

Laboratory Environmental Protection and Safety Procedure (EASR-Aligned)

1. Purpose

This procedure outlines requirements for the safe handling, storage, use, and disposal of hazardous materials in laboratories, ensuring compliance with relevant legislation including Ontario Regulation 1/17 (Environmental Activity and Sector Registry – EASR).

Detailed information is available in the University's Lab Safety Manual and/or Lab Safety Training.

2. Scope

This procedure applies to all personnel working in laboratory facilities where hazardous materials are used, stored, or generated. It will be provided to laboratory supervisors within buildings registered under an EASR to ensure ongoing regulatory compliance.

3. Responsibilities

Laboratory Supervisors:

- Conduct and maintaining hazard assessments
- Ensure completion of department and lab specific training
- Ensure compliance with this procedure and applicable legislation

Laboratory Personnel:

- Follow established procedures and safe work practices
- Complete required training
- Promptly report incidents, spills, and unsafe conditions

Environmental Health and Safety (EHS):

- Provide general training and awareness,
- Conduct inspections and audits
- Lead or support incident investigations

4. Fume Hood

Fume hoods must be used when working with volatile chemicals. Face velocity must be maintained between 80–120 FPM (or 40–80 FPM for low-flow hoods). The sash height should normally not exceed 45 cm while the hood is in use. Verification of face velocities and fume hood alarms is completed annually.

5. Chemical Use and Storage

- Procure and store minimal quantities necessary for work.
- Ensure chemical containers are compatible, intact, and clearly labeled.
- Segregate chemicals by hazard class.
- Store flammable chemicals in approved cabinets meeting ULC/NFPA standards.
- Keep containers closed when not in use.

6. Chemicals with Restricted Usage

Chemicals subject to restricted usage, along with their associated maximum usage values, are identified in Appendix A. Maximum usage values are not to be exceeded.

Restricted-use chemicals must be stored in minimal quantities, and where feasible, in quantities less than the restricted usage threshold values.

Handling of quantities approaching or exceeding the noted thresholds is to be done in a manner that minimizes emissions and ensures adherence to the maximum usage limits. This may include items such as the following:

- use of equipment for decanting (e.g. solvent pumps, pipettes)
- use of closed or filtered systems

7. Hazardous Waste Management

Hazardous waste is to be managed as per University procedures in accordance with applicable regulatory requirements. This includes proper labeling, segregation, and timely disposal.

8. Chemical Inventory

Lab supervisors must maintain up-to-date inventory via the University's chemical inventory system (HECHMET). This supports emergency response, Safety Data Sheet (SDS) access, regulatory reporting, and compliance.

EHS will review HECHMET for chemicals with restricted usage limits annually and communicate findings with lab supervisors.

9. Chemical Spills

Prevent spills using appropriate containment and proper safe handling practices. Labs must maintain spill kits containing absorbents, personal protective equipment (PPE), and tools. Incidental spill response procedures are addressed in the University's Lab Safety Manual.

10. Training and Orientation

Lab personnel must complete Lab Safety training prior to commencing work. Personnel must be trained on:

- Hazards specific to their work
- Emergency procedures
- Locations and proper use of equipment, including eyewash stations, showers, fire extinguishers, exits, and spill kits.

11. Incident Reporting

All incidents must be reported as per University incident reporting procedures.

12. Records and Documentation

Departments and labs must maintain records related to:

- Departmental or lab-specific training
- Inspections and audits
- Incidents and investigations
- Chemical inventory
- Hazardous waste disposal.

Appendix A (Building 38, 88 and 70)

CAS#+solution strength	CAS No.	Chemical Name	Usage Restriction Required	Maximum Use Quantity (g/hour)	Maximum Use Quantity (mL/hour)
75070-100%	75-07-0	Acetaldehyde	Yes	119	152
75058-100%	75-05-8	Acetonitrile	Yes	482	613
107028-100%	107-02-8	Acrolein	Yes	1	2
107131-100%	107-13-1	Acrylonitrile	Yes	4	5
7784421-Gas	7784-42-1	Arsine	Yes	2	750
71432-100%	71-43-2	Benzene	Yes		
95169-100%	95-16-9	Benzothiazole	Yes	482	387
10294334-100%	10294-33-4	Boron Tribromide	Yes	241	93
10294345-Gas	10294-34-5	Boron Trichloride	Yes	241	50284
7726956-100%	7726-95-6	Bromine	Yes	138	44
123864-100%	123-86-4	Butyl Acetate, n-	Yes	174	197
75150-100%	75-15-0	Carbon Disulphide	Yes	2271	1798
56235-100%	56-23-5	Carbon Tetrachloride	Yes	17	10
7782505-Gas	7782-50-5	Chlorine	Yes	40	13789
10049044-Gas	10049-04-4	Chlorine Dioxide	Yes	14	4991
67663-100%	67-66-3	Chloroform	Yes	7	5
506774-Gas	506-77-4	Cyanogen Chloride	Yes	83	32861
19287457-Gas	19287-45-7	Diborane	Yes	69	60836
75343-100%	75-34-3	Dichloroethane, 1,1-	Yes	1135	966
156-59-2-100%	156-59-2	Dichloroethylene, Cis-1,2-	Yes	722	563
540590-100%	540-59-0	Dichloroethylene, Sym-1,2-	Yes	722	575
156605-100%	156-60-5	Dichloroethylene, Trans-1,2-	Yes	722	575
624920-100%	624-92-0	Dimethyl Disulphide	Yes	10	9
75183-100%	75-18-3	Dimethyl Sulphide	Yes	5	6
646060-100%	646-06-0	Dioxolane, 1,3-	Yes	69	65
140885-100%	140-88-5	Ethyl Acrylate	Yes	1	1
60297-100%	60-29-7	Ethyl Ether	Yes	165	231
106934-100%	106-93-4	Ethylene Dibromide	Yes	21	10
107062-100%	107-06-2	Ethylene Dichloride	Yes	14	11
75218-Gas	75-21-8	Ethylene Oxide	Yes	1	764
111308-100%	111-30-8	Glutaraldehyde (100 %)	Yes	6	6
999973-100%	999-97-3	Hexamethyldisilazane	Yes	14	18
822060-100%	822-06-0	Hexamethylene Diisocyanate (HDI) Monomer	Yes	0.21	0

7647010-30%	7647-01-0	Hydrochloric Acid (30 %)	Yes	138	399
7647010-35%	7647-01-0	Hydrochloric Acid (35 %)	Yes	138	333
7647010-40%	7647-01-0	Hydrochloric Acid (40 %)	Yes	138	287
7664393-30%	7664-39-3	Hydrofluoric Acid (30%)	Yes	6	18
7664393-40%	7664-39-3	Hydrofluoric Acid (40%)	Yes	6	13
7664393-50%	7664-39-3	Hydrofluoric Acid (50%)	Yes	6	10
7664393-60%	7664-39-3	Hydrofluoric Acid (60%)	Yes	6	8
10035106-Gas	10035-10-6	Hydrogen Bromide	Yes	192	57906
7647010-Gas	7647-01-0	Hydrogen Chloride	Yes	138	92337
74908-100%	74-90-8	Hydrogen Cyanide	Yes	55	80
7664393-Gas	7664-39-3	Hydrogen Fluoride	Yes	6	7236
7783064-Gas	7783-06-4	Hydrogen Sulphide	Yes	2	1621
110190-100%	110-19-0	Isobutyl Acetate	Yes	288	331
108214-100%	108-21-4	Isopropyl Acetate	Yes	348	399
96333-100%	96-33-3	Methyl Acrylate	Yes	1	1
624839-100%	624-83-9	Methyl Isocyanate	Yes	7	7
74931-Gas	74-93-1	Methyl Mercaptan	Yes	2	1149
110123-100%	110-12-3	Methyl-2-Hexanone, 5-	Yes	109	123
75092-100%	75-09-2	Methylene Chloride	Yes	1514	1141
74895-40%	74-89-5	Monomethyl Amine (40%)	Yes	172	656
13463393-100%	13463-39-3	Nickel Carbonyl	Yes	3	3
10028156-Gas	10028-15-6	Ozone	Yes	47	24111
19624227-100%	19624-22-7	Pentaborane	Yes	7	11
75445-Gas	75-44-5	Phosgene	Yes	310	76581
7803512-Gas	7803-51-2	Phosphine	Yes	69	49513
10025873-100%	10025-87-3	Phosphorus Oxychloride	Yes	83	50
123386-100%	123-38-6	Propionaldehyde	Yes	2	2
79094-100%	79-09-4	Propionic Acid	Yes	29	29
75569-100%	75-56-9	Propylene Oxide	Yes	10	12
110861-100%	110-86-1	Pyridine	Yes	14	14
79016-100%	79-01-6	Trichloroethylene (TCE)	Yes	83	56
75694-Gas	75-69-4	Trichlorofluoromethane	Yes	41285	27747
76051-100%	76-05-1	Trifluoroacetic Acid	Yes	103	67
75503-40%	75-50-3	Trimethylamine (40 %)	Yes	0	1
75014-Gas	75-01-4	Vinyl Chloride	Yes	7	2693
75354-100%	75-35-4	Vinylidene Chloride	Yes	69	57