Trent University Chemical Waste Program

# 1.0 Introduction

The use of chemicals in labs for most laboratory applications will involve the use of materials which cannot be disposed of through the municipal waste water treatment system or the solid waste disposal landfill and will need to be disposed of as Hazardous Chemical Waste (or chemical waste for short).

However, it is important that even in labs, personnel always remember the 3 Rs.

1. Reduce: Where possible use as little of a chemical as is possible,

2. Reuse: This option is not usually very applicable to labs but may in some cases be useful and,

3. Recycle: Most of our hazardous chemical waste can be recycled. The university has a contract with a chemical waste recycling company and much of the chemical waste can be reclaimed.

There is one other factor which can go a long way to ensuring that chemical use and waste at the university has as low an impact on the environment as possible and that is by substituting hazardous materials with less hazardous material and processes where possible.

However, even the most sustainable programs will still likely involve the production of some chemical waste.

# 2.0 Hazardous Chemical Waste

Chemical waste includes any chemical in solid, liquid or gaseous form that cannot be released into the environment or disposed of through municipal waste streams. The university has made a commitment that hazardous chemical wastes are disposed of through the Chemical Waste Program and not “down the drain”.

Chemical waste includes solids, liquids or gases containing or contaminated with any of the following:

Flammable solvents (acetone, alcohols, acetonitrile)

Leachate toxic materials (heavy metals, pesticides)

Corrosives (acids, bases)

Reactives such as oxidizers, cyanides, sulphides, unstable materials and water-reactive materials (sodium, peroxides)

Toxic materials including mutagenic, carcinogenic, acute or chronic toxicity materials (chloroform, ethidium bromide)

Polychlorinated biphenyls

Non-returnable gas cylinders

## 2.1 Radioactive and Biohazardous Waste

Radioactive and Biohazardous waste are not handled through the chemical waste program.

Each has its own waste program under their respective safety program. For information on the disposal of radioactive waste consult the Radiation Safety Program. For information on the disposal of biohazardous waste consult the Biosafety Program.

## 2.2 Environmental Legislation

The proper handling, transport and disposal of hazardous chemical wastes in Ontario is governed by a variety of municipal, provincial and federal legislation and include the following:

Environmental Protection Act (Ontario)

Transportation Dangerous Goods Act (Canada)

Environmental Protection Act (Canada)

Environmental Contaminants Act (Canada)

Nuclear Safety and Control Act (Canada)

Canadian Biosafety Standards (Canada)

Pest Control Products Act (Canada)

Pesticides Act and Regulations (Ontario)

City of Peterborough By-Law Number 91-10

## 2.3 Responsibilities

It is the responsibility of everyone to reduce the amount of waste produced by the university. With respect to chemical waste, Principal Investigators/Supervisors and laboratory personnel are responsible for:

1. Preplanning experiments to include the provision for handling chemical wastes as a result of the work.

2. Follow the Chemical Waste Program and individual waste depot instructions.

3. Reduce wastes generated as much as possible.

4. Ensure waste chemicals are stored in the lab in a safe and appropriate fashion

5. Transport chemical waste in a safe fashion in approved containers to the chemical waste depot rooms and following the procedures for each waste area. (see Section 3.0)

6. Properly identifying the waste on the outside of the container and classifying the waste in WHMIS.

## 2.4 Chemical Waste Containers

Suitable chemical waste containers include cleaned Glass bottles with screw on lids, cleaned, used chemical bottles with screw on lids, Polypropylene containers with lids, and any containers picked up from a Chemical Waste depot.

Unacceptable containers include but are not limited to, any beverage container, aluminum cans or any container which does not have a properly fitted lid or cap. Pop bottles are not acceptable chemical waste containers. Care should be taken to ensure the container material is appropriate for the chemical (e.g., acid waste must not be stored in metal containers).

### 2.4.1 Waste Container Storage Locations within Lab

Dealing with chemical waste can be a bit of a time consuming task and is not considered by many as something that is critical to a labs main purpose. Because of this, it is tempting to accumulate large quantities of chemical waste over time and then attempt to deal with it on an infrequent basis. Accumulating large quantities of chemical waste is to be discouraged. Lab personnel should be encouraged to dispose of chemical waste on a regular basis. However, Chemical waste containers will still need to be stored in a safe fashion. All of the guidelines in the Chemical Storage Program apply to waste chemicals as well. For example, waste flammable chemical containers must be stored in a flammable chemical cabinet when not in use, waste acid solutions, should be stored in a proper container in an acid storage cabinet.

# 3.0 Chemical Waste Procedures

There are three Chemical Waste Depots for the Sciences on Campus.

The Environmental Sciences Center, Chemical Sciences Building and the Science Complex are served by the Chemical Waste room in ESB C 111.4.

DNA A and B Block are served by the Chemical Waste Depot in DNA B 114.1.

LHS C and D Block are served by the Chemical Waste Depot in LHS D 119.3.

The procedures for DNA and LHS are the same. See the procedures below for more information on handling chemical waste.

If you have any questions or concerns about the chemical waste program or how to handle chemical waste please contact, Risk Management or Science Facilities.



