# HAZARDOUS WASTE PROGRAM

**Safety & Security Services**

**November 2002**

ALGONQUIN COLLEGE

# HAZARDOUS WASTE DISPOSAL

**Definitions:**

**"asbestos waste"** means solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion;

**"carrier"** means the operator of a waste transportation system;

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

- flammable solvents (*e.g., acetone, alcohols, acetonitrile)*;
- leachate toxic materials (*e.g., heavy metals, pesticides*);
- corrosives *(e.g., hydrochloric acid, potassium hydroxide pellets)*;
- reactives such as oxidizers, cyanides, sulphides, explosives, unstable materials and water-reactive materials (*e.g., sodium metal, benzoyl peroxide)*;
- toxic materials including mutagenic, carcinogenic, acute or chronic toxicity materials *(e.g., chloroform, ethidium bromide)*;
- polychlorinated biphenyls (> 50 ppm concentration);

**"corrosive waste"** means a waste that,

(a) is aqueous and has a pH less than or equal to two or greater than or equal to 12.5 as determined by a pH meter, or

(b) is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 millimetres per year at a test temperature of 55° Celsius using test NACE TM-01-69 or an equivalent test approved by the Director;

**"generator"** means the operator of a waste generation facility;

**"hazardous waste"** means a waste that is a,

(a) hazardous industrial waste,

(b) acute hazardous waste chemical,

(c) hazardous waste chemical,

(d) severely toxic waste,

(e) ignitable waste,

(f) corrosive waste,

(g) reactive waste,

(h) radioactive waste, except radioisotope wastes disposed of in a landfilling site in accordance with the written instructions of the Canadian Nuclear Safety Commission or the Atomic Energy Control Board,

(i) pathological waste,

(j) leachate toxic waste, or

(k) PCB waste as defined in Regulation 362 of the Revised Regulations of Ontario, 1990,

but does not include,

(l) hauled sewage,

(m) waste from the operation of a sewage works subject to the *Ontario Water Resources Act* where the works,

(i) is owned by a municipality,

(ii) is owned by the Crown subject to an agreement with a municipality under the *Ontario Water Resources Act*, or

(iii) receives only waste similar in character to the domestic sewage from a household,

(n) domestic waste,

(o) incinerator ash resulting from the incineration of waste that is neither hazardous waste nor liquid industrial waste,

(p) waste that is a hazardous industrial waste, hazardous waste chemical, ignitable waste, corrosive waste, leachate toxic waste or reactive waste and that is produced in any month in an amount less than five kilograms or otherwise accumulated in an amount less than five kilograms,

(q) waste that is an acute hazardous waste chemical and that is produced in any month in an amount less than one kilogram or otherwise accumulated in an amount less than one kilogram,

(r) an empty container or the liner from an empty container that contained hazardous industrial waste, hazardous waste chemical, ignitable waste, corrosive waste, leachate toxic waste or reactive waste,

(s) an empty container of less than twenty litres capacity or one or more liners weighing, in total, less than ten kilograms from empty containers, that contained acute hazardous waste chemical,

(t) the residues or contaminated materials from the clean-up of a spill of less than five kilograms of waste that is a hazardous industrial waste, hazardous waste chemical, ignitable waste, corrosive waste, leachate toxic waste or reactive waste, or

(u) the residues or contaminated materials from the clean-up of a spill of less than one kilogram of waste that is an acute hazardous waste chemical;

**"manifest"** means a numbered document called a manifest that was obtained from the Ministry and includes a paper or electronic manifest;

**"receiver"** means the operator of any facility to which waste is transferred by a carrier;

**"site"** means one property and includes nearby properties owned or leased by the same person where passage from one property to another involves crossing, but not travelling along, a public highway;

**“waste generator”** is any person who generates hazardous waste. For example, a supervisor, a faculty member, a student, a technician, a research fellow, a post doctoral fellow, etc. may be a waste generator. A waste generator is responsible for;

- ensuring that waste is properly segregated, identified, and labelled for disposal,
- conducting experiment in a safe manner,
- collecting, storing and disposing the waste in accordance with the Colleges waste procedures, and
- keeping an inventory of the waste deposited into each waste container.

# CLASSIFICATIONS OF HAZARDOUS WASTES

**A) NON–FLAMMABLE LIQUID WASTE**

**B) FLAMMABLE SOLVENT WASTE**

**C) OIL AND LIQUID WASTE**

**D) ORGANIC COMPOUNDS**

Examples include: Hydroquinone, Methanol, Methyl Para, Naphthalene, Acetic Acid, Acetonitrile, Alcohols,Benzaldehyde, Benzene, Carbon Tetrachloride Ethers, Toluene, Styrene Monomer

**E) POLYCHLORINATED BIPHENYLS (PCBs)**

Examples include: Older Flourescent Light ballasts

**F) BATTERIES**

Examples include: All Alkaline and lead batteries, Car Batteries, Emergency Generator Batteries

**G) PESTICIDES**

Examples include: Liquid Flammable Pesticides, Solid Pesticides, Liquid Non-Flammable Pesticides **Note**: Empty pesticide containers are considered hazardous waste

**H) PAINT**

Latex paint can be disposed as regular trash, provided the cans have been allowed to dry and no liquid paint residue is present.

**I) AEROSOL CANS/COMPRESSED GAS CYLINDERS**

Examples include: Paint, lacquer and thinners in aerosol cans, $CO_2$, Argon, Helium in compressed cylinders

**J) PHOTOGRAPHIC DEVELOPER AND FIXER**

**K) ASBESTOS**

**L) SILICA GEL**

**M) SHARPS**

Examples include: needles, scalpels, etc.

**N) SOLID WASTE CONTAMINATED WITH TRACE CHEMICALS**

**O) RADIOACTIVE WASTE**

**P) BIOHAZARDOUS WASTE**

**Q) CARDBOARD BOXES & EMPTY CONTAINERS**

**R) X-RAY FILM**

**S) UNKNOWN CHEMICALS AND CHEMICAL WASTE**

**Requirements**

- Under current Legislation all empty container, which have hazardous symbols and warning signs (i.e. TDG,WHMIS) must be completely defaced before being disposed of in garbage or recycling bins. Do not throw out or recycle if hazardous residue exists.

- NO HAZARDOUS CHEMICAL is to be flushed down the drain. (Refer to City of Ottawa 5.2 Municipal Sewer Act) Please call the Occupational Health and Safety Dept

- Chemicals or chemical waste whose identities are not known are treated as unknown chemicals or unknown chemical waste. Unknown chemicals or chemical waste cannot be legally transported to waste treatment facilities. The analyses necessary for identifying unknowns are expensive. Care must be taken, therefore, by all departments in maintaining an accurate inventory of stored hazardous materials and hazardous wastes.

**Identification**

Complete and accurate identification of all chemical waste is the most important factor in providing safe and environmentally sound hazardous waste management. Furthermore, it is **illegal to transport unknown materials** under the TDG Regulation. It is therefore essential that the chemical name, contaminants and concentrations be identified.

**Labeling**

Ensure EACH individual item (bottle, bag, box, etc.) is clearly labelled with the chemical name, contaminants and concentrations if known. Do not write common names. List all components by their specific, non-abbreviated chemical names. **UNKNOWNS WILL NOT BE TRANSPORTED or DISPOSED OF**.

In addition, a complete inventory of all chemicals in a package is required. Completely fill out the Hazardous Waste Disposal Form and attach it to each container or package containing chemical waste. Ensure the **(1) Chemical name / Product / Material, (2) State, (3) Quantity (specify L or Kg)** and **(4) Location,** is included for each item. Packages with incomplete forms will not be accepted.

### Packaging

Chemical containers must be sealed and undamaged.

### Waste Disposal Costs

The direct costs for the disposal of hazardous waste is the responsibility of the user department (packaging and transport). Indirect costs and College wide costs such as labour, MOE registrations and manifests are the responsibility of OHS.

## Procedures

- Identify hazardous waste for disposal
- Contact OHS to obtain a Hazardous waste inventory form
- Complete the inventory form and submit it to OHS for review
- Package the hazardous waste appropriately for storage and disposal
- Provide access to the storage area and any related documentation for OHS in the coordination of the disposal
- Ensure appropriate storage of the material until disposal has been carried out by OHS
- Maintain records of any materials disposed of
- Ensure waste is properly sealed and packaged
- Fill out Waste Disposal Form and attach to packaged waste

ALGONQUIN COLLEGE Occupational Health & Safety

*It's everyone's responsibility!*

**Hazardous Waste Inventory Form**

Department name: _____

Contact person: _____

Phone #: _____ Campus: _____

**HAZARDOUS WASTE DISPOSAL ONLY**

| Product / Material | Physical State (gas, liquid, solid) | Quantity * | Location |
|---|---|---|---|
| ***Example*** Herbicides | Solid | 2 bags = 10 kg | M-102 |
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***PLEASE DESCRIBE APPROXIMATE QUANTITIES IN MEASURED UNITS I.E., LITRE, GRAM, GALLON, NOT AS BOX, CAN, ETC.**

Return to Eileen Belisle, "G" Building Woodroffe Campus
or belisle@algonquincollege.com

**ACTIVE WASTE CLASSES AT ALGONQUIN COLLEGE**

| WASTE CLASS | PHYSICAL STATE | WASTE NAME | EXAMPLES |
|---|---|---|---|
| 114 H | LIQUID | Other inorganic acid wastes | Off- specification acids; by-product hydrochloric acid; dilute acid solutions; acid test residues |
| 132 L | LIQUID | Neutralizing solutions, sludges and residues containing other metals | Aluminum surface coating treatment sludges; alum and gypsum sludges. |
| 146 T | LIQUID | Other specified inorganic sludges, slurries or solids | Flue gas scrubber wastes; wet fly ash; dust collector wastes; metal dust and abrasive wastes; foundry sands; mud sediment and water; tank bottoms from waste storage tanks that contained mixed inorganic wastes; heavy sludges from waste screening/filtration at transfer/processing sites not otherwise specified in this table. |
| 148 A | LIQUID | Miscellaneous waste inorganic chemicals | Waste inorganic chemicals including laboratory, surplus or off-specification chemicals, that are not otherwise specified in this table. |
| 148 B | LIQUID | Miscellaneous waste inorganic chemicals | Waste inorganic chemicals including laboratory, surplus or off-specification chemicals, that are not otherwise specified in this table. |
| 211 H | LIQUID | Aromatic solvents and residues | Benzene, Toluene, xylene solvents and residues. |
| 212 L | LIQUID | Alphatic solvents and residues | Acetone, methylethylketone and residues, alcohols, cyclohexane and residues. |
| 231 I | LIQUID | Petroleum Distillates | Varsol, white spirits and petroleum distillates, thinners. |
| 241 H | LIQUID | Halogenated Solvents and Residues | Spent halogenated solvents and residues such as perchloroethylene, trichloroethylene and carbon tetrachloride (dry cleaning solvents);halogenated still bottoms; residues and catalysts from halogenated hydrocarbon manufacturing or recycling processes. |
| 242 A | LIQUID | Halogenated pesticides and herbicides | 2,4-D, 2,4,5-T wastes, chlordane, mirex, silvex, pesticide solutions and residues. |
| 243 D | LIQUID | Polychlorinated biphenyls (PCB) | Askarel liquids such as Aroclor, Pydraul, Pyranol, Therminolds, Inerteen, and other PCB contaminated materials. |
| 251 L | LIQUID | Waste oils/sludges (petroleum based) | Oil/water separator sludge; dissolved air floatation skimming; heavy oil tank drainage; slop oil and emulsions. |
| 252 L | LIQUID | Waste crankcase oils and lubricants | Collected service station waste oils; industrial lubricants; bulk waste oils. |
| 261 B | SOLID | Pharmaceuticals | Pharmaceutical and veterinary pharmaceutical wastes other than biologicals and vaccines, solid residues and liquids from veterinary arsenical compounds. |
| 263 A | LIQUID | Miscellaneous waste organic chemical | Waste organic chemicals including laboratory surplus or off-specification chemicals that are not otherwise specified in this table. |
| 264 | LIQUID | Photoprocessing wastes | Photochemical solutions, washes and sludges. |
| 269 A | LIQUID | Organic non- | Organophosphorous chemical wastes; arsenicals; |

| | | | |
|---|---|---|---|
| | | halogenated pesticide and herbicide wastes | wastes from MSMA and cacodylic acid. |
| 312 P | SOLID | | |
| 331 A | GAS | Waste compressed gases, including cylinders | Methane (natural gas); nitrous or nitric oxide; propane,butane. |