

CARLSBAD ENVIRONMENTAL MONITORING & RESEARCH CENTER
New Mexico State University

Hazard Communication/Right To Know Program

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HAZARD COMMUNICATION/RIGHT TO KNOW PROGRAM

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1.0 POLICY

The Carlsbad Environmental Monitoring & Research Center (CEMRC) will maintain an effective "Hazard Communication Program" in accordance with the current New Mexico Occupational Health and Safety Act, Federal Occupational Safety and Health Administration Regulation 29 CFR 1910.1200 and New Mexico State University policies.

2.0 PURPOSE

The above noted regulation sets forth "to ensure that the hazards of chemicals produced or imported by chemical manufacturers or importers are evaluated, and that information concerning their hazards is transmitted to affected employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets, and personnel training."

This program, as well as the regulation, is otherwise referred to as the "Right to Know" law, which in effect is designed to provide knowledge, warning, protection, and training to employees who may be exposed to hazards of chemicals and other materials.

3.0 REFERENCES

CP-PROC-011, Current Revision, *Training and Qualification*, Carlsbad Environmental Monitoring & Research Center

4.0 RESPONSIBILITY

The CEMRC Chemical Hygiene Officer (CHO) has the responsibility for the administration of the CEMRC "Hazard Communication Program" and is the designated Hazard Communication Coordinator for CEMRC. The Director of the NMSU Environmental Health & Safety Office (NMSU ES&H) is the general Hazard Communication Program Coordinator for New Mexico State University (NMSU) and will receive and review this plan whenever it is revised.

All personnel working at CEMRC will fully participate in the program as it may apply to their work area and work responsibility. Each supervisor will ensure that those employees and areas under his/her supervision comply with this program.

The "Hazard Communication Program" consists of five basic components:

1. Inventory and audit of hazardous chemicals and materials.
2. Labels and labeling of hazardous chemicals and materials containers.
3. Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS) maintenance, distribution, availability, and locations.

4. Personnel training and information, general and specific.
5. A written "Hazard Communication Plan".

The written "Hazard Communication Program" for the CEMRC with a current list of the names and contact information, as well as the associated inventory list, records, materials, etc., will be maintained in the SDS database located in [hydra/MyCEMRC/](#). Personnel may review the written program, MSDS/SDS, and chemical inventory listings at this location.

5.0 MATERIALS, INVENTORY, AUDITS

An initial physical inventory of all hazardous chemicals and materials was taken of all CEMRC work areas and facilities. An annual audit will be conducted thereafter. All hazardous chemicals and materials will be identified and listed. A copy of the inventory listing for each work area will be kept with the MSDS/SDSs for that area and a master list for CEMRC will be maintained at [hydra/MyCEMRC/](#). Each inventory listing (local and master) should at least include the following information:

- Name & contact information for person(s) responsible for the chemicals in the area.
- Date the inventory list was compiled or updated.
- Room/building location of the work or storage area.
- Chemical or product common name and manufacturer.
- Typical maximum quantity of the chemical or material at any given time.
- General location within the work area where material is kept (storage cabinet, shelves, etc.).
- Hazard type(s).

A system will be maintained to add any newly introduced hazardous chemicals or materials to the inventory. Typically the person responsible for the material will update the list for a specific work area and the CEMRC CHO, or designee, will ensure that the master online list is updated.

6.0 MATERIAL SAFETY DATA SHEETS (MSDS/SDS)

An MSDS/SDS will be provided for all hazardous chemicals and materials used within CEMRC.

The master MSDS/SDS files are located on the MyCEMRC website ([hydra/MyCEMRC/](#)). A copy of the master hazardous material inventory will be forwarded annually to the NMSU ES&H Office, or the on-line NMSU HazCom Web Database will be updated by the CHO as new chemicals are added to the CEMRC master inventory listing.

An MSDS/SDS for all hazardous chemicals and materials used in a specific work area or for a specific work assignment will be available to personnel during their work period. MSDS/SDSs will be maintained for the following specific work areas or laboratories in CEMRC:

- Rooms 103, 149, 150, 151, 152, 153, 155, 156, 157, 158, 161, 167, and other locations, as appropriate.

The master chemical inventory listing and an annual audit will be used to ascertain that there is an MSDS/SDS for each hazardous chemical or material item located at CEMRC, and that all chemical containers are properly labeled and stored.

No hazardous chemical or material requiring a MSDS/SDS will be introduced into CEMRC or any CEMRC work area without the approval of the CEMRC CHO, or designee. In the event an MSDS/SDS is not available, the immediate supervisor should be promptly notified and, if necessary, the supervisor shall contact the CEMRC CHO or designee to see that the matter is corrected.

7.0 LABELS AND LABELING

All hazardous chemicals or materials must have a label on the primary container that will specify at least:

- The chemical name.
- Any specific warning or other hazard information.
- Identification of the manufacturer or supplier and address.

A hazardous chemical or material label will not be removed from its container, nor will such a label be defaced as long as material is in the container.

Should a primary container require a label or should the label on a primary container need to be replaced, the label will display the information noted in the initial paragraph of Section 7.0. The CEMRC label will follow either the National Fire Protection Association (NFPA) Hazard Identification System or the new GHS (Global Harmonization System).

It will be the responsibility of each supervisor and employee using a hazardous chemical to ensure that all secondary containers are properly labeled with a duplicate of the manufacturer's label (if possible) or a clearly-written label that specifies the chemical name and any specific warning or other hazard information.

All containers of hazardous chemicals or materials will be received and inspected for proper labeling or labeled by qualified/trained staff.

8.0 INFORMATION AND TRAINING

All personnel will be informed of the "Hazard Communication Program"/"Right to Know" law at the time of initial assignment and will be reviewed annually thereafter. Following

the initial/annual review, all CEMRC personnel will be given additional technical training, as appropriate, relative to hazardous chemicals or materials. Any training records will be maintained in accordance with CP-PROC-011, *Training and Qualification*.

General program review and training can be accomplished by lecture, photo slides, movie, video, computer-based training, literature, or combination, and will cover the contents of this program including a review of the following:

- CEMRC's procedure on Hazard Communication. All personnel will sign a form or list that they have read and understood CEMRC's Hazard Communication procedure.
- The basic requirements of the regulation.
- Responsibility for both the program and personnel.
- Information relating to labels and general warning signs, used by CEMRC.
- Description of MSDS/SDS and how to read and interpret all sections.
- Location and availability of the written hazard communication program, MSDS/SDS, and chemical inventory listing.
- Definition and identification of hazardous chemicals or materials:
 - Hazardous chemicals
 - Health hazard
 - Physical hazard
- Steps that personnel can take to lessen or prevent exposure to hazardous chemicals or materials (i.e., knowledge of chemicals, storage, posting, personal protective equipment, chemical loads, warnings, eye wash and safety showers, training, etc.).
- Methods and observation techniques used to determine the presence or release of hazardous chemicals or materials in a work area (i.e., flame or fire, smell or odor, fumes, etching, color, irritation, etc.).
- Emergency procedures to take in the event there is exposure to a hazardous chemical.
- Notice or posting of signs indicating hazardous chemicals or materials in an individual's work area.

9.0 NON-ROUTINE WORK OR TASKS

Periodically, laboratory personnel may be required to perform non-routine work or tasks which will require the use of hazardous chemicals, materials, or work in associated hazardous locations. The responsible Laboratory Manager must inform the CEMRC CHO about this prior to starting such projects.

As needed, the Laboratory Manager will complete (or arrange) a safety analysis of the task and ensure that each affected individual is given information about the chemicals, materials, or exposure of such activity. The CEMRC CHO will provide guidance in the preparation of the safety analysis and will review and approve the document before work

may proceed. The format and type of information to be included in the analysis are described in Appendix A, *Safety Review Format*, but in general should include:

- Specific hazards that may be associated with the chemical or material.
- Protective and other safety measures to be taken.
- Measures taken to lessen or prevent hazards (i.e., ventilation, respirators, storage, safety watch personnel, postings and barriers, fire extinguishers, other personal protective equipment, etc.).
- Review of the hazardous chemical or material, MSDS/SDS, or other technical information applicable to the work.
- Review of emergency procedures to be taken in the event of an accident.

10.0 INFORMING CONTRACTORS

It will be the responsibility of any CEMRC employee initiating a work or construction contract to notify the CEMRC CHO of the contract, name of contractor, starting date, and type of work to be performed.

It will be the joint responsibility of the CEMRC CHO and the work area supervisor to provide contractors working at CEMRC with the following information:

- Any hazardous chemicals or materials to which they may be exposed while on the site.
- Precautions, controls, and protective measures to be taken to lessen or prevent possible exposure to hazardous chemicals or materials.
- The CEMRC CHO or designee will also be responsible for contacting contractors before work is started to gather and disseminate any information concerning quantities of chemicals and chemical hazards that the contractor may be bringing onto the worksite.

11.0 PROGRAM MAINTENANCE - OTHER FUNCTIONS

Purchasing/MSDS/SDS Supply: A check-off box will be applied to purchase orders to ensure applicable MSDS/SDSs are obtained (if not already on file) for all chemicals or materials before the order is placed.

Other supplied chemicals or materials: No hazardous chemical or material requiring a MSDS/SDS will be introduced into CEMRC or any CEMRC work area without the approval of the CEMRC CHO, or designee.

12.0 APPENDIX

Appendix A: Safety Analysis Format

Appendix B: Safety Terms and Definitions

13.0 RECORDS

Hazardous Chemical Inventory

14.0 REVISION HISTORY

<u>Revision #</u>	<u>Date</u>	<u>Description</u>
0	09/11/02	Initial Document
1	09/16/04	Major re-write adding appendix & redefining roles and responsibilities; no shading required due to amount of changes
00	08/01/06	Removed from Document Control Program (old document control number was CP-PLAN-019)
01	10/12/07	Annual review; no changes
02	10/01/08	Annual review; no changes
03	10/15/09	Annual review; added signature lines on page 1
04	11/01/11	Review and formatting
05	10/30/12	Annual review and minor formatting
06	10/23/14	Annual review; minor changes
07	10/24/16	Biennial review; minor changes
08	10/08/18	Biennial review; minor changes
09	11/3/20	Biennial review

Appendix A: Safety Review Format

1.0 Background and Overview of Proposed Experiments/Work Process

Introductory statement that defines who will do the work and where it will be done. General overview of the work so the reviewer is properly oriented and understands the key goals/purpose of the work.

- Background
- Scope of the Proposed Experiments/Work Process
- Overview of Experimental/Work Process

2.0 Experimental/Work Process Operations and Conditions

This is the heart of the experimental/work process section where the detailed approach is described. Organization of this section depends on the nature of the work proposed and the classification of the various steps of the process. An example for a solubility study would be:

- Sample purification and preparation
- Experimental approach and procedure
- Sample analysis during the experiment
- Experiment takedown and final analysis

Experimental diagrams of the apparatus etc. are encouraged. Steps used in the procedure should be numerically labeled for easy reference with a unique number for each step.

3.0 Safety Considerations and Concerns

This is where the safety concerns are identified and assessed. A summary of the key safety aspects should be stated upfront. Subsequent organization will vary depending on the nature of the work. Following sections are recommended for inclusion:

- Risk of experimenter/laboratory contamination
- Identification of maximum amount/volume of hazardous chemicals or materials in process at one time during the experiment
- Transport and handling of samples
- ALARA (As Low As Reasonable Achievable) considerations
- Waste generation handling, minimization, and disposal
- Experiment/work process-specific concerns (1 per section) – e.g. flammability, high pressure buildup, etc.
- Personnel training and qualifications (who is responsible for this and documentation of existing qualifications)

4.0 Relevant Documents and Publications

List of past safety reviews, publications, and documents that relate to the work. This provides the credentials of the experimenter to provide a case for having the needed work experience/background.

Appendix B: Safety Terms and Definitions

(abridged from 29 CFR 1910.1200 Hazard Communication Standard)

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

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

Chemical: Any element, chemical compound, or mixture of elements and/or compounds.

Combustible Liquid: Any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C), or higher, the total volume of which make up 99% or more of the total volume of the mixture.

Compressed Gas:

- (a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40psi at 70°F (21.1°C); or
- (b) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or
- (c) A liquid having a vapor pressure exceeding 40psi at 100°F (37.8°C) as determined by ASTM D-323-72.

Corrosive: A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours.

Explosive: A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or Exposed: An employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable: A chemical that falls into one of the following categories:

- (a) **Flammable Aerosol:** An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
- (b) **Flammable Gas:**
 - a. A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of 13% by volume or less; or
 - b. A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12% by volume, regardless of the lower limit;

- (c) **Flammable Liquid:** Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99% or more of the total volume of the mixture.
- (d) **Flammable Solid:** A solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical is considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashpoint: The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows (organic peroxides, which undergo auto-accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified here.):

- (a) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100°F (37.8°C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or
- (b) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100°F (37.8°C), or that contain suspended solids, or that have a tendency to form a surface film under test; or
- (c) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)).

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

Health Hazard: A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

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

- (a) 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 2 and 3 kilograms each.
- (b) A chemical that has a median lethal dose (LD(50)) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- (c) 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.

Immediate Use: The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

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.

Mixture: Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Organic Peroxide: An organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

Oxidizer: A chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

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

Pyrophoric: A chemical that will ignite spontaneously in air at a temperature of 130°F (54.4°C) or below.

Material Safety Data Sheet/Safety Data Sheet (MSDS/SDS): Prepared by the manufacturer and contains details of the hazards associated with a chemical, and gives information on its safe use.

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

Target Organ Effects: The following is a target organ categorization of effects that may occur, including examples of signs and symptoms and chemicals that have been found to cause such effects.

- (a) **Hepatotoxins:** Chemicals which produce liver damage. Signs & Symptoms: Jaundice; liver enlargement. Chemicals: Carbon tetrachloride; nitrosamines.
- (b) **Nephrotoxins:** Chemicals which produce kidney damage. Signs & Symptoms: Edema; proteinuria. Chemicals: Halogenated hydrocarbons; uranium.
- (c) **Neurotoxins:** Chemicals which produce their primary toxic effects on the nervous system. Signs & Symptoms: Narcosis; behavioral changes; decrease in motor functions. Chemicals: Mercury; carbon disulfide.
- (d) **Agents which act on the blood or hematopoietic system:** Decrease hemoglobin function; deprive the body tissues of oxygen. Signs & Symptoms: Cyanosis; loss of consciousness. Chemicals: Carbon monoxide; cyanides.

- (e) **Agents which damage the lung:** Chemicals which irritate or damage pulmonary tissue. Signs & Symptoms: Cough; tightness in chest; shortness of breath. Chemicals: Silica; asbestos.
- (f) **Reproductive toxins:** Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis). Signs & Symptoms: Birth defects; sterility. Chemicals: Lead; DBCP.
- (g) **Cutaneous hazards:** Chemicals which affect the dermal layer of the body. Signs & Symptoms: Defatting of the skin; rashes; irritation. Chemicals: Ketones; chlorinated compounds.
- (h) **Eye hazards:** Chemicals which affect the eye or visual capacity. Signs & Symptoms: Conjunctivitis; corneal damage. Chemicals: Organic solvents; acids.

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

- (a) 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.
- (b) 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.
- (c) 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.

Unstable (Reactive): A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Water-Reactive: A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work Area: A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.