

Non-Manufacturer Container Labeling Requirements

Non-manufacturer containers are often used in laboratories to hold chemicals that have been transferred from their original container, or that have been made in the lab. At the University of Minnesota, all containers in a laboratory that will not be used within a work shift are required to be identified with their contents and associated hazards (or as non-hazardous). The following guidelines will describe labeling methods accepted at the University of Minnesota for non-manufacturer containers.

Definition of Terms

- **Non-manufacturer container:** A container to which a reagent has been transferred to or prepared in. For example, a bottle, flask, vial, or other vessel that is permanent or temporary. A non-manufacturer container is equivalent to OSHA's definition of a 'secondary container'.
- **Shift:** The work shift of the individual who makes the transfer and during which the container is always in their presence. For example, the worker doesn't leave the work area or move the container to an area where they're no longer in possession of it.

Non-Manufacturer Container Labels¹

Often, laboratory operations require transferring chemicals from the original labeled container into a non-manufacturer container (e.g., squirt bottle, beaker, flask, or media bottle etc.). All containers must have a means of communicating their contents and the hazards of those contents either on the container or in the area where the container is stored. Containers must comply with these labeling requirements if any of the following events occur:

- The material is not consumed within the work shift of the individual who makes the transfer.
- The worker who made the transfer leaves the work area.

Fact Sheet

- The container is moved to another work area and is no longer in the possession of the worker who filled the container.

There are several accepted methods of communicating non-manufacturer container hazards at the University of Minnesota.

Methods of Labeling a Non-Manufacturer Container at the University of Minnesota

1. Container Labeling (e.g. Figure 1)
2. Acronym or Symbol Key (e.g. Figure 2)
3. Work Area Labeling (e.g. Figure 3)

Note: Hazardous chemical waste has additional labeling requirements. Detailed requirements for waste can be found in the Hazardous Waste Guidebook here: <http://z.umn.edu/hwgbch4>

Method 1: Container Labeling (Figure 1)

Label every non-manufacturer container with the chemical identity (i.e. sodium hydroxide or NaOH) AND the hazards of the chemical(s) (i.e. corrosive for sodium hydroxide).

Options:

- a. Labels can be purchased or made by the research group as long as they have space for the chemical identity or identities and hazards.
- b. Checkboxes, NFPA labeling system or GHS symbols (Figure 1) can be used to communicate the hazards. Hazards can also be written, in full, on the label (i.e. “corrosive” or “toxic”).
- c. It is best practice to list a reagent transfer date with the initials of the worker who transferred it. This is mandatory for peroxide formers.

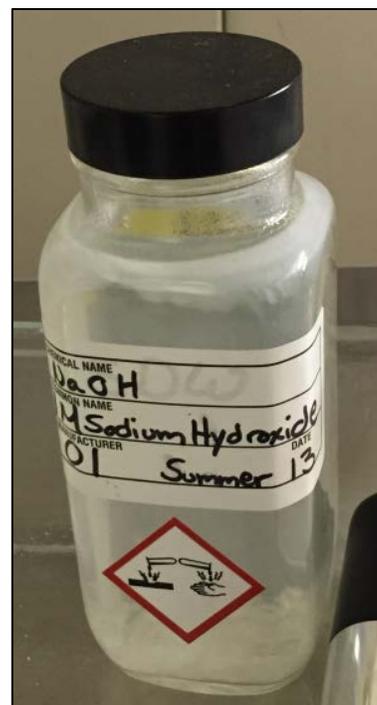
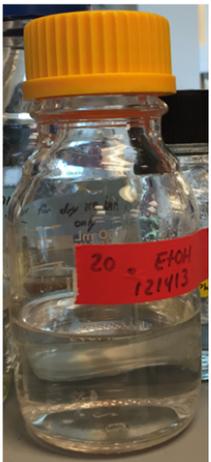


Figure 1: Chemical name and GHS label indicating hazards

Fact Sheet

Method 2: Acronym or Symbol Key (Figure 2)

Label every non-manufacturer container with standard acronyms (i.e. EtOH for ethanol), chemical formulas (i.e. C₂H₆O for ethanol) or a reasonable symbol (i.e. color coded stickers) AND post a highly visible key that lists the chemical name and hazard associated with that acronym, formula, or symbol. Note: this key must be posted in each separated lab room (i.e. main lab and tissue culture room).



Bottle of ethanol labeled with an acronym

CHEMICAL ABBREVIATION KEY		
For complete safety information, please consult the SDS (formerly MSDS). Online versions can be found at http://www.hazard.com/msds/index.php Designed by: Rebecca Cuellar, Ph.D. of the UMN Institute for Therapeutics Discovery and Development		
Abbreviation	Chemical Name	GHS Hazards
anis.	anisaldehyde stain	
BCG	bromocresol green stain	
CAM	ceric ammonium molybdate stain	
CAN	ceric ammonium nitrate	
CDCI3	deuterated chloroform	
DI H2O	deionized water	N/A
DCM, CH2Cl2	dichloromethane (methylene chloride)	
DMAP	4-(dimethylamino)pyridine	
DMEM	Dulbecco's modified Eagle's medium	
DMF	dimethylformamide	
DMSO	dimethylsulfoxide	
Et2O	diethyl ether	
EtOAc	ethyl acetate	
EtOH	ethanol	

Posted key listing acronym and name

Health Hazard Carcinogen Mutagenicity Reproductive Toxicity Respiratory Sensitizer Target Organ Toxicity	Flame Flammables Pyrophorics Self-Heating Emits Flammable Gas Self-Reactives Organic Peroxides	Exclamation Mark Irritant (skin and eye) Skin Sensitizer Acute Toxicity (harmful) Narcotic Effects Respiratory Tract Irritant Hazardous to Ozone Layer
Gas Cylinder Gases Under Pressure	Corrosion Skin Corrosion/Burns Eye Damage Corrosive to Metals	Exploding Bomb Explosives Self-Reactives Organic Peroxides
Flame Over Circle Oxidizers	Environment Aquatic Toxicity	Skull and Crossbones Acute Toxicity (fatal or toxic)
Not Applicable/Non-Hazardous N/A or ●		

Posted explanation (or lab training) of GHS symbols

Figure 2: A secondary container with an acronym (EtOH) on the label is accompanied by a posted key listing the acronym and the hazards of the chemical.

Method 3: Work Area Labeling (Figures 3 and 4; next page)

Label non-manufacturer containers with your laboratory convention (i.e. acronyms, chemical formulas, sample number, or symbols) AND store the containers with chemicals of the same hazard class in an area or storage bin that is labeled with the hazards of the material. These containers MUST return to the storage area at the end of the work shift.

Fact Sheet

Examples:

- Anything too numerous of the same hazard that labeling is impractical (Figure 4)
- Anything too small to support a label (i.e. containers less than 10 mL)

Hazard and content identification **must** be present on the sample holder or shelf/cabinet area these where samples are stored but does not have to be on *individual* samples.



Figure 3: Research samples labeled with initials, notebook number are contained within a holder labeled with the hazards

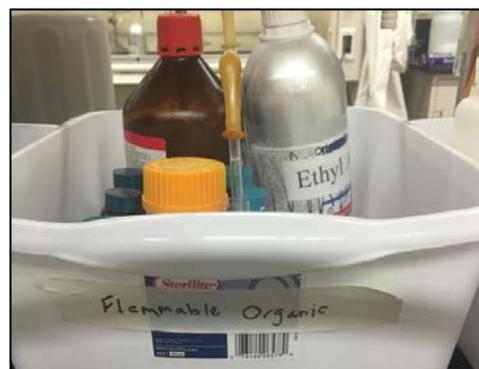


Figure 4: Secondary containers labeled with chemical names are in a bin labeled with hazard

Note: This also applies to flasks of reactions that are running beyond one work shift. They require a label (i.e. protocol or lab notebook number) AND an area label indicating hazards (i.e. on the hood or benchtop near the reaction). As a best practice, this label should detail intended conditions (temperature, pressure etc.) and the reaction vessel should also be labeled with initials and a notebook number for lab reference.

Getting Assistance

DEHS is available to assist with chemical labeling and storage guidance, interpreting SDSs and determining the safest ways of using chemicals. DEHS also has available guidelines for conducting hazard assessments and selecting appropriate PPE. Always remember that your Department Safety Officer is a great resource for department-specific safety information. For a list of Department Safety Officers, please visit: http://www.dehs.umn.edu/PDFs/rso_list.pdf.

Fact Sheet

For More Information, Please Contact:

University Health and Safety

Website: www.dehs.umn.edu

Phone: 612-626-6002

Email: dehs@umn.edu

To contact the Research and Laboratory Safety Professional assigned to your area, see the table below:

<i>If you work in</i>	<i>Contact</i>
Academic Health Center	Sabine Fritz, fritz017@umn.edu , (612) 625-7227
College of Food, Agricultural and Natural Resource Science	Greg Hansen, hanse245@umn.edu , (612) 301-1158
College of Biological Sciences, College of Pharmacy	Jodi Ogilvie, jogilvie@umn.edu , (612) 301-1214
College of Science and Engineering Biomedical Engineering, CharFac, Chemical Engineering & Material Science, Chemistry, Civil Engineering, MN Nano Center, and Earth Sciences	Anna Sitek, engl0131@umn.edu , (612) 625-8925
College of Science and Engineering Aerospace, Mechanical, and Electrical Engineering, Physics, SAFL	Kate Greenberg, kgreen15@umn.edu , (612) 626-2707
Research and Outreach Centers	Paul Serafini, seraf006@umn.edu , (612) 625-8043

Resources:

OSHA quick cards:

- Labeling and Transfer of Chemicals: <http://z.umn.edu/oqchazclab>
- Hazard Communication Standard Pictogram: <http://z.umn.edu/oqchazcpic>
- Hazard Communication Standard Labels: <http://z.umn.edu/oqclandt>

Sample chemical abbreviation key: <http://z.umn.edu/chemabbrev>

Sample container labels: <http://z.umn.edu/averylabels>

¹ OSHA 1910.1200(f)(6) – Workplace labeling