

Guidelines for Conducting a Chemical Inventory

The first step in developing a comprehensive chemical health and safety plan is to inventory existing chemicals. This may pose significant risks to the individuals taking the inventory and ample time should be allowed to properly conduct the inventory. Serious injury can result from touching or moving chemicals that have become shock sensitive or pressurized. **If any chemical container is unmarked, bulging, leaking, rusted, cracked, or has a degraded top, liquid above a solid, or crystals in a liquid, it should not be moved, even for the inventory.** It is best to be cautious! Contact EHS if you have any concerns.



1. If necessary, cease all other work in the laboratory while performing the inventory and allow ample time to conduct the inventory.
2. Work in pairs and never work alone.
3. One person should act as the recorder and the other person should list the chemicals.
4. Wear appropriate personal protective equipment. This may include gloves, chemical splash goggles, a lab apron, and closed-toed shoes.
5. Use a chemical cart with side rails and secondary containment.
6. Use a safety step stool or a small stepladder if chemicals are stored above eye level.
7. Check that chemicals have legible and appropriate labels – Abbreviations of chemical names are not appropriate as the sole indicator of a chemical's identity.
8. Store flammable solvents that require storage at a reduced temperature in refrigerators or freezers designed for storage of flammable liquids. (**Household refrigerators are not appropriate for the storage of flammable liquids.**)
9. Check that chemicals in freezers are not frozen together or stuck to the sides or shelves. Also, check that containers are placed in secondary containment and are in an upright position.
10. If kits are present, be sure to inventory all chemicals in each kit. Many older kits may contain unlabeled chemicals with only the manufacturer's numbers on them. Record the manufacturer, the chemical number, and the size of the container, and any information concerning the manufacturer such as phone number and address as well as the kit identification number.
11. If preserved specimens are present, record the preservative used. Many specimens contain formaldehyde or ethyl alcohol. (Formaldehyde is a combustible liquid; Alcohols are flammable liquids.)
12. Ensure that any spills or other contamination are cleaned up properly – pay particular attention to cabinets and refrigerators.
13. Discard all chemicals that are no longer useful to your research, expired (or more than 5 years old), or degraded – look for crystals, phase separation, container damage. Properly

pack these chemicals and complete a Hazardous Waste Pickup request to have them removed.

14. If peroxide formers are present, review Wellesley College Peroxide Former SOP

TO UPDATE AND MAINTAIN YOUR INVENTORY ON GOOGLE DOC:

Step1: SELECT YOUR INVENTORY (most titles have the year, lab #, and researcher name)

Step 2: REVIEW of CHEMICAL INVENTORY

The inventory should include hazardous materials and chemicals stored or used in the classrooms, storage areas, and other building areas for cleaning, landscaping, maintenance, operations, and pest control. Include all hazardous materials in your inventory, so the information is readily available to emergency responders.

Chemicals to Be Included in the Inventory

All hazardous chemicals with an NFPA rating of 2 or above need to be included in the laboratory's chemical inventory. The general rule of thumb to know if you should add a chemical or not: if a chemical container has any GHS pictorial indicating a hazard or the diamond on the chemical has a 2 or above in any section, it should be added to your chemical inventory

The list below provides some examples of hazardous materials and chemicals which may be found in various Research/Classroom/Facility areas.

Examples of types of Items Required to be in Inventory:	Examples of types Items Not Required to be in the Inventory:
<ul style="list-style-type: none"> • Acids and Bases and Corrosives • Carcinogenic, mutagenic, or teratogenic materials. • Toxic or poisonous chemicals • Flammable and Combustible Materials • Reactive or unstable materials • Solvents, Thinners, Varnishes, lacquers Resins and Stains • Volatile Organic Compounds (VOCs) • DHS chemicals of interest (COI) • Gasoline, Kerosene, and Diesel fuel • Nitrates, Nitrites • Oxidizers • Sulfates, Sulfites • Ammonia • Bleach • Cleaning agents • Disinfectant products (e.g., soaps, sprays, wipes) • Glass cleaner 	<ul style="list-style-type: none"> • Reagent working solutions • Radioactive materials • Biological materials • Non-hazardous buffers • Growth media • Enzyme preparations • Non-hazardous buffers, sugars, and salts (solid Or liquid form). • Growth media without toxic (to humans) components. • Non-toxic biochemicals (e.g., nucleotides, enzymes, protein extracts, lipids, nucleic acids, etc.). • Commercial assay kits. • Biological specimen (e.g., cell lines, blood or body fluids, antibodies, microorganisms, etc.). • Hazardous waste.

<ul style="list-style-type: none"> • Insecticides • Pesticides • Clay/Plaster-silica <ul style="list-style-type: none"> • Extremely Hazardous Substances as defined by 40 CFR 355, Subpart D. • Controlled substances (DEA listed materials). • Chemicals of Interest (Dept. of Homeland Security listed materials). • 3D Printer Filaments • Welding Rods • Gas Cylinders (i.e.Oxygen, Nitrogen, CO₂) • Lecture bottles • Self-Contained LPG Burner Butane Fuel 	<ul style="list-style-type: none"> • Retail products used for routine household-like activities (cleanser, dish soap, bleach, etc.) with a duration and frequency of exposure that is equivalent to a consumer's home use.
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STEP 3: COMPLETE THE FORM AS OUTLINED BELOW:

- **DEPARTMENT:** Indicate the name of the department or office that controls the hazardous material inventory.
- **BUILDING:** Indicate the building where the material is located.
- **ROOM:** Indicate the room number where the material is located.
- Check the box if the chemical is still in your lab.
- If new chemicals are added, make note that they are new on the form.
- Please format with a strikethrough any chemicals no longer kept in your lab.

PRODUCT NAME: The product name refers to the name that the manufacturer assigns to the product and may be different from the name of the chemical substance contained in the product. For example, Bleach is the name that the Clorox Company assigns to their product that is made of 6.15% sodium hypochlorite (substance name).

For products that have multiple hazardous ingredients (i.e. mixtures or multi-ingredient products), there isn't a straightforward way to inventory each ingredient in the mixture. Put the product name in the compound name field, and in parenthesis include the primary hazardous ingredients including percentages (if known). For example, "Aqua Regia (hydrochloric acid 75%, nitric acid 25%)."
Be sure to include any prefixes, (i.e., n-butanol). **DO NOT USE** abbreviations or chemical formulas.

MANUFACTURER: Indicate the name of the vendor or company that manufactures or sells the chemical listed.

CAS No.: The Chemical Abstracts Service (CAS) Registry Number may be found for specific chemicals on the chemical container, material safety data sheets (SDSs) or at online search sites, available below. This information is critical to the effectiveness of the database. Paints and some chemical mixtures do not have unique CAS numbers. Please include dashes in the number. Example: 7768-77-0

PRODUCT NUMBER: (Required if not a pure chemical with a CAS Number). The product number is not the same as the CAS number.

NUMBER OF CONTAINERS: Indicate the number of containers of chemicals.

AMOUNT: Indicate the total amount of the chemical using a numerical value **ONLY**. Quantities should represent typical amounts; For example, a partially used container is entered as the jar capacity, not how much changed in the past year, e.g., a 500 gram container doesn't need to specify 300 v. 200 grams full, it is just 500 grams.

UNITS: Use the following abbreviations

Unit	Description	Unit	Description
GAL	GALLONS	IU	INTERNATIONAL UNITS
ML	MILLILITERS	LB	POUNDS
L	LITERS	N/A	N/A
MG	MILLIGRAMS	NG	NANOGRAMS
G	GRAMS	OZ	OUNCES
KG	KILOGRAMS	PSI	LBS/SQ INCH
AMP	AMPULES	PT	PINTS
CC	CUBIC CENTIMETERS	QT	QUARTS
CFT	CUBIC FEET	TAB	TABLETS
DR	DRAMS	UG	MICROGRAMS
EA	EACH - UNIT	UL	MICROLITERS
FOZ	FLUID OUNCES	UNI	UNITS
IN	INCHES		

Step 4: Save the newly updated file. Maintain a copy of your inventory for future use as this is an annual reporting requirement.

Room No.	Product Name	Manufacturer or Supplier	CAS #	# of Ctnrs	Amount	Units	Flam Class	Other Physical Hazards	Health Hazards	Comment
			x				x	x	x	

How to Keep an Up-to-Date Chemical Inventory

New Chemicals entering the lab/Facility

Updating chemical inventories and Safety Data Sheets (SDSs) is an ongoing task. As new chemicals or updated SDSs for existing chemicals are received, the corresponding chemical inventory must be updated. At the same time, the web-based database [MSDSonline](#) must be checked to ensure the SDS is available.

Removing used/expired chemicals

When chemicals on your inventory expire, you must remove them from the inventory . Similarly, if the contents are completely used up, remove the item from the inventory prior to disposing.

Redistributing/sharing chemicals with other labs or moving to another location

it is very important not to move chemicals to another location without first deleting them from your inventory and adding to the inventory of the receiving lab.

Lab closing/disposal

Should your lab close or move for some reason, please do not leave any chemicals for the next person moving into the space. If you no longer want the chemicals in your chemical inventory it is required that you follow the procedures for redistributing chemicals should another researcher want them.

Reference

[Prudent Practices in the Laboratory](#)

Handling and Management of Chemical Hazards, Updated Version (2011)