

# Radioactive Waste Segregation Guideline

## Introduction

Segregation, proper identification, and proper packaging allow for the safe and environmentally responsible disposal of radioactive wastes. Disposal limits for radioisotopes insure that no member of the public is exposed to any significant quantities of radioisotopes. All wastes are to be brought to the Environmental Safety Facility (ESF), located at **ESC room 150**.

## General Rules for the Handling and Disposal of Radioactive Wastes

When generating and disposing of wastes, use the following guidelines:

1. SEGREGATE radioactive wastes based on the segregation flowchart (Figure 1) in this guideline.
2. LABEL all waste containers with the following information:
  - a. Contents
    - i. Write the full name of the chemical, percentages and/or concentration
    - ii. Short forms can be included, but not solely used
  - b. Approximate concentration of each component
  - c. Name of the generator
  - d. Lab location and extension
3. ENSURE the containers you use are compatible with the wastes you put in them. Chemical compatibility guidance for plastics
4. CLEAN containers are accepted at waste pick-ups. Bottles or containers with residues on the outside will not be accepted.

## Waste Segregation and Packaging

The flowchart below outlines how radioactive waste can be properly segregated. If after reviewing the flowchart, you are unsure how to classify your waste, please contact Greg Friday at extension 35755.

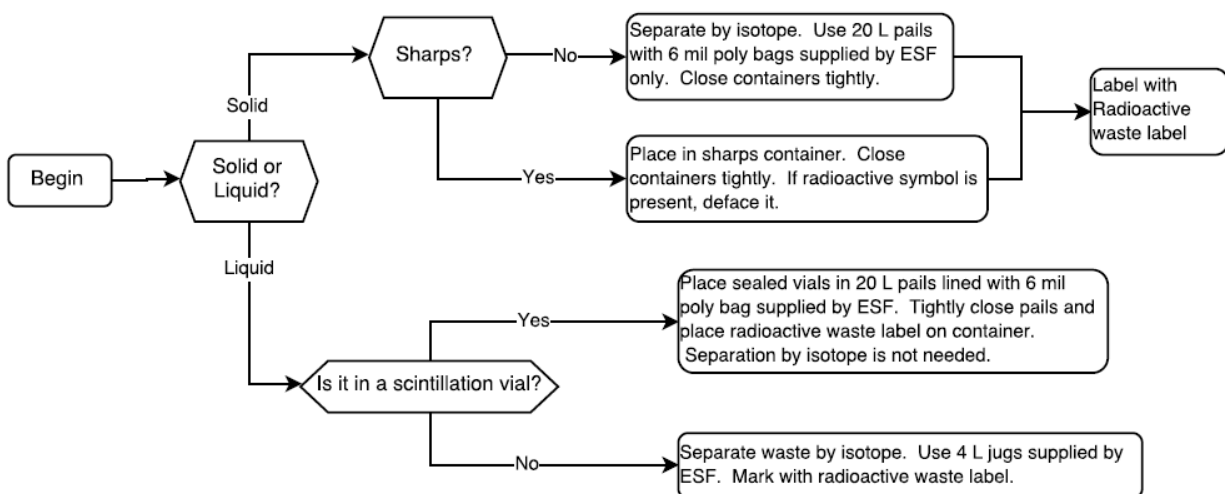


Figure 1: Waste segregation flowchart for radioactive wastes.

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## Disposal Limits for Radionuclides

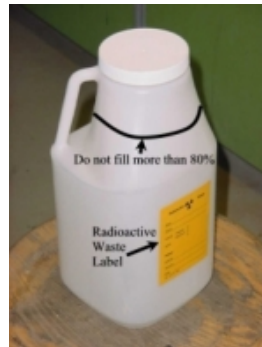
All radioactive wastes must come to the ESF for final disposal.

## Packaging Guidance

### Liquid Wastes

Use the following process for the packaging and segregation of liquid radioactive wastes:

1. Separate according to isotope,
2. Placed in a 4L jug supplied by the Environmental Safety Facility (ESF),
3. Containers must not be more than 80% full,
4. No solid waste in the containers; and,
5. Affix and complete the radioactive waste label as depicted below.



Radioactive Waste	
Dept.	Safety
Name	Jan Fraser
Liquid:	Organic <input type="checkbox"/>
	Aqueous <input checked="" type="checkbox"/>
Solid	<input type="checkbox"/>
Isotope	<sup>32</sup> P
Activity	0.25 mCi
Amount	4 L
Date	Aug 10/01
ESF 2009-08-01	

Figure 2: The image on the left depicts a 4 L jug used for liquid radioactive waste. The figure on the right depicts the radioactive waste label. Both items can be obtained from the Environmental Safety Facility (ESF).

### Solid Wastes

Use the following process for the packaging and segregation of solid radioactive wastes:

1. Solid waste is to be **separated according to isotope** and placed in a 20L pail lined with a 6 mil poly bag supplied by the Environmental Safety Facility (ESF),
2. Remove or deface any radioactive warning labels on vials or containers prior to disposal,
3. Place sharps (needles, razors, etc.) in a separate sharps container,
4. Containers must be closed tightly, and liner bags secured with a twist tie,
5. No liquid waste in the containers,
6. External containers are to be marked with a radioactive waste label; and,
7. Solid waste less than limits listed in a table below may be disposed of in a regular garbage.

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Figure 3: The image on the left depicts the 20L pail lined with 6 mil polybag. The image on the right depicts the sharps container. Both are available at the ESF.

## **Scintillation Vials:**

Use the following process for the packaging and segregation of scintillation vials:

1. Scintillation vials are to be placed in a 20L pails lined with a 6 mil poly bag supplied by the Environmental Safety Facility (ESF). These are the same pails used for solid radioactive waste (see Figure 3),
2. **Vials can be of any isotopes.** Pails must be closed tightly; and,
3. Containers are to be marked with a University of Waterloo chemical waste label.