STANDARD PRACTICE INSTRUCTION

DATE: June 2, 2011

SUBJECT: Hazard Communication Program (General Industry)

REGULATORY STATUTE: OSHA - 29 CFR 1910.1200

BASIS: About 32 million workers are potentially exposed to one or more chemical hazards on a daily basis. T here are an estimated 575,000 existing chemical products, and hundreds of new ones being introduced annually. This poses a serious problem for exposed workers and their employers. The OSHA Hazard Communication Standard establishes uniform requirements, to make sure that the hazards of all chemicals imported
Into, produced or used in U.S. workplaces are evaluated, and that this hazard information is transmitted to all affected workers.

GENERAL: Connecticut College will ensure that the hazards of all chemicals used in our facilities are evaluated, and that information concerning their hazards is transmitted to employees. This standard practice instruction is intended to address comprehensively, the issues of: evaluating the potential hazards of chemicals; communicating information concerning these hazards; and establishing appropriate protective measures for employees.

RESPONSIBILITY: The Director of Environmental Health & Safety is responsible for all facets of this program, and has full authority to make necessary decisions to ensure success of the program. The Director of EH&S will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions. The Director of EH&S is expressly authorized to halt any operation of the College where there is danger of serious personal injury.

Contents of the Connecticut College Hazard Communication Program

Connecticut College Hazard Communication Program for General Industry

1. **Written Program.** This standard practice instruction will be maintained in accordance with 29 CFR 1910.1200, and updated as required. Where no update is required, this document will be reviewed annually. Effective implementation of this policy requires support from all levels of management within the College. This written program will be communicated to all personnel that are affected by it. Connecticut College shall:

1.1. Annually review and revise this written hazard communication program based on operational requirements, or as required by the OSHA Hazard Communication Standard.

1.2. Provide a program for proper labeling of containers, describe other needed forms of warning, and detail the use and purpose material safety data sheets (MSDS).

1.3. Describe how employee information and training requirements will be met, to include the following:

- Inventories of the hazardous chemicals known to be present in the employee's workplace.
- The method Connecticut College will use to inform employees of the hazards of non-routine tasks. Immediate supervisors of affected employees will oversee this requirement, but the Director of Environmental Health & Safety should be consulted to provide task hazard analysis assistance.
- The methods Connecticut College will use to inform employee(s) of any precautionary measures that need to be taken to protect employees during normal operating conditions, and in foreseeable emergencies.

2. Training Program. Connecticut College shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, annually, and whenever a new chemical is introduced into their work area that could present a potential hazard.

2.1. Information. Connecticut College employees shall be informed of:

- Any operations in their work area where hazardous chemicals are present.
- The location and availability of the written Hazard Communication program, including a list(s) of hazardous chemicals used in their department, and the associated material safety data sheet (MSDS). This information will be available electronically online, and for employees without ready access to computers, printed and filed in "Right-To-Know" stations in their workspaces.

2.2. Training.

- Newly hired personnel will be briefed on the general requirements of the OSHA hazard communication standard during New Employee Orientation.
- Hazard Communication training at Connecticut College shall be conducted annually, for employees exposed to hazardous materials.
- Duty specific hazards will be discussed with their immediate supervisor before they begin any duties within the department.

2.2.1. This training will include at least the following:

- The physical and health hazards of the chemicals present in the work area (MSDS).
- The measures employees can take to protect themselves from these hazards.

- Specific procedures Connecticut College has implemented to protect employees from exposure to hazardous chemicals, to include; appropriate work practices, emergency procedures and personal protective equipment.
- An explanation of the labeling system used at Connecticut College, the material safety data sheet, and how employees can obtain and use the appropriate hazard information.
- The chemical (formal) and common name(s) of products used, and all ingredients which have been determined to be health hazards.
- Physical and chemical characteristics of the hazardous chemical including vapor pressure and flash point.
- The physical hazards of the hazardous chemical, including the potential for fire, explosion and reactivity.
- The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical.
- The primary route(s) of entry; inhalation, absorption, ingestion, injection and target organs.
- The OSHA permissible exposure limit, ACGIH Threshold Limit Value, including any other exposure limit used or recommended by the chemical manufacturer.
- Whether the hazardous chemical has been found to be a potential carcinogen by the International Agency for Research on Cancer (IARC).
- Any generally applicable precautions for safe handling and use which are known including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks.
- Any generally applicable control measures which are known appropriate engineering controls, work practices, or personal protective equipment.
- Emergency and first aid procedures.

2.3. Documentation. All training will be documented using a standard attendance roster.

3. Labeling Requirements. The following procedures apply for labeling of containers of chemicals used at Connecticut College, as well as of containers of chemicals and hazardous materials being shipped off site:

3.1. Unmarked Containers. Unmarked containers containing chemicals are not authorized at any time in conjunction with any duties or operations at Connecticut College, unless the container is a **portable** container, in the control of a specific person for their immediate use. **Immediate use** means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled (original manufacturer's) container, and only within the work shift in which it is transferred, and may not leave the possession of that employee. If any chemical remains in the portable container when the shift ends, or the chemical is no longer needed, it must have an appropriate label affixed, or be poured back into the original container

3.2. Portable (Secondary) Containers. Information for labeling portable (secondary

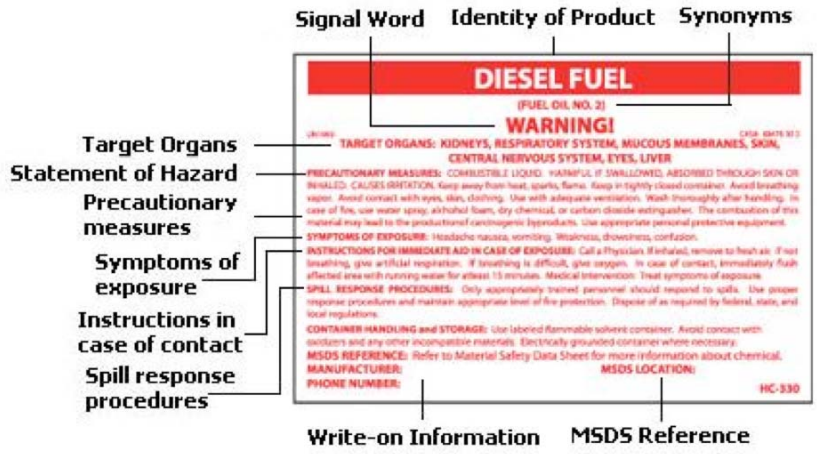
containers can be obtained from the original container label, and/or the MSDS. The label for portable containers can be printed or legibly hand written, but at a minimum must contain:

- The chemical or product name, as listed on the original container and/or MSDS.
- The hazard(s) associated with the chemical (e.g., Flammable, Toxic, Corrosive, Water Reactive or Oxidizer.) This can be either the word, ("Toxic", Corrosive", etc.) or a pictogram sticker.

- Alternatively, secondary containers can be labeled with a commercially produced HMIS (Hazardous Materials Identification System) or

NFPA (National Fire Protection Association) label. Again, information used to fill out the label can be obtained from the original container label, and/or MSDS.

3.3. Original (Manufacturer's) Container Label. Employees shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. Information found on the original manufacturer's label include:



In addition, the name, address and emergency phone number of the chemical manufacturer, importer or other responsible party are listed. First aid measures are also included.

3.4. Label Information (mixtures). The MSDS's of the chemicals used to create mixtures will be consulted first, to determine labeling requirements, and most importantly, to ensure that incompatible chemicals are not comingled.

3.5. If a mixture has been tested by an approved laboratory as a whole to determine its hazardous characteristics, the results of such testing shall be used to determine whether the mixture is hazardous and to provide the appropriate labeling information. If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture. Scientifically valid data such as that provided on the MSDS to evaluate the physical hazard potential of the mixture must be used. The Director of Environmental Health & Safety should be consulted to provide any required hazard analysis assistance.

3.6. Where Labels are not required. Questions concerning any of the exceptions listed below should be directed to the Director of Environmental Health & Safety. Connecticut College generally should not be affected by these requirements, however they are provided for information and because they are included in the Hazard Communication Standard. The Hazard Communication Standard does not require labeling of the following chemicals:

- Any pesticide as such term is defined in the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 et seq.), when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency.
- Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device, including materials intended for use as ingredients in such products (e.g. flavors and fragrances) as such terms are defined in the Federal Food Drug and Cosmetic Act (21 U.S.C. 301 et seq.), and regulations issued under that Act, when they are subject to the labeling requirements under that Act by the Food and Drug Administration;
- Any distilled spirits (beverage alcohols), wine or malt beverage intended for non-industrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 et seq.) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol Tobacco and Firearms.
- Any consumer product or hazardous substance as those terms are 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.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission.
- Labeling of containers of chemicals and hazardous materials being shipped off site, designated as hazardous waste**.** Where these materials are classified as hazardous waste, they fall under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42

U.S.C. 6901 et seq.), and the provisions of 40 CFR. And as such will be subject to regulations issued under that Act by the Environmental Protection Agency.

4. Evaluation and Distribution of Material Safety Data Sheets to Employees.

4.1. Connecticut College shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals. In addition, the College will obtain material safety data sheets for any hazardous chemicals received without a material safety data sheet.

4.2. If an employee requests a material safety data sheet for a chemical that is not already on file, the MSDS will be obtained and provided to the employee before use of the chemical.

4.3. Supervisors shall ensure that the material safety data sheets are readily accessible to employees during each work shift.

4.4. Material Safety Data Sheets for Physical Plant, Arboretum and non-science academic departments are uploaded and stored in a MSDS database, accessed through the Office of Environmental Health & Safety's web page. MSDS for all Science Departments are integral to the CEMS (Chemical Environmental Management System) chemical inventory database, also accessed from the Office of EH&S web page. Although the chemical inventory itself is a secure, password protected system; MSDS for laboratory chemicals can be accessed by anyone on campus.

4.5. Printed Right-To-Know (worker) copies will be available to all employees who do not have ready access to a computer. These employees include Dining Services, the Physical Plant Trades, and the Arboretum.

4.6. MSDS for obsolete or chemicals that are no longer used will be maintained in the database archive.

4.7. MSDS requests. The Director of EH&S will contact by phone, email or letter, any vendor for which a MSDS is not on file. Once received, the MSDS will be uploaded to the appropriate MSDS database.

5. Material Safety Data Sheet Contents

5.1. The OSHA MSDS format has the following required 8 categories that must be on every MSDS:

Section I. Manufacturer's Name and Contact Information
Section II. Hazardous Ingredients/Identity Information
Section III. Physical/Chemical Characteristics
Section IV. Fire and Explosion Hazard Data
Section V. Reactivity Data

Section VI. Health Hazard Data
Section VII. Precautions for Safe Handling and Use
Section VIII. Control Measures

The American National Standards Institute (ANSI) approved an alternative format and published a standard Z400.1-1993, "American National Standard for Hazardous Industrial Chemicals-Material Safety Data Sheets-Preparation." The 16 sections of an MSDS that are prescribed by the ANSI standard are:

Section 1. Chemical Product & Company Information
Section 2. Composition/Information on Ingredients
Section 3. Hazards Identification
Section 4. First Aid Measures
Section 5. Fire Fighting Measures
Section 6. Accidental Release Measures
Section 7. Handling and Storage
Section 8. Exposure Controls/Personal Protection
Section 9. Physical and Chemical Properties
Section 10. Stability and Reactivity
Section 11. Toxicological Information
Section 12. Ecological Information
Section 13. Disposal Considerations
Section 14. Transport Information
Section 15. Regulatory Information
Section 16. Other Information

While this is a recommended format, it is important to note that at a minimum, the OSHA required categories must be addressed in the MSDS, as these are legally enforceable.

6. MSDS Access for Contractors and Visitors.

6.1. The primary "point of contact" or escort for the College will advise visitors, contract employees and contractor personnel of any chemical hazards that may be encountered in the normal course of their work on the campus, the labeling system in use, the protective measures to be taken, the safe handling procedures to be used, and the availability and location of MSDS's. Any contractor bringing chemicals onsite must provide Connecticut College with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken in working with these chemicals. Consult with the Director of Environmental Health & Safety where this determination is unclear or assistance is required.

7. Trade Secrets. To protect trade secrets, the chemical manufacturer, importer or employer may withhold the specific chemical identity, including the chemical name, and other specific identification of a hazardous chemical from the material safety data sheet. To ensure the safety of our employees, Connecticut College will obtain any information not shown on a MSDS from a supplier, when such information is needed to determine the hazardous

constituents of a chemical. Employees of Connecticut College will not use a chemical product, if they cannot determine from the MSDS (or other approved source) the proper protective measures to be used. Chemical manufacturers are required to reveal Trade Secrets under the following conditions:

7.1. Emergency situations. Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, chemical suppliers are required by law to immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need of a confidentiality agreement.

7.2. Non-emergency situations. The following OSHA guidelines apply when requesting information designated as a trade secret from a MSDS. Requesters of trade secret information will:

- Provide the request in writing, explaining in detail why the disclosure of the specific chemical identity is essential.
- Agree (when required) in a written confidentiality agreement that the information will not be used for any purpose other than the health need(s) asserted, and agree not to release the information under any circumstances other than to OSHA as provided in 29 CFR 1910.1200.

7.3. Requesters of trade secrets, will use the information only in the following ways:

- To assess the hazards of the chemicals to which employees will be exposed.
- To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels.
- To conduct pre-assignment or periodic medical surveillance of exposed employees.
- To provide medical treatment to exposed employees.
- To select or assess appropriate personal protective equipment for exposed employees.
- To select or improve engineering controls or other protective measures for exposed employees, and to conduct studies to determine the health effects of exposure.

8. Definitions Commonly Found in the OSHA Hazard Communication Standard or that Relate to the Contents of the Standard.

Article means a manufactured item:

(1) Which is formed to a specific shape or design during manufacture.

(2) Which has end use function(s) dependent in whole or in part upon its shape or design during end use.

(3) Which does not release or otherwise result in exposure to a hazardous chemical under normal conditions of use.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.
Chemical means any element, chemical compound or mixture of elements and/or compounds.
Chemical manufacturer means an employer with a workplace where chemical(s) are produced for use or distribution.
Chemical name means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC), or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.
Combustible liquid means 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 percent or more of the total volume of the mixture.
Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.
Compressed gas means:

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

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank or the like that contains a hazardous chemical. For purposes of this standard practice instruction, pipes or piping systems and engines, fuel tanks or other operating systems in a vehicle are not considered to be containers.
Designated representative means any individual or organization to which an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.
Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.
Distributor means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.
Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers, such as office workers, who encounter hazardous chemicals only in non-routine, isolated instances, are not covered.
Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.
Explosive means 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 means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.) and includes potential (e.g. accidental or possible) exposure.
Flammable means a chemical that falls into one of the following categories:

(1) **Aerosol -** Flammable means 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.

(2) **Gas flammable** means:

- A gas that at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less.
- A gas that at ambient temperature and pressure, forms a range of flammable mixtures with air, wider than twelve (12) percent by volume, regardless of the lower limit.

(3) **Liquid flammable** means:

- 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 percent or more of the total volume of the mixture.

(3) **Solid flammable** means:

- A solid, other than a blasting agent or explosive as defined in §190.109(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 shall be 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 means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(1) 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 University 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

(2) 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

(3) Set a flash Closed Tester (see American National Standard Method of Test for Flash Point by Set a flash Closed Tester (ASTMD 3278-78)). Organic peroxides, which undergo auto-accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

Foreseeable emergency means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which could result in an uncontrolled release of a hazardous chemical into the workplace.

Hazardous chemical means any chemical, which is a physical hazard or a health hazard.

Hazard warning means any words, pictures, symbols, or combination thereof, appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

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. 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. Appendix A to 29 CFR 1910.1200, provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B, 29 CFR 1910.1200, describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard practice instruction.

Identity means any chemical or common name indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

Immediate use means that 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.

Importer means the first business with employees within the Customs Territory of the United States, which receives hazardous chemicals, produced in other countries for the purpose of supplying them to distributors or employers within the United States.

Label means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (MSDS) means written or printed material concerning a hazardous chemical, which is prepared in accordance with 29 CFR 1910.1200, paragraph (g).

Mixture means 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 means 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 means a chemical other than a blasting agent or explosive as defined in 29 CFR 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 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.

Produce means to manufacture, process, formulate, or repackage.

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

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Trade secret means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

Unstable (reactive) means 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 shock, pressure or temperature.

Use means to package, handle, react, or transfer.

Water-reactive means a chemical that reacts with water to release a gas that is either flammable

or presents a health hazard. Often when the water is heated it goes into a gaseous state allowing oxygen to be released, which can help feed a fire.

Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Work place means an establishment, job site, or project, at one geographical location containing one or more work areas.