**Section 350.1000 Requirements for Radiography Equipment Using Radiographic Exposure Devices**

a) Equipment used in industrial radiographic operations involving the use of radiographic exposure devices shall meet the following minimum criteria:

1) Each radiographic exposure device, source assembly, or sealed source and all associated equipment:

A) Manufactured on or before July 1, 1994, and used after January 10, 1996, shall meet the requirements specified in American National Standards Institute (ANSI) N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography", published January 1981, as NBS Handbook 136, exclusive of subsequent amendments or editions. This publication may be purchased from the American National Standards Institute, Inc., 25 West 43rd Street, New York NY 10036; Telephone: (212) 642-4900. However, equipment used in industrial radiographic operations need not comply with section 8.9.2(c) of the Endurance Test in ANSI N432-1980, 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; and/or

B) Manufactured after July 1, 1994, and used after January 10, 1996, shall meet the requirements specified in ANSI N43.9-1991, "American National Standard for Gamma Radiography – Specifications for Design and Testing of Apparatus", published 1991, exclusive of subsequent amendments or editions.

2) Each radiographic exposure device shall have attached to it one or more durable, legible, clearly visible labels bearing the:

A) Chemical symbol and mass number of the radionuclide in the device;

B) Activity of the sealed source and the date this activity was last measured;

C) Model and serial number of the sealed source;

D) Manufacturer of the sealed source; and

E) Licensee's name, address and telephone number.

3) Each radiographic exposure device intended for use as a Type B transport container shall meet the applicable requirements of 32 Ill. Adm. Code 341.

4) Radiographic exposure devices, source assemblies, source changers and associated equipment that allow the source to be moved out of the device for routine operation shall meet the following additional requirements:

A) The coupling between the source assembly and the control cable shall be designed in a manner that the source assembly will not become disconnected if cranked outside the guide tube. The coupling shall be such that it cannot be unintentionally disconnected under normal conditions.

B) The device shall automatically secure the source assembly when it is cranked back into the shielded position within the device. This securing system shall only be released by means of a deliberate operation of the exposure device.

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

D) Each sealed source or source assembly shall have attached to it, or engraved in it, a durable, legible, visible label with the words: "DANGER-RADIOACTIVE". The label shall not interfere with the safe operation of the exposure device or associated equipment.

E) The guide tube, if manufactured on or before July 1, 1994, and used after January 10, 1996, shall have passed a kinking test that closely approximates the kinking forces likely to be encountered during use and the crushing tests for the control units specified in ANSI N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography", published January 1981, as NBS Handbook 136, exclusive of subsequent amendments or editions. Guide tubes manufactured after July 1, 1994, and used after January 10, 1996, shall have passed a kinking test that closely approximates the kinking forces likely to be encountered during use and the crushing tests for the control units specified in ANSI N43.9-1991, "American National Standard for Gamma Radiography – Specifications for Design and Testing of Apparatus", published 1991, exclusive of subsequent amendments or editions.

F) Use of a guide tube shall be necessary to move the source out of the device.

G) An exposure head, endcap or similar device designed to prevent the source assembly from extending beyond the end of the guide tube shall be attached to the outermost end of the guide tube during radiographic operations.

H) The guide tube exposure head connection, if these parts were manufactured on or before July 1, 1994, and used after January 10, 1996, shall be able to withstand the tensile test for control units specified in ANSI N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography", published January 1981, as NBS Handbook 136, exclusive of subsequent amendments or editions If these parts were manufactured after July 1, 1994, and used after January 10, 1996, the guide tube exposure head connection shall be able to withstand the tensile test for control units specified in ANSI N43.9-1991, "American National Standard for Gamma Radiography – Specifications for Design and Testing of Apparatus", published 1991, exclusive of subsequent amendments or editions.

I) Source changers shall provide a system for assuring that the source will not be accidentally withdrawn from the changer when connecting or disconnecting the drive cable to or from a source assembly.

b) Modification of any radiographic exposure device, source assembly, source changer and associated equipment is prohibited unless the Agency, the U.S. Nuclear Regulatory Commission or an Agreement State has determined that the design of any replacement component, including source holder, source assembly, control or guide tube would not compromise the design safety features of the system.

c) Each radiographic exposure device, source changer and storage container shall be provided with a lock or lockable outer container designed to prevent unauthorized or accidental removal or exposure of a sealed source.

d) Each radiographic exposure device and each transport container shall bear a permanent, durable, legible, clearly visible marking or label that has, as a minimum, the standard radiation caution symbol, depicted in 32 Ill. Adm. Code 340.Illustration A, and the following wording:

CAUTION (OR DANGER)

RADIOACTIVE MATERIAL

NOTIFY CIVIL AUTHORITIES (OR NAME OF COMPANY)

In addition, transport containers shall meet the applicable requirements of 32 Ill. Adm. Code 341.

(Source: Amended at 39 Ill. Reg. 9935, effective July 1, 2015)