PROCEDURE FOR DISPOSING OF HAZARDOUS WASTE

ORGANIC SOLVENTS

Organic solvents must not be discharged down the drain. The discharge of organic solvents into the sewer system is prohibited. This applies to all organic solvents whether flammable or nonflammable, miscible or non-miscible with water, including acetone and ethanol. Organic solvents must be placed in suitable containers where there is no danger that vapors or the liquid will escape. Containers should be capped tightly, labeled with red Hazardous Waste tags, and disposed of as hazardous waste. Mixtures of organic solvents that are compatible and combined in one container must be identified with an estimated proportion in fractions or percentages of each solvent in the mixture.

ETHER

Ether that is 6 months old and stored in metal cans must be transferred to glass or plastic coated bottles and diluted with water before being picked up for disposal. If a metal can is expired, do not open it or use it again – visit the website for pick up and disposal.

ACIDS and ALKALINES

Corrosive acids and alkaline solutions must not be discharged down the drain. They must be accumulated in proper containers that are tightly capped and labeled with red Hazardous Waste tags.

Many laboratory operations create neutralized acids and alkaline solutions, which may be put down the drain providing that they do not contain heavy metals or toxic contaminants. Acids (pH less than or equal to 2) and caustics (pH greater than or equal to 12) must be disposed of as hazardous waste. Acids and caustics may not be diluted or buffered for the sole purpose of pouring them down the drain.

SOLIDS

Inorganic and organic solids in their original containers that are designated as waste because they are contaminated, old, or of questionable purity must be disposed of as hazardous waste. Heavily contaminated solid waste, such as paper towels, gloves, spill pillows, etc. (no broken glass) should be sealed in a sturdy plastic container or double bagged in clear poly Lab Bags (not regular trash bags) and sealed with duct tape. The container or bag should then be labeled properly with a red Hazardous Waste tag and disposed of as hazardous waste. Lab Bags must not be marked in any way as Biohazardous or Radioactive.

MERCURY

Mercury must be removed from the lab apparatus and put into jars or bottles prior to disposal. Broken mercury thermometers must be put into a jar or other screw top container. Mercury spills should be checked by EHS to establish that mercury vapors are not present. Clean up materials from a mercury spill must

be placed in a solid container, labeled with a red Hazardous Waste tag, and disposed of as hazardous waste. Consult EHS for advice on how to perform these steps safely.

CYANIDE, SULFIDE, ARSENIC, LEAD, HEAVY METALS

Toxic cyanide compounds, arsenic, lead, and heavy metal wastes should be placed in tightly sealed containers and labeled with red Hazardous Waste tags prior to disposal. Cyanide and Sulfide compounds should not be stored near acids.

ALKALI METALS

Alkali metals such as sodium, lithium, and potassium must be placed in a suitable container, covered with mineral oil, labeled properly with a red Hazardous Waste tag, and sealed so that there is no possibility of their coming into contact with water prior to disposal.

PYROPHORIC METALS

Pyrophoric metals such as magnesium, strontium, thorium, zirconium, and other pyrophoric chips and fine powders must be placed in a metal container, sealed tightly, and labeled with a red Hazardous Waste tag prior to disposal.

WASTE OIL

Under Massachusetts regulations [310 CMR 30], waste oil must be disposed of as a hazardous waste. Oil should be collected in a sealable container, and labeled as a toxic hazardous waste prior to disposal.

LARGE QUANTITIES

Large quantities of waste chemicals to be removed from a laboratory may require that the department be financially responsible for the disposal. Some examples are a laboratory clean out of old reagents and chemicals, waste chemicals to be pumped out of a collection or storage tank, gas cylinders, and potentially explosive expired materials. Contact EHS for assistance.

GAS CYLINDERS

Gas cylinders should be returned to BOC Gases. Non-returnable lecture bottles should be avoided. Departments / Lab groups will be financially responsible for the disposal of non-returnable cylinders.

CONTROLLED DRUGS

Controlled drugs that are to be disposed of as waste must not be sent to the waste chemical storage area. The handling, records, and disposal of controlled drugs are the responsibility of the individual lab, which must operate within Drug Enforcement Agency (DEA) Regulations. You may contact EHS for assistance.

RADIOACTIVE MATERIAL

Radioactive material disposal is handled in accordance with procedures established by the Radiation Protection Program. Any potentially radioactive

material, including all scintillation fluids (new or used), must be checked by RPP prior to hazardous waste pick up.

CHEMICALLY CONTAMINATED SHARPS

Sharps contaminated with hazardous materials must be placed in a puncture proof container and sealed with a screw-on cap. The container, usually the white sharps buckets provided by EHS, must be labeled as hazardous chemical waste using a red Hazardous Waste tag, and the tag must include the names of the top 3 or 4 most hazardous chemicals present in the white bucket. Contact EHS for disposal.

PCBs

Polychlorinated Biphenyls (PCBs) – Capacitors, transformers, equipment, and oil that contain or potentially contain PCB's must be discussed with EHS to arrange for disposal.

REACTIVE WASTES

Reactive materials are capable of violent or explosive decomposition (e.g., lethal shock-wave, extreme heat, flame, or explosive gas). Special care must be observed when handling these materials and wastes. Precautions regarding shock, heat, friction, flame, static discharge, elevated temperatures, or any reaction-initiating event must be implemented. Contact EHS for details.

COLD STORED WASTE

Any chemical declared as waste that is normally stored in a cold environment must be left in a hood at room temperature for 24 hours before hazardous waste pickup. If this would potentially cause the material to become unstable, contact EHS to arrange for special disposal of the material.

UNKNOWN WASTE CHEMICALS

Unknown waste cannot be accepted for disposal. It is the responsibility of the generator to identify all chemicals. This may require polling laboratory personnel, students, and faculty members to determine the owner of the unknown waste and its identity. It must be constantly emphasized to researchers that they identify and label all wastes and other products associated with their research. Contact EHS with any questions, or if the identity of the waste can not be determined. In situations where the waste is truly unknown, the individual lab will be financially responsible for testing and disposal services of the material.

SINK AND DRAIN DISPOSAL

The wastewater from laboratory sinks, floor drains, and other areas within MIT buildings enters the public sanitary sewerage system, where it flows to the treatment system on Deer Island (in Boston Harbor) that is operated by the Massachusetts Water Resources Authority (MWRA). There the wastewater receives primary and secondary treatment before being discharged to the Atlantic Ocean.

To protect water quality and the biological treatment processes, the MWRA enforces strict limits on contaminants and pollutants in the water that is discharged to the sanitary sewers. MIT is legally bound by these discharge limits, and conducts regular testing of its effluent to document compliance, with the results submitted to MWRA. Any exceeding of the stipulated discharge limits could subject MIT to administrative, or even criminal, penalties.

All members of the MIT community are responsible for maintaining acceptable quality in our wastewater discharges. Laboratory personnel in particular must make special efforts to keep certain items out of the sinks and floor drains. Described below are the substances that may be disposed of through drains, as well as those materials that are prohibited from sink disposal.

What CAN be poured down the drain?
Only water, soaps, and some salts can be poured down the drain. Nothing else is allowed.

What CANNOT be poured down the drain?
HAZARDOUS WASTES OF ANY TYPE OR CONCENTRATION. These wastes must be disposed of through the Institute's regular hazardous waste pickup process. Other prohibited materials include, but are not limited to, the following:

- Mercury and mercury-containing compounds
- Pesticides
- Oils, fats, greases, or wax
- Heavy metals (note that spent photo fixer contains silver)
- Organic compounds
- Certain inorganic compounds
- Solutions with a pH below 2 or above 12 (please note that neutralization steps may be built into the experiment to faciliate drain disposal).

Furthermore, you are also prohibited from disposing into the sewer:

- anything that may create a fire or explosion hazard (such as volatile liquids, including acetone and alcohols).
- anything that is noxious or malodorous.
- anything that may obstruct the flow in any sewer pipe (such as coffee grounds, garbage, sand, or mud).
- any liquid or vapor with a temperature higher than 180 F.
- anything that will visibly discolor the wastewater (such as non-toxic dye).