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Sustainable Action Plan

# Hazardous Materials Management

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Environmental Health and Safety

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Waste at the University of Oregon is of an extremely varied nature. Researchers, instructors, and support services generate much of the UO's hazardous waste. Everyone at the UO who generates hazardous waste has the responsibility to ensure the success of the Hazardous Waste Management Program, under the guidance of Environmental Health and Safety (EHS). Following the guidelines laid out in this plan will protect UO faculty, staff, students, property, physical spaces on campus, and the local environment.

The priorities of the program include:

- Reducing the quantity of hazardous waste generated.
- Managing hazardous waste in a manner that protects the health and safety of students, staff, and faculty at the university, as well as the surrounding community.
- Managing hazardous waste using the most environmentally sound and responsible methods practical, thus reducing the potential for a release of hazardous waste into the environment.
- Compliance with governmental regulations regarding hazardous waste management.

The success of the program is dependent upon each member of campus taking responsibility for different aspects of the program. Some of the people who are integral to the success of the program include:

- Purchasing, receiving, laboratory, and shop personnel who are the first to obtain the material for use.
- EHS, laboratory, and shop personnel who are responsible for promoting proper hazardous material handling procedures.
- University administrators who exemplify attitudes that inspire and unite the campus community to support the waste management program.

By respecting the priorities listed in the introduction and fulfilling the specific management priorities listed below, the program can continue to improve.

## **Priority 1 - Waste Reduction**

A key hazardous waste management priority is to reduce the amount and toxicity of hazardous waste generated. All campus stakeholders should make every effort to reduce, reuse, or recycle materials before final disposal. Waste reduction training, educational materials, and on-site assistance is available by contacting EHS at 541-346-3192.

When evaluating waste reduction opportunities, consider the following areas:

### *Purchasing*

Before purchasing new, potentially hazardous materials, check with others, such as those who use nearby work areas or shared chemical storage areas, or with EHS to see if the product is already available. If a purchase must be made, obtain the smallest amount of the product that will satisfy the project requirements. Over-purchasing materials is a major contributor to unnecessary waste.

### *Inventory Control*

A substantial amount of hazardous waste disposed of by the University of Oregon consists of unused, outdated, or contaminated chemicals. Careful planning of chemical quantities and monitoring of chemical storage areas can reduce costs to laboratories, departments, and The University. Contact EHS as soon as chemicals are no longer being used to prevent accumulation of outdated chemicals.

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### *Substitution*

Using non-hazardous or less hazardous material in place of the original material for a process requires some thought and research by the user. In doing this, the user is not only reducing waste but also reducing the risk of potential exposure to those in the immediate area. Process substitutions can also be used to reduce hazards. These substitutions may include using improved engineering controls to reduce waste and the risk of potential exposure.

### *Scale Reduction*

Many individuals have already implemented micro-scale techniques as a method of reducing waste. Using this strategy results in the consistent and substantial reduction of hazardous waste generated over time.

### *Product Exchange*

While some procedures may require new materials, quite often it is possible to borrow or trade products from other users. Checking with others in the same department, building, or nearby work areas can save money while reducing the amount of waste generated. A little extra record keeping and communication can be beneficial for everyone.

### *Recycling/Reuse*

Recycling is preferred to disposal in keeping waste to a minimum. EHS incorporates recycling strategies into current practices and operates the re-use facilities to assist in chemical materials recycling. Solvent recovery systems allow solvents to be purified and reused multiple times, resulting in monetary savings, environmental protections, and a reduced waste volume.

## **Priority 2 - Material Segregation**

Use separate containers for each type of waste whenever possible. Common waste classifications are flammable, corrosive, toxic, and reactive materials. Segregating materials into containers with like materials reduces risk of chemical incompatibilities, helps keep costs to a minimum, and facilitates any potential reuse or recycling.

For example, a container of spent flammable solvent is typically collected for an approved method of energy recovery. If the solvent bottle is contaminated with heavy metals or other toxic materials, energy recovery is no longer an option and a more expensive final disposition method must be utilized. If compatibility questions arise please contact EHS at 541-346-3192.

Reagent containers, solvent containers, cylinders, and dewars must have a legible manufacturer's label. Day-use containers must have a label indicating the materials they contain. Containers for collection must be labeled with the hazardous chemical tags provided by EHS. Provide all information requested, label containers with full chemical names as well as the percentage of each category, and make all other non-applicable markings illegible. Proper labeling is the key component in ensuring materials are properly and effectively segregated.

## **Priority 3 - Waste Determination**

When a product is no longer usable, it is considered waste. Local, state, and federal regulations define what makes a waste a "hazardous waste" specifically. Generally, the Environmental Protection Agency (EPA) defines a hazardous waste as "one which is specifically listed as such or that possesses hazardous characteristics." EHS is available to assist in determining whether a material is a hazardous waste. Not all

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waste is listed but may possess characteristics which are similar to regulated waste. In these cases, an off-site disposal method is necessary and sewer or landfill disposal is prohibited.

#### **Priority 4 – In-House Treatment**

##### *Acid-Base Neutralizations*

Small quantities of acids or bases where pH is the *only* hazardous characteristic may be neutralized to a pH range of 5.5-12.0 and then the neutral, non-hazardous solution can be disposed into the sanitary sewer system. EHS will collect large quantities of acids or bases, or any quantity with multiple hazardous characteristics.

Other forms of treatment may be acceptable if properly designated in experimental protocols such as plans for quenching materials. Consult with EHS at 541-346-3192 *prior to* implementing in house treatment. EHS will still collect quenched items and evaluate them for waste determination.

#### **Priority 5 – Waste Disposal**

EHS collects and prepares hazardous materials for disposal by commercial contractors in accordance with local, state, and federal regulations. EHS bulks and segregates materials into their compatible groups to minimize the number of containers and waste packing materials. All materials are disposed through EPA licensed Treatment, Storage, and Disposal Facilities (TSDF).