

Guidelines for Conducting a Chemical Inventory

Introduction

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. Only those who have technical knowledge about the chemicals should be involved in the inventory; students should never be involved! In some cases an inventory may take two people many hours to complete; it's important not to underestimate the amount of time required to complete the inventory. Administrators may not be aware of the time commitment and the importance of an accurate inventory, therefore it is very important to educate them. If you are new to the school and/or a recent inventory has not been conducted you need to be especially cautious. 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!

In most cases the inventory will need to be used to generate a disposal list and to determine the quality of the chemicals to be retained. Hazardous waste removal companies require very specific information. Therefore, it is important to include as much information about the chemical to avoid unexpected price changes. For example, anhydrous aluminum chloride is much more expensive to dispose of than is hydrated aluminum chloride. In developing a disposal list it is important to list the proper chemical name, the size of the container and the approximate amount present.

Suggested procedure:

1. Allow ample time to conduct the inventory.
2. Have a plan to deal with potential explosives if they are found. Will the local or state bomb squad remove the potential explosives? What agencies need to be alerted? What is the procedure for removal of potential explosives? Will the school have to close until the chemical is removed? Notify your local authority (e.g. fire dept.) that you will be doing an inventory, especially if this is the first inventory in several years.
3. Work in pairs and never work alone. It is best if one team does the entire inventory.
4. Be sure the areas in which you are working have adequate lighting.
5. Wear appropriate personal protective equipment. This should include gloves, chemical splash goggles, a lab apron and closed toed shoes.
6. Provide access to a phone, eyewash and a safety shower.
7. Have a written response plan nearby in case of a spill or accident.
8. One person should act as the recorder and the other person should list the chemicals. Be sure to pronounce the chemical correctly; the recorder should read the chemical name after it is recorded to confirm it is correct.

9. Enter the storage area and develop a general feel for the area. Is this a room in which no one has been in five years? Are there obvious vapors; are broken containers present? Are the shelving units secured to the walls? How is the lighting? If above eye level storage is present use a safety step stool or a small stepladder to reach the top shelf.
10. Record the room number and the date on your record sheet. Also indicate where in the room the inventory begins. Starting on the top shelf record the name of each chemical, the size of the container, the type of container, the approximate amount of chemical present, the condition of the container (i.e. rust, cracks, degraded top, bulging, liquid above a solid, crystals in a liquid), the presence of spills, defects in the shelving or its supports, corroded wires or gas lines or any other indicator of a hazard present. Do not touch or move chemicals if they are listed as potential explosives or the container appears distorted in any manner. **Serious injury can occur from merely touching the top of a container of picric acid or expired ethyl ether. Use extreme caution not to knock any container to the floor.**
11. Be sure you record all containers and record as much information as possible. For example, if ethyl ether is present record its lot number, expiration date and the manufacturer. **Do not touch the container.** You only want to conduct the inventory once and you want to gather as much information as possible. If the inventory is conducted over several days be sure you mark where you stopped at the end of the day.
12. If kits are present be sure to inventory all chemicals in each kit. Many older kits may contain unlabeled chemicals with only manufacturer's numbers on them. Although kits are particularly time consuming to inventory, each container must be identified. 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. Do not ignore the kits; many contain carcinogens such as cadmium powder or toxic chemicals such as sodium azide.
13. If preserved specimens are present, record the preservative used. Contact the supplier to determine if the specimens are capable of outgassing formaldehyde. Many specimens contain some formaldehyde.
14. Be sure to examine all areas in each room including desks.
15. Once the inventory is developed, the next step is to decide if any immediate response is required. Does any chemical present pose a significant risk if not addressed immediately? This is a difficult question to answer particularly if potentially explosive chemicals are present. If you have a chemical health and safety committee or a chemical hygiene/safety officer they should discuss the situation with the principal and the local fire chief.

This inventory procedure was adapted from Chem Info Net. Additional information can be found on their web site, <http://cheminfonet.org>. The Montana Department of Environmental Quality takes no responsibility for the accuracy, content or completeness of the inventory procedures described above, nor for the safety of those following these procedures. Conducting a chemical inventory may be hazardous and those who do so should proceed with extreme caution. A school should consider contracting a licensed Hazardous Waste disposal firm to conduct the inventory and dispose of any hazardous waste.