HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

LABORATORY & BUILDING OPERATIONS
GUIDANCE ON THE SINK DISPOSAL OF CHEMICAL SUBSTANCES

Before discharging anything to the drain, laboratory and facilities personnel need to consider the following to determine whether the material is safe and appropriate for drain disposal.

Harvard University's laboratories and buildings on the Cambridge, Allston and Longwood campuses are required to comply with sink/drain discharge limitations and prohibitions established by the local wastewater treatment authority, the Massachusetts Water Resources Authority (MWRA). Harvard is required to report all chemical discharge violations to the MWRA that can result in enforcement actions. MWRA enforcement actions are cumulative and can ultimately result in fines or penalties that can jeopardize Harvard's research and operational capabilities. In addition, repetitive discharge violations can ultimately lead to requirements for closer monitoring of routine laboratory operations.

This guideline provides Laboratory and other University personnel with the identification of chemical substances that are prohibited and limited from sink/drain disposal. For additional assistance contact your local EH&S office (Cambridge/Allston 617-495-2060, Longwood 617-432-1720).

PROHIBITED DISCHARGES

The following substances are prohibited (in any amount or concentration), by MWRA 360 CMR 10.00, from sink or drain disposal. Please be aware that the dilution of substances for wastewater disposal purposes is strictly prohibited.

Hazardous Wastes:
Hazardous wastes are prohibited from sink/drain disposal. Ensure that you have made a proper determination before disposing of substance. For assistance, contact EH&S at 617-496-2445.

A substance is deemed a hazardous waste if it:

- Contains as substance listed by the Department of Environmental Protection (DEP) as a hazardous waste; or
- Exhibits any one of the four hazardous waste characteristics:
    - Ignitability = flashpoint less than 140 ^{o}F (note that aqueous solutions with >50% water that are less than 24% alcohol by volume are exempt).
    - Corrosivity = ph less than 2 or greater than 12.5;
    - Reactivity = contains cyanides or sulfides or may emit toxic vapor when mixed with water;
    - Toxicity = contains concentrations of substances in amounts greater than those listed in the regulations.

Corrosive Solutions (pH at/or below 5.5 or at/above 12.0):

Lab buildings at Harvard contain wastewater treatment systems for the neutralization of lab wastewater that may be mildly corrosive. Therefore, the discharge of weak corrosive solutions may be allowed. Corrosive solutions with pH ranges (pH<2.0) and (pH>12.5) at the conclusion of the lab process must be managed as hazardous waste.

Flammable or Explosive Substances

Solutions that are flammable (flash point less than 140°F) or explosive at the time of disposal - **must not be disposed into a sink or drain**. The sink or drain disposal of flammables/explosives (based on nature and quantity) can create an unsafe condition for lab and/or facilities maintenance personnel especially during periods of "low flow" conditions (e.g. after normal working hours). Examples of these substances include: acetone, gasoline, methyl ethyl ketone, ketones, aldehydes, peroxides, ethers, xylene, toluene, or alcohols.

Other Prohibited Materials

- Mercury or mercury salts or dyes
- Infectious/Biological Waste http://www.ehs.harvard.edu/services/biosafety
- Radioactive wastes in excess of established limits http://www.ehs.harvard.edu/services/radiation-protection
- Polychlorinated Biphenyls (PCBs)
- Any noxious or malodorous liquid, gas or solid in amount to create a nuisance
- Any solid or viscous substance in amount or size that may obstruct flow (e.g. sand, animal tissues, bones, plastics, rubber, glass, wood chips, wood shavings, plaster, etc.)
- Any liquid or vapor with a temperature higher than 180°F.
- Any slug (e.g. excessive quantities of viscous material) or sludge
- Oils, Fats, grease at levels above 300 mg/l
- Petroleum Hydrocarbons at levels above 15 mg/l
- Pesticides

Note for container RINSEATE – In most cases, the first rinse (with water and/or acetone) from containers, beakers, etc. which previously contained any of the prohibited or limited substances mentioned in document must not be disposed into a sink or drain and must be collected as hazardous waste. Subsequent rinses, in which very low concentrations of these materials exist, may be discharged to a sink or drain. The exception to this rule is if the container contained a P-listed chemical in which case the container must be triple rinsed and the rinsate from each rinse must be collected as hazardous waste. The list of p-coded chemicals is provided here: https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes

MWRA Regulated Substances List

In addition to the prohibited substances above, the MWRA maintains a list of substances allowed to be discharged to the sewer system in **extremely low concentrations**. A building's discharge would include the aggregate discharge of all laboratories and operations throughout a building. Given the volume of chemical usage in our lab buildings and the extremely low thresholds, **the substances on this list are essentially prohibited unless the discharge is in de minimis concentrations.** You should note that the MWRA assesses various permit fees by monitoring and calculating the total quantity of these substances in Harvard's wastewater discharge. These permit fees can add up to thousands of dollars so minimizing or eliminating discharge of these substances will help to control these permit fees.

Regulated Substance	MWRA Daily Maximum Limit (mg/L)
1,1-Dichloroethylene	0.3
Acrolein	0.15
antimony	10
Arsenic	0.5
Benzene	0.3
Cadmium	0.1
Chromium (+6)	0.5
Chromium Total	1
Copper	1
Cyanide	0.5
Toxic Organics	1
Formaldehyde	9
Hexachlorobutadiene	Prohibited
Lead	0.2
Mercury	Prohibited
Nickel	1
PCBs	Prohibited
Pesticides	Prohibited
Phenol	5
Selenium	5
Silver	2
Total Toxic Organics (as a combined total)	5
Vinyl Chloride (Chloroethylene)	0.02
Zinc	1

For labs located in non MWRA areas (Concord, Southboro and Petersham) drain disposal prohibitions will be similar to the above and may have additional limits due to the local waste water treatment system. For additional information please contact ehs@harvard.edu.