

**BOSTON COLLEGE**

**OFFICE OF  
ENVIRONMENTAL HEALTH & SAFETY**

**HAZARD COMMUNICATION  
PROGRAM**

**OSHA  
29 CFR 1910.1200**

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# BOSTON COLLEGE

## HAZARD COMMUNICATION PROGRAM OSHA 29 CFR 1910.1200

### WRITTEN PROGRAM

#### TABLE OF CONTENTS

<b>Section</b>	<b>Title</b>	<b>Page #</b>
<b>1.0</b>	<b>PROGRAM ADMINISTRATION</b> .....	<b>2</b>
1.1	Introduction.....	2
1.2	Administration of Responsibilities .....	2
<b>2.0</b>	<b>LABELS</b> .....	<b>4</b>
2.1	General.....	3
2.2	Identification of Material.....	3
2.3	Hazard Warnings .....	4
2.4	Other Labeling Systems .....	4
<b>3.0</b>	<b>MATERIAL SAFETY DATA SHEETS</b> .....	<b>5</b>
3.1	General.....	5
<b>4.0</b>	<b>HAZARDS</b> .....	<b>8</b>
4.1	Hazard Determination.....	8
4.2	Health Hazards .....	8
4.3	Special Hazards .....	8
4.4	Specific Chemical Hazards.....	9
<b>5.0</b>	<b>TRAINING</b> .....	<b>11</b>
5.1	General.....	11
<b>6.0</b>	<b>PROTECTIVE EQUIPMENT</b> .....	<b>12</b>
6.1	Availability and Location .....	12
6.2	Proper Use.....	12
6.3	Eye and Face Protection .....	12
6.4	Head Protection.....	13
6.5	Respirators .....	13

## TABLE OF CONTENTS - Continued

<b>Section</b>	<b>Title</b>	<b>Page #</b>
6.6	Protective Footware.....	13
6.7	Protective Clothing .....	14
6.8	Emergency Showers and Eyewashes .....	14
6.5	First Aid .....	15

**APPENDIX A - Reference List of Hazardous Chemicals**

**APPENDIX B - Obtaining Material Safety Data Sheets**

**APPENDIX C - Employee Information and Training Outline**

**APPENDIX D - Training Sign-in Sheets**

**APPENDIX E - Emergency Situations**

**APPENDIX F - EH&S Training Materials and Videos**

**29 CFR 1910.1200****HAZARD COMMUNICATION STANDARD****WRITTEN PROGRAM****1.0 PROGRAM ADMINISTRATION****1.1 Introduction**

- A. The Hazard Communication Standard (HazCom), 29 CFR 1910.1200 and the Massachusetts Right-to-Know Law (RTK), 454 CMR 21.0, are two regulations that provide employees information regarding hazardous chemicals in the workplace. Under these laws, employers are required to inform their employees about the hazards of certain substances and must make sure that certain information is always available to the users of those chemicals. The remainder of this document will refer to the HazCom Program to include the requirements of both HazCom and RTK.
- B. According to HazCom, the above requirements applies to chemicals which are known to be present in the workplace where employees may be exposed under normal conditions or in foreseeable emergencies.
- C. It is Boston College's intent to provide information to employees concerning the potential hazards of chemicals used in the workplace in accordance with the above stated standards. Better awareness on the part of each employee will provide a safer, healthier working environment.

**1.2 Administration of Responsibilities**

- A. Responsibility of Environmental Health and Safety Office (EH&S)
1. The EH&S is responsible for developing, implementing and monitoring the HazCom Program to include:
    - Development of a training program,
    - Maintain a list of all chemicals noted in each department's annual inventory,
    - Train employees on the potential hazards from chemicals used in the workplace, including the nature of the hazards, protective measures and appropriate work practices,
    - Obtain and make available Material Safety Data Sheets (MSDS) for chemicals listed on the annual inventory,
    - Keep records of training on file.

## B. Responsibility of Employing Department

1. It is the responsibility of the department supervisor to understand and enforce the provisions of the HazCom program to include:
  - Completion of an annual inventory of all chemicals used within their department,
  - Make available Material Safety Data Sheets (MSDS) for chemicals listed on the annual inventory to all employees,
  - Ensure labeling is accurate for all designated chemicals used or stored in the workplace,
  - Train employees about the potential hazards from chemicals used in the workplace including the nature of the hazards, protective measures and appropriate work practices,
  - Forward any training records to the EH&S Office.

## C. Responsibility of Employee

1. To attend trainings provided by their supervisor or EH&S,
2. Label all designated chemicals used or stored in the workplace,
3. To carry out all required procedures as outlined in the trainings provided.

## 2.0 LABELS

### 2.1 General

- A. Labels are required on all tanks and containers used for the storage of hazardous chemicals. Labels also must provide appropriate warnings of the hazards associated with the material; which, in conjunction with other information immediately available to employees under the hazardous communications program, will provide employees with specific information regarding the physical and health hazards.
- B. Labels must be legible and must be prominently displayed on the container. For materials purchased and used in their original container, as is the case for the majority of chemicals used by Boston College, the manufacturer's label is used. Labels must also be placed on each container of hazardous chemicals that are leaving the workplace. An employer must not remove or deface existing labels on incoming containers of hazardous chemicals.
- C. In addition to providing an identity and warning, the label must provide information that will allow employees to find its Material Safety Data Sheet (MSDS), which will provide additional hazard information. This information will include product name, product identification number and the manufacturer.
- D. It is important for the employee to know where to look for labels and to understand the general warnings listed on a label. No chemical should ever be used for the first time without completely reading the label. Labels should be reviewed each time you use the chemical to remind you of its hazards and ways to avoid unnecessary exposure.
- E. The following types of information should be maintained to ensure that labeling will be properly implemented:
  1. A designation of responsible individual for ensuring labeling of in-house containers;
  2. A designation of responsible individual for ensuring labeling of any shipped containers; and
  3. A description of written alternatives to labeling of in-house containers (if used).

### 2.2 Identification of Material

- A. Hazardous substances are identified by either:
  - **Chemical Name** - pure substances such as propane, toluene, and nitrogen are identified by their chemical name.
  - **Trade Name** - commercially purchased chemical substances, usually mixtures, are identified on the label by their trade name. While being filed under its trade name, the MSDS will still identify the individual hazardous chemical ingredients present in the compound.

## 2.3 Hazard Warnings

A. In addition to the material's name, a warning must be present that briefly states the material's hazardous effects. Warnings are presented in a variety of ways. The degree of hazard for a substance is normally conveyed by signal words. A label usually contains a word which immediately notifies the user of the relative hazard involved with handling the material. The following are the three most common signal words:

- **CAUTION**, which implies no immediate threat if handled in the prescribed manner. Normally this implies to non-toxic dusts or mildly irritating substances.
- **WARNING**, where a definite hazard exists from a substance that is not handled properly. Substances that easily ignite, poisons and severe irritants are typical of the substances that have this signal word.
- **DANGER**, where permanent damage or death could result from contact or exposure to the labeled material under normal conditions. A substance which could explosively ignite, is highly poisonous, or will destroy skin tissue on contact will have **DANGER** on its label.

B. Statements describing the material's specific hazards will follow the signal word. Ways to minimize or avoid these hazards, such as proper handling procedures and suggested use of personal protective gear, are usually present. It is important that employees examine a label before they use a substance. If employees do not understand the warning system used on a particular label, they should ask a supervisor for an explanation before using the product.

## 2.4 Other Labeling Systems

A. A number of private organizations have developed similar labeling systems that describe the hazard of a substance by using numbers instead of words. A number of suppliers have adapted these systems for use on their labels. Knowledge of how these systems work will provide almost instant recognition of a chemical's hazards without reading the fine print on the label.

B. One of these labeling systems is called the *Hazardous Materials Identification System (HMIS)*. These labels identify the hazard of the chemical in three separate color coded categories and one special category by assigning a number from zero to four. The categories covered are:

1. **Health (Blue)**, which describes the potential harm of the chemical;
2. **Flammability (Red)**, which indicates the substance's ability to burn or ignite and;
3. **Reactivity (Yellow)**, which indicates the material's potential to explode, react violently or give off toxic gases.
4. **Personal Protection (white)**, which describes the level (A-D) of personal protection required.

### C. Hazard Rating

1. A zero (0) means that there is minimal or no hazard for the chemical (material, etc.) in that category.
2. A one (1) means that there is a slight or minimal hazard with the chemical.
3. A two (2) means that there is a moderate hazard and special care and precautions should take place.
4. A three (3) means that there is a serious hazard with special precautions required.
5. A four (4) means that the chemical is extremely dangerous in that category.

### D. The *National Fire Protection Association (NFPA)* system, will identify the hazard associated with the number by either writing the hazard out or using a color coded system. The same colors are used in all systems;

1. Blue designates the chemical's health hazard,
2. Red designates its flammability,
3. Yellow designates its reactivity, and;
4. White designates special hazards such as water reactive or oxidizing chemicals;
5. A zero means that there is no hazard for the chemical in that category. A rating of four means that the substance the chemical is extremely dangerous in that category.

## 3.0 MATERIAL SAFETY DATA SHEETS

### 3.1 General

- A. An important part of the program is the maintenance of Material Safety Data Sheets (MSDS). A MSDS must be kept for every chemical used and must be readily available during each work shift to employees when they are in their work areas. Where employees must travel between workplaces during a work shift, MSDSs must be kept at the primary workplace facility. The purpose of a MSDS is to inform employees of the potential hazards associated with materials used or stored in their work area. A MSDS also advises employees on the appropriate way to handle hazardous chemicals and to protect themselves from potential hazards.
- B. MSDSs are located where it is convenient and accessible to employees. It is advisable that every employee reviews the MSDSs for the chemicals used in their area or department. The MSDSs are filed alphabetically either by chemical name or trade name. MSDSs must be updated within three months if any changes occur and kept up on an annual basis in coordination with the annual inventory.
- C. MSDSs must be made readily available, upon request, to designated representatives and to the Assistant Secretary of Labor in accordance with 29 CFR § 1910.1020. OSHA compliance officers will look for the following information in a MSDS program:

1. Designation of persons responsible for obtaining and maintaining the MSDSs for every hazardous chemical in the workplace;
  2. How MSDSs are to be maintained in the workplace (i.e., in notebooks in the area or in a computer) and how employees may obtain access to them when they are in their work area during the work shift;
  3. Procedures to follow when the MSDS is not received at the time of the first shipment; and description of alternates to actual data sheets in the workplace, if used.
- D. The following is a section-by-section description of a typical MSDS. Although the order in which the information appears may vary between MSDSs, they all contain the same basic information as outlined below.

1. **Section One** gives the manufacturer's name and address along with an emergency phone number. This section also identifies the mixture's chemical or trade name and the chemical and common names of chemicals in the mixture that contribute to known hazards. Pure chemicals are identified by a Chemical Abstract Service number (CAS), which is a unique international index number of every known chemical. The date of preparation of the MSDS or the last change to it should be included.
2. **Section Two** lists all the hazardous chemical components making up more than 1% of the material. If a chemical name is withheld, it must be identified as a Trade Secret ingredient and must conform to the requirements for trade secrets. The specific hazards of that ingredient are still detailed on the MSDS. The supplier must provide additional information on Trade Secret ingredients whenever a written request by a user or the user's physician is received. The percentage of the hazardous chemical listed in the product is also included. Exposure limits set by OSHA's PEL, permissible exposure limit and or ACGIH's TLV, threshold limit value for each chemical constituent is also in this section.
3. **Section Three** describes the physical and chemical characteristics of a substance such as its boiling point. Information about the substance's appearance, odor, or pH are typically present.
4. **Section Four** covers the product's potential fire and explosion hazard. For liquids, the flash point is given. The flash point is the minimum temperature at which a spark will cause a chemical's vapors to ignite. The lower its flash point the more flammable a substance is. Any substance with a low flash point must be kept away from ignition sources, stored in a flammable cabinet and grounded during handling. Typically chemicals with a flashpoint below 100 degrees F are determined to be a flammable.
5. **Section Five** explains any known health effects to occur from exposure or overexposure. Health hazards are divided into long-term (chronic) or short-term (acute) effects. A determination of carcinogenicity is also listed in this section.

Finally, proper first aid will be described. This section should be thoroughly reviewed by all employees for each substance they use at work. This will enable employees to recognize any symptoms and seek medical attention as necessary.

6. **Section Six** describes if a chemical is unstable or will react violently when mixed with other substances. It also provides information on correct handling procedures and incompatible substances to avoid. It is important to review this section prior to mixing potentially hazardous materials which are unfamiliar.
  7. **Section Seven** describes the cleanup and disposal procedures that are necessary in the event of a spill or release into the environment. Also included are applicable government regulations regarding specific disposal methods and reporting.
  8. **Section Eight** provides a space for any miscellaneous information not covered in the other sections. Usually this information concerns the proper storage and handling of the material and any regulations that may apply to its use.
- E. All employees must be familiar with the MSDSs for the chemicals used in their department. Questions can be brought to employee supervisors who in turn may contact the EH&S Office to provide assistance in locating other sources of information.
- F. MSDSs are kept in assigned areas and vary according to department. Employees should ask immediate supervisors for the location of MSDSs. The EH&S Office also possesses copies of MSDSs for chemicals used or located on campus. MSDSs are available for employee use at any time during the day.

## 4.0 HAZARDS

### 4.1 Hazard Determination

- A. All chemicals which pose a physical or health hazard in the workplace should be identified. By completing an annual inventory and reviewing Material Safety Data Sheets, these chemicals can be identified.
1. A **physical hazard** means 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.
  2. A **health hazard** means 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 (20 CFR 1910.1200).

### 4.2 Health Hazards

- A. Health hazards fall into two general categories: **acute** and **chronic**. Acute hazards occur rapidly as a result of short-term exposures and are of short duration. The acute effects referred to most frequently are irritation, corrosivity, sensitization, and lethal dose. Chronic hazards generally occur as a result of long-term exposure and are of long duration. The term chronic effect is often used to cover carcinogenicity, teratogenicity, and mutagenicity. The following is an explanation of specific acute and chronic effects.
1. **Acute** effects result from either breathing vapor, swallowing the material, or direct contact with the body. Headaches, nausea, rashes, and burns are common examples of acute effects. When an employee becomes aware of acute symptoms, the fastest remedy is to leave the area or stop using the material. If vapors are causing a headache, fresh air will help. In the case of an irritation caused by direct contact, washing with soap and water is usually enough.
  2. **Chronic** effects result from the repeated low level exposure to a material. Single exposures may not produce any immediate noticeable effect, but over a long time symptoms could become apparent. Shortness of breath, loss of feeling, or the gradual drying of skin are other examples of chronic effects.

### 4.3 Special Hazards

- A. Occasionally, an MSDS will state that a substance poses a special hazard. If employees are using chemicals that pose special hazards, they should minimize exposure by following proper handling procedures and avoiding any unnecessary contact. The following are descriptions of the five most common special hazards.

1. Carcinogens are substances suspected or known to cause cancer in humans. If a substance has a carcinogen warning, it does not mean that exposed persons will automatically get cancer. The warning means that exposure to that chemical can increase the risk of getting cancer in one's lifetime. Benzene in gasoline and formaldehyde are examples of carcinogens.
2. Mutagens are substances that cause changes in the genetic structure of subsequent generations. The chromosome damage that may be caused by mutagens could lead to birth defects in the children of the exposed individual, and these effects may be inherited by future generations.
3. Teratogens are substances that can cause birth defects in a fetus. Those individuals who are either pregnant or are contemplating pregnancy should talk with a doctor about the potential teratogenic effects from the substances in their workplace.
4. Neurotoxins are substances that cause damage to nerves or nervous tissue. Examples of neurotoxic effects include loss of feeling or mobility, uncontrollable shaking, and slurred speech. Lead paint is an example of a neurotoxin.
5. Sensitizers are chemicals that cause allergic reactions in a substantial proportion of exposed people or animals after repeated exposure to the chemical. In the way that some people are more sensitive to bee stings or poison ivy, people may be selectively sensitive to chemicals. Like other allergies, reactions to sensitizers may consist of severe rashes, itching, and breathing difficulties. Reactions to sensitizers may not occur until a person has had frequent contact with the chemical. Once a reaction has occurred, the sensitive individual should be reassigned to duties that limit exposure to the specific substance.

#### **4.4 Specific Chemical Hazards**

##### **A. Solvents**

1. The type of chemicals frequently handled by employees in the maintenance areas are solvents or degreasing materials. Proper handling procedures for solvents used at the stations can help prevent harmful effects.
2. Excessive inhalation of solvent vapors may cause dizziness and headaches. Care should be taken when working with these materials to avoid working in confined areas or too close to the application of the material. If symptoms of dizziness or headaches occur while working with solvents, the employee should leave the work area and get fresh air until symptoms subside. If symptoms persist, medical attention should be sought immediately.
3. Solvents are known to cause skin ailments such as drying and defatting of skin, irritation, and dermatitis. For this reason, prolonged or repeated contact with skin should be avoided. Gloves should be worn by employees who frequently work with

solvents. In all cases, any skin exposed to these materials should be thoroughly washed with soap and water.

#### B. Oils

1. Oils, including mineral oils, lubricating oils, and greases, can cause skin ailments such as drying and defatting of skin, irritation, and dermatitis. For this reason, prolonged or repeated contact with skin should be avoided. Gloves should be worn by employees who frequently work with oils. In all cases, any skin exposed to these materials should be thoroughly washed with soap and water.

#### C. Compressed Gases

1. Compressed gases include acetylene, oxygen, argon, carbon dioxide, nitrogen and hydrogen. Hazards from compressed gases are two-fold: they may either be related to the manner in which the gas is stored under pressure or they may be related to the gas itself. The potential hazard from gases being stored under pressure is that, if stored or handled improperly, the tanks (cylinders) could explode. Tanks must be stored upright, chained in place, and kept cool. There should exist specific areas at the facility where compressed gas tanks are stored.
2. Additional hazards may be posed depending on the chemical composition of the gas. For example, acetylene displaces oxygen and thereby acts as an asphyxiant. Acetylene and hydrogen are extremely flammable. An increase in oxygen concentrations may pose fire hazards.

#### D. Corrosives

1. Extreme care should be taken when working with caustic solutions and acids. Direct skin contact with these materials may cause severe burns and scarring. Gloves, aprons, or other protective clothing must be worn when handling or transferring corrosive chemicals. Eye protection must be worn also, as corrosives can cause permanent eye damage. Inhalation of vapors and mists must be avoided and, if necessary, a respirator should be worn.
2. Care should be taken to avoid mixing corrosives with incompatible materials. Contact with metals must be avoided.
3. Caustic solutions and acids must not be mixed accidentally. Care should be taken when adding concentrated solutions to water. If needed, solutions should always be added to water (never the other way around).

## 5.0 TRAINING

### 5.1 General

- A. Employers must provide employees with effective information and training on hazardous chemicals that are located in their work area at the time of their initial assignment and whenever a new physical or health hazard is introduced into the work area.
1. Employees must be informed of:
    - the requirements of this standard,
    - any operations in their work area where hazardous chemicals are present,
    - the details, location and availability of the written Hazard Communication Program, the department specific annual chemical inventory and MSDS's,
  2. Specific elements of the training program should also include:
    - How the employee can detect the presence of a hazardous chemical in the workplace,
    - Specific hazards of the chemicals in the employees workplace,
    - Information to understand and labels as well as interpret a MSDS,
    - Measures employees can take to protect themselves from potential chemical hazards in their work area,
    - Procedures implemented to provide employee information about chemical hazards for non-routine or special tasks.
- B. An additional requirement under HazCom is that all employees must be informed of the potential hazards of any task performed that is not in the normal course of their job prior to the start of that task. Supervisors must also ensure that employees are informed of the chemical hazards associated with the performance of these tasks and of the appropriate measures that should be taken.
- C. A written outline and format of topics to be covered is covered in Appendix C .
1. A record of the date and location where the training session was held and the in attendance will be kept on file in the EH&S Office. Use form listed in Appendix D.

## **6.0 PROTECTIVE EQUIPMENT**

### **6.1 Availability and Location**

- A. Protective equipment including gloves, safety glasses, aprons, and other protective clothing is available from an employee supervisor.

### **6.2 Proper Use**

- A. Proper use of protective equipment is essential to prevent many of the health hazards. Supervisors must instruct employees as to what personal protective clothing must be worn. Aprons, gloves, eye protection and other protective clothing must be maintained in good condition.
- B. Protective clothing must be free from holes and tears. If clothing becomes contaminated it should be washed for reuse, if possible, or properly disposed of. Eye protection, either safety glasses or goggles, should fit well, be comfortable, and not interfere with vision.

### **6.3 Eye and Face Protection**

- A. Protection of the eyes and face from injury is an important aspect of any health and safety program. This type of PPE has the widest use and the widest range of styles, models, and types. The type of eye and face protection needed depends upon the job operation being conducted, materials involved, and the severity of the eye and/or face injury that could result. Note that the severity of the eye and/or face injury will increase if the hazardous materials are hot or can react chemically with the skin. The OSHA standard for eye and face protection (29 CFR 1919.133) requires that protection be used if there is a reasonable chance injury will occur. Eye and/or face protection needs to be provided if machines or operators present the following hazards:
  - 1. Flying objects and particles
  - 2. Airborne dusts
  - 3. Glare
  - 4. Splashing liquids
  - 5. Ultraviolet radiation
  - 6. Combinations of these hazards
- B. The most common types of eye and face protection include:
  - 1. Spectacles
  - 2. Spectacles with side shields
  - 3. Faceshields
  - 4. Welding Helmets

## 6.4 Head Protection

- A. Head protection is needed for protection against the following hazards:
1. Falling or flying objects
  2. Bumping the head against objects
  3. Getting hair caught in machinery
- B. It is important to choose the head protection based on the hazards presented during job operations. The types of head protection available include:
1. Helmets (hard hats)
  2. Bump Caps
  3. Hair Nets and Caps
- C. There are a wide variety of helmets or hard hats available. They are usually made of molded thermoplastic or aluminum. Most can accommodate other protective equipment, such as hearing and eye protection. The appropriate head protection shall be determined by the employer (supervisor) and supplied to the worker.

## 6.5 Respirators

- A. If the use of respirators is required for specific tasks, employees must be fit tested and given specific instructions as to the type of respirators to be used. Contact the BC EH&S Office for info information on BC's Respiratory Protection Program. **No employee shall wear a respirator until all requirements of the program are fulfilled.**

## 6.6 Protective Footwear

- A. Protective footwear should be used if there is a possibility of damage to the foot from falling objects. Standard safety shoes have steel toes that meet testing requirements found in ANSI Z41-1983. The ANSI standard requires that safety toes meet minimum requirements for impact and compression. The OSHA standard for foot protection (29 CFR 1910.136) requires that safety toe shoes meet the requirements of the ANSI standard. Other hazards where foot protection may be needed are slipping, stepping on protruding nails, contact with hot materials, wet materials and contact with chemicals. Several types of protective footwear available are:
1. Safety Shoes
  2. Metatarsal or Instep Guards
  3. Steel Insoles
  4. Rubber or Plastic Boots
  5. Electric Hazard Shoes

## 6.7 Protective Clothing

A. There may be exposure to fire, extreme heat, cold, corrosive chemicals, body impact, cuts from materials handled, and other specialized hazards. Specialized protective equipment may be needed to protect against these hazards. Special protective clothing includes:

1. Gloves
2. Thermal Protective Clothing
3. Chemical Protective Clothing

B. **Gloves:** Gloves are used to protect against cuts, bruises, and abrasions on most jobs where heavy, sharp, or rough materials are handled. The materials used with the gloves depend on the materials being handled. For most light work, a cotton or canvas glove may be used. For rough or abrasive work, a leather glove or leather glove reinforced with metal stitching is required. This type of glove provides protection from sharp edged tools and equipment. Metal mesh or highly cut-resistant plastic or Kevlar gloves are also available. Gloves should not be used while working on moving machinery where they may be caught such as drills, saws, grinders, or other rotating and moving equipment.

C. **Thermal Protective Clothing:** Thermal protective clothing is used if there is a potential contact with heat and hot metals. These materials can be made of leather, wool, asbestos substitutes, or aluminized materials. Each type of material has its own protective characteristics and its limitations. Environmental Health & Safety (x0308), has various catalogs to help in the selection of the proper materials.

D. **Chemical Protective Clothing:** Chemical protective clothing is designed to protect the skin against gaseous, liquid, and particulate chemical hazards. Chemical protective clothing is fabricated into various types of clothing depending on the hazards involved. It includes gloves, boots, aprons, and full body protection. Examples of materials used to make chemical protective clothing include natural rubber, synthetic rubber, neoprene, vinyl, polypropylene and polyethylene films, and fabrics coated with these materials.

E. If the protective material is contaminated by breakthrough, it must be decontaminated or disposed of before it is used again. The manufacturer's decontamination procedures must be followed where applicable.

## 6.8 Emergency Showers and Eyewashes

A. Emergency showers and eyewashes are located in specific areas throughout the campus. Contact your supervisor to determine the nearest location. Supervisors must demonstrate how to use emergency showers and eyewashes as part of the employees' training program. If eyewashes are not available, a sink may be used. It is important that rinsing and washing of contaminated skin last for at least 10 to 15 minutes. When material gets into eyes, washing should be done so that water gets under the lids and should also last for at least 10 to 15 minutes.

## 6.9 First Aid

- A. First aid kits are located throughout the campus. Employees should ask supervisors for specific locations. General rules for skin exposure consist of rinsing the skin and washing thoroughly with soap and water. For burns or visible signs of irritation--such as blistering, severe reddening, and chafing--a physician should be consulted. Exposure to eyes should be immediately followed by a thorough (10 to 15 minute) washing. In all cases, a physician should be consulted. If material is excessively inhaled, the victim should be removed to an area where there is fresh air. If warranted, oxygen should be given to the victim. If a material is ingested, in most (but not all) cases the victim should drink water. The MSDS for the specific material should be consulted to determine whether or not vomiting should be induced.

The guidelines mentioned above are general recommendations. MSDSs for specific materials should be reviewed for specific first aid instructions and be brought to a physician or hospital as necessary.

**APPENDIX A**  
**REFERENCE LIST OF HAZARDOUS CHEMICALS**

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American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment," [latest edition]

Burdick & Jackson Laboratories, Inc., High Purity Solvent Guide, 1984

Commonwealth of Massachusetts, The, Right to Know.

International Agency for Research on Cancer (IARC), "Monographs," [latest edition.]

International Technical Information Institute, The, Toxic and Hazardous Industrial Chemical Safety Manual, 1985.

National Fire Protection Association, Fire Protection Guide on Hazardous Materials, 1973

National Toxicology Programs (NTP), "Annual Report on Carcinogens," 1990

Office of the Federal Register, "Toxic and Hazardous Substance.," Title 29, Code of Federal Regulations, Part 1910, Subpart Z, 1993

Research Council's Assembly of Mathematical and Physical Sciences, Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press, 1981.

Sax, N. Irving and Richard J. Lewis, Sr., Hazardous Chemicals Desk References, Van Nostrand Reinhold Company, Inc., 1987.

\*These references are available at the EH&S Office, St. Clement's Hall. The office is open and references may be used during normal University work hours.

**APPENDIX B**  
**OBTAINING MATERIAL SAFETY DATA SHEETS**

## OBTAINING MATERIAL SAFETY DATA SHEETS

- A. The Environmental Health and Safety Office maintains an inventory of Material Safety Data Sheets (MSDSs) for all the products used on campus. The inventory is updated annually by every department using chemical products.
- B. In all work areas on campus, MSDSs must be made available to employees by supervisors. In cases where the MSDSs are not available, a request for the MSDS can be made to the Environmental Health and Safety Office. Contact the office and provide the product name, product identification number, manufacturer and manufacturer address for the item in question.
- C. General Questions
1. What must be done if the Material Safety Data Sheet (MSDS) for a product in the work area is not currently available to the employees using the material?
    - a. Contact your supervisor as to the location of the MSDS at the work site. If the MSDS is not available, continue with step b.
    - b. Contact the Environmental Health and Safety Office. Most likely the MSDS is on file. If the MSDS is not available at the EH&S Office continue to step c.
    - c. Write a letter of request or call the manufacturer or distributor of the product.
      - \* State that you require a copy of the MSDS(s).
      - \* List or cite the exact name as is used on the product. Include the product identification number
  2. What should be done with the MSDS(s) when it is received?
    - a. Send a copy of the MSDS(s) to the Environmental Health and Safety Office for their records.
    - b. Provide your supervisor with a copy so it may be made available to other employees in the work area.
  3. What must be done if the manufacturer refuses to send an MSDS?
    - a. Keep a copy of the “request” letter on file or a record of the phone call. Attach the “refusal” response from the manufacturer to the first letter.
    - b. Call the Office of Environmental Health and Safety and report the manufacturer’s refusal to send the MSDS.

**APPENDIX C**

**EMPLOYEE INFORMATION AND TRAINING OUTLINE**

## **EMPLOYEE INFORMATION AND TRAINING HAZARDOUS COMMUNICATION STANDARD**

"Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards or specific chemicals."

### **TRAINING OUTLINE**

Topic	Format Used
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#### Introduction

- A. Requirements of the HazCom Standard.
- B. Operations where hazardous materials are present.
- C. Location and availability of written program, annual inventory and MSDS.
- D. Detecting the presence of hazardous materials – monitoring procedures, odors, visibility, etc.
- E. Responsibilities of Employer and Employee

#### Labels

- A. How to determine hazards by reading a label.
- B. Summary of HMIS and NFPA Hazard Codes

#### Material Safety Data Sheets

- A. Location of MSDS's and the procedure for reviewing them and/or obtaining a copy.
- B. How the MSDS is updated and the procedure for obtaining copies.
- C. How to read and understand a MSDS and determine the significance of each section.

#### Physical and Health Hazards

- A. Physical and health hazards of chemicals in the work area.
- B. Emergency procedures in the event of accidental exposure to hazardous chemicals to include emergency phone numbers and the location of eye wash stations and safety showers.
- C. Routes of Entry Summary

#### Personal Protective Equipment

- A. Proper use and selection of personal protective equipment.
- B. Measures employees can take to protect themselves from chemical exposure.

**APPENDIX D**  
**TRAINING SIGN IN SHEET**



**APPENDIX E**

**RESERVED**

**APPENDIX F**  
**ENVIRONMENTAL HEALTH AND SAFETY VIDEOS**

**ENVIRONMENTAL HEALTH & SAFETY OFFICE****VIDEOS AND FILMS**

1. AETC – New Jersey Facility
2. BC Safety Fire Program
3. Claisse Technique – XRF Pellet Fusion Demo
4. Clean Up by the CRV (12 min.)
5. Cleaning Agents
6. Controlling Your Risks – HIV In The Research Laboratory
7. Fire: Countdown to Disaster (17 min.)
8. Fire Extinguisher: Fight or Flight
9. Fire Power (16 min.)
10. Flammables and Combustible Liquids
11. Formula For Safety
12. Hazard Alert: Laboratory Spills
13. Hazardous Chemicals
14. Hear Today, Gone Tomorrow = Hearing Conversation
15. Industrial Gases
16. It Won't Happen to Me: Accidents in the Workplace
17. Lab Hood Safety
18. Me and My Back = Back Safety
19. Pollution Prevention (24 min.)
20. Practicing Safe Science
21. Radiation Hazards
22. Reactives – Advanced Environmental Technology Corporation
23. Seeing is Believing = Eye Safety
24. The Chemical Hygiene Standard Training Package
25. Two Hands, Ten Fingers = Hand Safety
26. Using Fire Extinguishers the Right Way (13 min.)
27. Welding: Health Hazards
28. Welding: Physical Hazards

**MARCOM CD ROM – Individual Computer Training Courses  
Available (April, 2003)**

1. Right to Know for Cleaning and Maintenance Operations
2. Bloodborne Pathogens in Commercial and Industrial Facilities
3. Fall Protection
4. Confined Space Entry
5. Accidental Release Measures & Spill Cleanup Procedures