About This Brochure

This document provides Washington and Lee University employees with important information regarding the safe use of chemical substances. Under the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, all workers are guaranteed the right to know about possible hazards associated with chemical substances found in their work environment. Please review this information carefully. It could help prevent serious injury to you or a fellow worker. This brochure is provided to all Washington and Lee employees. Individuals who work directly with hazardous chemicals will receive additional information and training from their supervisors.

Chemicals and Our Environment

There are more than a half-million different chemicals used in this country every day. Many more are introduced each year. They enhance our lives and have become an integral part of our lifestyles. Chemicals are found in nearly every work environment. Some are as common place as correction fluid, but in a workplace such as Washington and Lee University, many complex and highly toxic chemicals are used as well, in both the educational as well as the day to day operations. It is necessary to become familiar with all of the chemical substances present in your work environment, the appropriate precautions required to handle them safely, and the first aid and emergency procedures unique to those substances should an accident occur.

Routes of Entry Into the Body

There are tree basic ways in which a chemical can enter the body:

1. Inhalation: The most common way for a chemical substance to enter the body is by breathing a chemical that is mixed in the surrounding air. The lungs readily absorb particles and gases. Hazardous chemicals that can become airborne should only be used in well ventilated areas or while using proper respiratory protection.

2. Ingestion: The second way that chemicals enter the body is through the mouth. Ingestion of chemicals is usually done unknowingly and unintentionally. Occasionally, a person ingest a chemical they mistake for a food or beverage. More likely however, chemical ingestion occurs when an individual eats, drinks, or smokes contaminated food, beverage, or cigarettes. To prevent ingestion of chemicals, wash your hands thoroughly before breaks.

3. Absorption: The third way that chemicals enter the body is through the skin. Chemicals such as organic solvents and mercury can be absorbed directly through the skin barrier. Other chemicals can cause damage to the protective layers of the skin and then be readily absorbed. To protect yourself from accidental absorption, wear appropriate personal protective clothing such as gloves, impervious aprons, face shield, etc.

The Hazard Communication Standard

The Hazard Communication Standard is required by federal law. The following outlines the various steps required to comply with the standard:

- Develop and maintain an accurate inventory of hazardous materials present in the work environment. Collect and maintain safety data sheets (SDSs) for each item in the inventory.
- Make sure that hazardous chemicals are properly labeled. Under the law, the manufacturer has the responsibility to properly label their products. We must label any secondary containers into which we transfer hazardous materials.
- Train employees to safely handle hazardous materials. This includes selection, use and maintenance of appropriate personal protective equipment.
- Develop written standard operating procedures for safely managing chemical spills and non-routine tasks.
- Inform employees about the availability and use of chemical inventory, SDSs, and standard operating procedures for managing hazardous chemicals safely.

Chemical Inventory

Washington and Lee University must compile a list of hazardous chemical substances. The list must be maintained in an area readily available to all employees. As new substances are purchased or old ones are discontinued, the inventory must be updated to reflect these changes. The Safety Office maintains chemical lists and SDSs for all of the university except the laboratories, the laboratories keep their own list as a part of their Chemical Hygiene Plan. These lists are available upon request.

Safety Data Sheets

The Hazard Communication Standard requires that manufacturers of chemical products provide the consumer with Safety Data Sheets (SDSs). An SDS must provide the following information:

1. Identification
2. Hazard(s) Identification
3. Composition/Ingredient Information
4. First Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transport Information
15. Regulatory Information
16. Other Information

To be compliant, all 16 sections of a SDS are required.

The University must maintain an accurate collection of SDSs for each substance found in the chemical inventory. SDSs are resources which can help one better understand safe handling of a chemical substance. SDSs must be reviewed by all employees to help them fully understand the associated health hazards. SDSs should be reviewed prior to emergencies, not just used as a tool to handle emergencies. Emergency procedures must be anticipated, planned for and reviewed before an incident occurs.

SDSs may be obtained in a variety of ways. Departments may contact the Safety Office for assistance in acquiring an SDS. Requests to the Safety Office for assistance need to include: chemical name, product number, and manufacturers' name, address, and phone number. The SDS may have been shipped directly with the product, in this case the original should be sent to the Safety Office and a copy may be retained by the department if desired. SDSs may be accessed via the Internet or other computer media; however, hard copies must be kept in the file in the Safety Office. SDSs can be obtained directly from the manufacturer or distributor - many companies will fax a copy immediately.

Labels And Other Forms Of Warning

OSHA requires that manufacturers of chemicals label their products with the following information:

- identity of the hazardous chemical
- appropriate hazard warnings
- the name, address, and phone number of the manufacturer
- Signal word – either DANGER or WARNING depending upon hazard severity
- Hazard statements – Standardized sentences that describe the level of the hazards
- Precautionary statements – Steps employees can take to protect themselves

If chemicals are transferred to other containers, these containers must be labeled with the identity of the chemical and the appropriate hazard warning information.

Employee Information and Training

New employees are encouraged to attend a safety orientation training program which will include training on the Hazardous Communication Program. The safety orientation training will be conducted periodically. For those employees who will be working directly with hazardous materials, their supervisors will provide them training on specific hazards within the work area. This will include SDSs, department policies, departmental safety procedures or other pertinent information. This training must cover (at a minimum) the following topics:

- chemicals used in various work procedure
- personal protective equipment to be worn to prevent or reduce exposures
- work practices which could reduce or eliminate exposures (e.g., universal precautions)
- safety and emergency procedures to follow if exposure occurs (i.e., spill cleanup kits, first aid, substance neutralizers, etc.)
- the location and availability of the chemical inventory, and SDSs.

Hazard Communication training must be documented, and include the employee's name, date of training, and type of training. Retraining is required whenever a job process changes which involves different or additional hazards and as necessary to enhance employee awareness.

Chemical Effects

Chemical substances come in several different forms and can have different effects on your body. Some chemicals cause "acute" problems that you feel right away such as breathing difficulties and rashes. Other chemicals cause "chronic" problems where the effects of exposure may not be evident for months or even years. An example of chronic effects is the respiratory problems caused by smoking.

Types of Chemical Substances

Some forms of chemicals which you may come in contact are:

1. Fumes, Mists and Dusts - All of these substances are carried in the air and may be inhaled; they can cause breathing problems and may also cause burning and stinging of the nose, throat, and eyes. Adequate ventilation and proper protective equipment will limit your exposure to these substances.
2. Solvents - These products are used in several work locations and are used to dissolve other substances. Common examples are degreasers and paint thinners. These products commonly affect the skin, causing drying and cracking. The fumes or vapors from these products may also cause breathing problems. Wear gloves and work in well ventilated areas when using solvents.
3. Acid and caustic substances - These products damage the skin and burns the eyes. Examples are drain cleaners and oven cleaners. Protection from acids and caustics would include protective clothing, gloves, and goggles.

If you have any questions regarding the safe use of chemicals in your work environment, please contract your supervisor. For additional information, please contact the Safety Office.

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Employee Right-To-Know

Hazard Communication for a Safer Work Place

Safety Office 540-458-8175