of the end of the guide tube must be attached to the outermost end of the guide tube during industrial radiography operations.

I. The guide tube exposure head connection must be able to withstand the tensile test for control units specified in ANSI N432, incorporated by reference under subpart 1, item B.

J. Source changers must provide a system that ensures the source will not be accidentally withdrawn from the changer when connecting or disconnecting the drive cable to or from a source assembly.

Subp. 4. **Exception.** Notwithstanding subpart 1, item B, equipment used in industrial radiographic operations need not comply with section 8.9.2(c) of the endurance test in ANSI N432 if the prototype equipment has been tested using a torque value representative of the torque that an individual using the radiography equipment can realistically exert on the lever or crankshaft of the drive mechanism.

Statutory Authority: *MS s 144.1202; 144.1203*

History: *29 SR 755; 32 SR 831*

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