

NOTICE

The radioactive material contained in this package is exempt from USNRC and Agreement State licensing requirements. "Radioactive Material - Not for human use - introduction into foods, beverages, cosmetics, drugs, or medicinals or products manufactured for commercial distribution is prohibited - exempt quantities should not be combined"
(from USNRC regulation 10 CFR 32.19d)

Per Federal and State regulations governing the distribution of radioactive materials, the commercial distribution of this material is prohibited except in accordance with a license issued by the US NRC or an agreement State. (see 10 CFR 30.18 below)

International customers must provide a license or letter authorizing the distribution of radioactive material.

§ 30.18 Exempt Quantities

(a) Except as provided in paragraph (c) and (d) of this section, any person is exempt from the requirements for a license set forth in section 81 of the Act and from the regulations in Parts 30-34 of this chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires byproduct material in individual quantities each of which does not exceed the applicable quantity set forth in § 30.71, Schedule B.

(b) Any person who possesses byproduct material received or acquired prior to October 22, 1970 under the general license then provided in § 31.4 of this chapter is exempt from the requirements for a license set forth in section 81 of the Act and from the regulations in Parts 30-34 of this chapter to the extent that such person possesses, uses, transfers or owns such byproduct material.

(c) This section does not authorize the production, packaging, repackaging, or import of byproduct material for purposes of commercial distribution, or the incorporation of byproduct material into products intended for commercial distribution.

(d) No person may, for purposes of commercial distribution import or transfer byproduct material in the individual quantities set forth in § 30.71, Schedule B, knowing or having reason to believe that such quantities of byproduct material will be transferred to persons exempt under this section or equivalent regulations of an Agreement State, except in accordance with a license issued under § 32.18 of this chapter, which license states that the byproduct material may be transferred by the licensee to persons exempt under this section or the equivalent regulations of an Agreement State.*

MARKING REQUIREMENTS:

- Exempt shipment per DOT / IATA / ICAO - NO MARKING
- UN 2910 ground shipment per DOT - MARK WITH UN2910 LABEL
- UN2910 air shipment per DOT / IATA / ICAO - MARK WITH UN2910 AIR LABEL

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HANDLING AND USING RADIOISOTOPES:

Generally speaking, radioactive sources prepared for educational use are of two types: 1) Solid sources in which the radioactive material is deposited in a plastic disk, and sealed inside with a durable epoxy. 2) Unsealed sources packaged in small vials, supplied in solution form. In either case, the immediate container for the radioactive material will bear a label identifying the radioisotope, the quantity of activity, and the warning "radioactive material".

Solid sealed sources are, of course, much easier to use and account for. Because they usually contain radioisotopes with long half-lives, they can be reused year after year. Additionally, one is not faced with possible spills and decontamination when using solid sealed sources. **Liquid sources** are required for certain experiments. Thin rubber or disposable gloves should always be worn when handling liquid sources, and it is also a good practice to work over a tray lined with absorbent paper when using these solutions. A word of caution: Never wear the same rubber gloves while operating your counting instrument, as any contamination on the glove could be transferred to the instrument. No food or drink are ever permitted in a radioisotope laboratory. Another good habit to acquire is never allowing the hands to touch any other part of the body, or another individual, while working with liquid sources.

Educational sources bear the words "Radioactive Material". They are "not for human use – introduction into foods, beverages, cosmetics, drugs, or medicinals, or into products manufactured for commercial distribution is prohibited – exempt quantities should not be combined".
(from USNRC Regulations)

STORAGE OF RADIOACTIVE MATERIALS:

Because of the low levels of activity used in student sources, storing these radioactive materials is a relatively simple matter. Solid sealed sources can be safely stored in the original plastic containers in which they are received. These should be stored in a designated secure area for radioactive materials.

Liquid sources are normally received in a plastic vial surrounded by packing material. These containers are sufficient for the safe storage of radioisotopes. It is recommended that all radioactive materials be kept in one specific place, preferably in the instructor's preparation room in a locked cabinet. This cabinet can be lined with lead sheets or bricks if additional shielding is necessary.

Any storage cabinet, locked drawer, or lead isotope container should be properly labeled with the approved yellow and magenta radioactive material warning labels. A frequent inventory of sources is also a good procedure to follow.

DISPOSAL OF RADIOACTIVE WASTE:

The very fact that radioactive materials decay with time can be a most effective method of disposal. Dilution and burial are two other convenient methods.

Solid radioactive waste which usually accumulates in the laboratory includes materials such as empty radioisotope vials, disposable gloves, syringes, and absorbent paper, and even leaves of plants used in uptake experiments. All of this waste material – because it results in the use of exempt quantity radioisotopes – can safely be disposed of with the routine laboratory trash at the end of each day. It is suggested that the labels containing "caution radioactive material" be removed from the empty isotope vials before discarding, simply to prevent any apprehension on the part of the janitorial personnel.

It is a normal practice in radioisotope laboratories, to pour all liquid waste into a single wide-mouth bottle labeled "radioactive liquid waste". This waste should be held by the teacher for as long as possible in order to allow for normal decay. In general, this waste material can then be safely discharged into a public sewer system, and diluted with large volumes of water.

International Customers should consult their local regulatory authority in regard to proper disposal.