

North Dakota State University

Hazard Communication Program

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Review and Approval Authority

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Date: June 2008

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HAZARD COMMUNICATION PROGRAM

I. Introduction

The Hazard Communication Program (HCP) at North Dakota State University establishes uniform requirements for the protection against chemical hazards and provides hazardous chemical information to all potentially exposed employees. The Program also promotes safe work practices in an effort to reduce the incidence of chemically related employee illness and injury. Hazardous chemicals include all physical forms – liquids, solids, gases, vapors, fumes, dusts, and mists – whether they are contained or not.

II. Purpose

NDSU has provided a written Hazardous Communication Program in order to distribute data to its employees on the safe handling of hazardous chemicals in the workplace and to outline the employee's right and responsibilities in order to better protect themselves.

This program will include the following:

- Location, identification, and listing of the hazardous chemicals in the workplace.
- Maintenance of the Material Safety Data Sheets (MSDS).
- Labeling requirements of the hazardous chemicals in the workplace.
- Training and procedures for routine and non-routine tasks.
- Procedures to inform contractors about hazardous chemicals their employees' maybe exposed to.
- Procedures for contractors to inform NDSU of hazardous chemicals they bring in.

NDSU's HCP is maintained at the University Police & Safety Office (UP&SO). This program will be available for inspection, upon request, by all employees and their designated representative.

III. Organizational Responsibility

A. University Laboratory and Chemical Safety Committee – focuses on laboratory research and educational activities at NDSU, ensuring compliance with regulatory changes regarding hazardous chemical management.

B. UP&SO will be responsible for the coordination and implementation of the NDSU HAZARD COMMUNICATIOIN PROGRAM, keeping apprised of regulatory revisions, recommending safety related actions and policy changes.

1. Develop and instruct safety training for NDSU employees and students on the handling of hazardous substances, personal protective equipment, and the effects of exposure. This includes teaching the Laboratory and Chemical Safety Short Course.
2. Cooperates with the departments in adhering to the Hazard Communication Program. Maintain employee-training records.
3. Collect and maintain a master inventory list of hazardous chemicals, and a centrally located Materials Safety Data Sheet (MSDS) file for hazardous chemicals. Assists each department with maintaining their MSDS file system.
4. Identifies and maintains an approved labeling system for hazardous substances. NDSU uses the National Fire Protection Association (NFPA) Labeling System.
5. Has authority to suspend any activity posing imminent danger.

C. Supervisor – Department Chairman, Branch Station Superintendent or Designated Representative

1. Implements and maintains departmental safety with on site application and management of the Hazard Communication Program.
2. Maintains a current inventory of the hazardous chemicals in their specific department or location. Maintains current MSDS files.
3. Maintains the National Fire Protection Associations (NFPA) Labeling System.
4. Trains employees in safe use of hazardous chemicals, personal protective equipment, and emergency procedures. Maintains employee-training records.
5. Forwards listings of new and transferred employees to the Hazardous Chemical and Safety Officer for training.

D. Employee Responsibilities

1. Be informed of the location and availability of the written hazard communication program, the list of hazardous chemicals, and the MSDS files.
2. Attend all appropriate training sessions.
3. Be informed of the hazardous chemicals for their job tasks and at their work area.
4. Apply, maintain and understand the National Fire Protection Association (NFPA) labeling system.
5. Be familiar with the MSDS for hazardous chemicals in the work area.
6. Practice safe working procedures with routine and non-routine tasks.
7. Follow the requirements of this program.

IV. Scope/Application

This HAZARD COMMUNICATION PROGRAM applies to all activities that occur on campus or by campus personnel at off campus locations.

V. Hazardous Material Safety – General

Assume all chemicals are hazardous until you know otherwise. The number of hazardous materials and the number of reactions between them are so large that prior knowledge about their potential hazards is paramount. Use hazardous materials in as small of quantities as possible to minimize exposure and reduce possible harmful effects. Below are some general safety recommendations that are important when working with hazardous materials:

- Read and understand Material Safety Data Sheets.
- Substitute less toxic materials whenever possible.
- Do not underestimate the risks of hazardous materials particularly when they are mixed.
- Limit the volume of hazardous materials to only that which is needed for the operation.
- Keep incompatible materials segregated.
- Use appropriate safety equipment
- Avoid ingestion. Do not eat, drink, or apply cosmetics in areas where hazardous materials are used. Wash hands with soap and water immediately after working with hazardous materials, even if gloves have been worn.
- Do not deface labels and hazard warnings placed on containers by the manufacturer.

- Label all containers that have had hazardous materials transferred into them with all the appropriate information.
- Be prepared for accidents. Know what action to take, how to warn others, and the location of safety equipment in case accidental releases of hazardous material occur.
- Provide secondary containment for hazardous materials whenever feasible. Make sure appropriate spill control equipment is readily available when secondary containment cannot be used.
- Keep work areas clean and orderly.

VI. Non-Routine Tasks

The supervisor of an employee performing a non-routine task such as cleaning process equipment is responsible for properly training the employee concerning the potential hazards associated with the task. Personnel also share in this responsibility by making sure that their immediate supervisor knows that the non-routine task will be performed.

VII. Hazardous Chemical Inventory

Each authorized department/user is accountable for the hazardous substance in their possession from the time of receipt to its final disposal or depletion. Each department will maintain a list of all its hazardous chemicals, follow appropriate labeling procedures, and update its hazardous substance information periodically.

The University Police & Safety Office will maintain a master list of the hazardous chemicals known to be present, used or stored at NDSU. It will be available for review, upon request, to all employees or their designated representative. UP&SO will work with each department to maintain and update its list of currently used hazardous chemicals. MSDSs are to be maintained for the chemicals on the inventory list.

VIII. Labeling and Chemical Identification

Proper identification of chemical substances in any container, prior to use, is mandatory. Labels should be easy to read in order to determine contents and assess hazards. Labels must be legible and displayed clearly. Labels should be on all storage containers, containers of transfer, dispensers and pipes that may contain hazardous chemicals. Labels and warning may be in a second language if necessary. The National Fire Protection Association (NFPA) labeling system is used. The UP&SO will have a designated person responsible for maintaining the labeling system and transportation of in-house containers for shipment, waste transfer, or disposal. Employees will not remove or deface existing labels or warnings unless the container is immediately relabeled.

Materials known or suspected as being hazardous must be labeled as hazardous. Chemical manufacturers, importers, and distributors provide labels, tags or other markings for containers of hazardous chemicals. This identification includes the following information

- Identity of the hazardous chemical (secondary containers must also contain this).
- Appropriate hazard warnings (secondary containers must also contain this, see Appendix C).

- Name and address of the chemical manufacturer, distributor, or other responsible parties.
- Carcinogens over 0.1% must be labeled as a carcinogen.
- Occasionally, signs, placards, process sheets, batch tickets, operating procedures, or similar accessible written materials may be used instead of affixing labels to individual containers.
- Secondary containers of hazardous chemicals do not have to be labeled if they contain chemicals transferred from labeled containers, which are intended only for the immediate use of the employee who performs the transfer and the secondary container is empty at the end of the shift in which the transfer was made.
- Labels on incoming containers of hazardous chemicals must not be removed or defaced.
- Do not deface labels on incoming containers in any way. Missing or defaced labels must be immediately reported to the supervisor so appropriate labels can be re-applied immediately.
- Empty containers should be promptly disposed of. If an empty container is retained for re-use, it should be stored with the word RESIDUE associated with its label until it is cleaned of hazardous residue. Once cleaned, hazard warnings must be removed, defaced, or covered.

IX. Material Safety Data Sheets (MSDSs)

MSDSs are prepared and distributed by manufacturers and distributors of hazardous materials. All chemical manufacturers and distributors must obtain or develop an MSDS for each hazardous material they produce or import. A hazardous material is one that is either a physical hazard (i.e., flammable, oxidizer, etc.) or a health hazard (i.e., causes acute or chronic health effects). See Appendix A for a detailed description of hazardous materials.

A copy of MSDSs received by Central Receiving or other departments must be sent to the University Police & Safety Office. Upon receipt, the UP&SO will enter the MSDS into a master MSDS database. This database will be utilized in the organization and storage of MSDSs and will serve as a list of the hazardous materials present on the NDSU campus. Hazardous chemicals created at or exported from NDSU must have a MSDS created to inform potential users of materials potential hazards. Appendix B contains information on the creation of MSDSs.

MSDSs must be in English and contain at least the following information (Appendix B contains additional detail):

- Name, Address, and telephone number of the manufacturer or distributor.
- The identity of the chemical.
- The physical and chemical characteristics.
- Fire, explosion, or reactive data.
- The physical and health hazards.
- Primary routes of entry.
- Exposure limits.
- Precautions for safe handling and use.

- Controls to limit exposure.
- Emergency and first aid procedures.

A. MSDS Availability

The UP&SO maintains copies of all MSDSs for each hazardous material at NDSU and makes them accessible. It is important for employees to review the MSDSs for the materials they work with. They also may request a copy of an MSDS if they wish. It is the supervisor's responsibility to make sure that copies of MSDSs for hazardous materials used in each work area, are maintained in or near the work area in an accessible location during each work shift, and are kept current. Supervisors must also make certain that MSDSs are available for work being conducted at off-site locations, unless the employee can immediately obtain the information in an emergency.

MSDSs may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals when it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, it is still the supervisor's responsibility to make sure that the required information is provided and accessible for each hazardous chemical during each work shift to employees in their work areas.

B. Exemptions to MSDSs (MSDSs are not required for the following):

- Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard these products pose to employees is the potential for flammability or combustibility.
- **Note:** Wood or wood products which have been treated with a hazardous chemical and wood which may be subsequently sawed, cut, or generate dust, are not exempted. In addition, steel and similar products that will be cut, ground, etc. to produce dust require MSDSs.
- Food or alcoholic beverages, which are sold, used, or prepared in a retail establishment (such as a grocery store, restaurant, or drinking place), and foods intended for personal consumption by employees while in the workplace.
- Cosmetics, which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal use by employees while in the workplace.
- Any consumer product or hazardous substance* that is used as intended by the chemical manufacturer or importer of the product. The material must also be used in a fashion that results in a duration and frequency of exposure that is not greater than the range of exposures that could reasonably be experienced by consumers. * As defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.)
- Particulate material (e.g., floor dry) where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard.
- Ionizing and non-ionizing radiation.
- Biological hazards.

X. Contractors and Working Visitors

Information regarding this Hazard Communication Program must be conveyed to contractors and working visitors who will have reasonable potential for exposure to

hazardous materials used and stored at NDSU while performing their duties. NDSU personnel have the right to know about the hazards of materials that will be brought into their work area by contractors and working visitors as well. Therefore, when hazardous materials are present, the NDSU employees who are coordinating the work activity are responsible for facilitating the exchange of the following information:

- A brief description of the work that will be performed.
- Physical and health hazards that will be in the work area.
- Location of MSDSs (when work will be performed by the contractor/visitor in work areas where hazardous materials in the area are of concern).
- A list of the hazardous materials that will be brought on-site by the contractor/visitor.
- Location of MSDSs for hazardous materials the contractor/visitor will have on-site and how to obtain copies. A copy of a MSDS for each hazardous material brought onto the site should be requested if the contractor/visitor does not maintain a readily obtainable field set.
- Recommended personal protective equipment that must be worn for personnel to adequately protect themselves.
- Evacuation and emergency procedures.

Without prior notification, exposure to hazards may not be able to be avoided. Copies of MSDSs for all hazardous materials the contractor's employees may be exposed to are available to the contractor upon request through the UP&SO. Please see *Appendix D* for an example of a form that can be filled out to inform contractors of on-campus chemical hazards in their work area.

XI. Hazardous Chemical Emergencies

Hazardous Materials Response:

- Call 911 when the situation poses immediate danger to people, property, or process.
- Notify others in the area that a release has occurred.
- Evacuate the area if necessary.
- Attend to injured and exposed people.
- Identify the hazardous material.

Contact the University Police & Safety Office for assistance or consultation.

XII. Training

Employees shall be informed of the Hazardous Communication Program, the Hazardous Communications Standard and its requirement for NDSU.

The UP&SO, in conjunction with the departmental supervisors or designated person at each department, is responsible for training employees in the "Right to Know Program" and in hazardous chemical management. They will provide information, give demonstrations, and provide hands on training to the employees with regard to hazardous substances. Employee training records will be maintained in the departments and at the UP&SO. Training will be provided at the following times.

1. Upon initial assignment. Applies to full time or part time employees that are new or transferred to a new position or work area that has hazardous chemicals different from those in which they were previously trained.
2. When a new hazardous chemical is introduced into the work area, upon review of new MSDS, and when the supervisor determines additional training is required.
3. Periodically thereafter.

Employee training will include the following:

1. Methods to identify physical and health hazards associated with potential exposure to chemicals in the workplace. Identification of hazardous substances.
2. Procedures to protect against hazards during routine and non-routine tasks; including use of personal protective equipment, work practices, control strategy and emergency procedures.
3. Location and availability of the written communication program, the list of hazardous chemicals, and the material safety data sheets.
4. Identification and use of the appropriate labeling systems.
5. Procedures for working with contractors and hazardous chemicals.

APPENDIX A

Definitions:

Hazardous Chemical: Any chemical that is a physical hazard or a health hazard.

Physical Hazard: Refers to a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water reactive.

Health Hazard - Refers to a chemical for which acute (short term) or chronic (long term) health effects may occur in exposed employees. The term Health Hazard includes chemicals which are carcinogens, toxic agents, reproductive toxins, irritants, corrosives, sensitizers, neurotoxins, agents which act on the hematopoietic (blood and blood-forming) system, and agents which damage the lungs, skin, eyes, or mucous membranes. Carcinogen: A chemical that has been proven, or is suspected to cause an increased likelihood of the development of cancer. There are thirteen chemicals listed by OSHA, but many others are suspected.

Carcinogen - A chemical is considered to be a carcinogen if:

- It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen.
- It is listed as a carcinogen or potential carcinogen in the Annual Report Carcinogens published by the National Toxicology Program (NTP) (latest edition).
- It is regulated by OSHA as a carcinogen.

Highly toxic - A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD(50)) of 50 milligrams or less per kilogram of body weight administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD(50)) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC(50)) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

Toxic - A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD(50)) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

- A chemical that has a median lethal dose (LD(50)) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC(50)) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

Corrosive: A highly toxic chemical that causes visible destruction of, or irreversible alterations in living tissue by chemical action at the site of contact. These chemicals include acids with a pH of 0-7, bases with a pH of 7-14. Both acids and bases are commonly used as cleaning agents.

Irritant: A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

Sensitizer: A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction after repeated exposure.

Target Organ effects: (Toxic substances):

- *Cutaneous Hazards:* Chemicals which affect the dermal layer of the body (e.g., defatting of the skin; rashes). Irritation chemicals: ketones; chlorinated compounds
- *Hepatotoxins:* Chemicals which produce liver damage (e.g., jaundice; liver enlargement). Chemicals: Carbon tetrachloride; nitrosamines
- *Eye Hazards:* Chemicals which affect the eye or visual capacity (e.g., conjunctivitis, corneal damage). Chemicals: Organic solvents; acids
- *Nephrotoxins:* Chemicals which produce kidney damage (eg., edema; proteinuria). Chemicals: Halogenated hydrocarbons; uranium
- *Neurotoxins:* Chemicals which affect the nervous system (e.g., narcosis; behavioral changes; decrease in motor functions). Chemicals: Mercury; carbon disulfide
- *Hemato-poietic agents:* Decrease hemoglobin function; deprive body tissues of oxygen (e.g., cyanosis; loss of consciousness). Chemicals: Carbon monoxide; cyanides
- *Agents which damage the lung:* Irritate or damage pulmonary tissue (e.g., cough; tightness in chest; shortness of breath). Chemicals: Silica; asbestos
- *Reproductive toxins:* Affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis) (e.g., birth defects; sterility). Chemicals: Lead
- *Route of Entry:* The pathway by which a harmful substance enters the human body. The four routes of entry include:
 - *Inhalation:* The most common route of exposure for most health hazards. This includes breathing in dust, fumes, oil mist, and vapors from solvents and various gasses.

- *Absorption*: The route of exposure where chemicals are absorbed into the body through skin contact. Wearing protective clothing is important to prevent chemicals from being absorbed through the skin.
- *Ingestion*: The swallowing (ingestion) accidental or otherwise of chemicals that are health hazards.
- *Injection*: The route of exposure where the chemicals enter the body due to a puncture or an object penetrating the skin.

APPENDIX B

MSDS Information:

Information in this section is provided as a reference for the preparation of an MSDS. The use of existing MSDSs may be helpful for wording in preparation of several sections. A sample form and MSDS are attached as examples. Contact the UP&SO for additional MSDS samples.

Generic MSDS:

http://www.ndsu.nodak.edu/ndsu/police_safety/safety/NDSU%20Safety%20Officer%20Homepage_files/Material%20Safety%20Data%20Sheet.pdf

Preparing and Understanding MSDS:

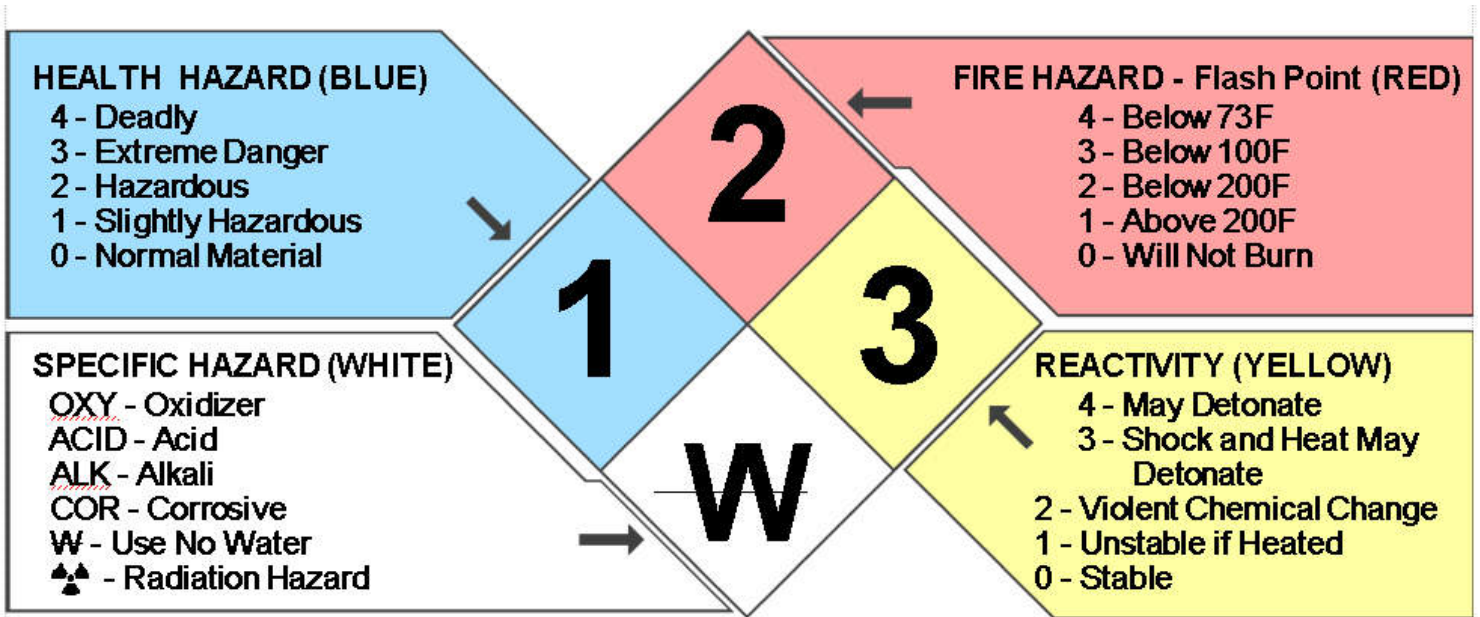
http://www.ndsu.nodak.edu/ndsu/police_safety/safety/NDSU%20Safety%20Officer%20Homepage_files/msds.pdf

MSDS Online:

<http://www.ilpi.com/msds/index.html>

APPENDIX C Hazard Communication Program

National Fire Protection Association's 704 Marking System



APPENDIX D

Hazard Communication Contractor/Working Visitor Form

(NDSU Department Name)

(Contractor/Working Visitor)

It is NDSU policy that facilities using hazardous materials inform contractors and working visitors of the chemical and physical hazards presented in the areas where contractors/working visitors may be working. The following is a guide that may be used to transfer this information.

Brief Description of the Work to be Performed: _____

Potential Hazards (Physical and Health) in the Work Area: _____

Material Safety Data Sheet (MSDS) Locations (both NDSU and Contractor/Working Visitor):

MSDSs Supplied by NDSU (not required unless requested): _____

MSDSs Supplied by Contractor (not required unless requested): _____

Recommended Personal Protective Equipment:

Hard Hat

Gloves

Safety Glasses

Boots

Chemical Splash Goggles

Coveralls

Apron

Slicker Suit

Respiratory Protection: _____

Other: _____ (Hearing Protection, etc.)

NDSU Signature _____ Date: _____

Contractor/Working Visitor Signature _____ Date: _____