



---

## **Hazard Communication Plan**

**Department Name**  
**Facility Name**

**Address1**  
**Address 2**  
**City, State**

**Last Updated: December 2012**



**Safety Contact Information**

<b>Internal Position</b>	<b>Name</b>	<b>Telephone (Extension)</b>
Security		
Safety Department		
Police		
Fire/Hazmat		
Emergency Department		
Hazmat		
CS Manager		
Biomedical Engineering		
Housekeeping		
[Gas Sterilizer manufacturers]		
[HLD washer manufacturers]		
Maintenance contract for sterilizers		



---

### Notes and Legal Notices

Note: Under the hazard communication standard facilities can have an emergency action plan for the entire facility or by department. This model plan is written for a Central Services Department (CS)/ Sterile Processing Department; but may be incorporated into a facility wide emergency action plan if desired.

Note: this model plan is intended as a generic outline for use in developing a Hazard Communication (Hazcom) Plan. Each facility is different and so the plan must be individually adapted for use. It is hoped that this document is easy to use, largely by filling in the blank spaces. The text in [red brackets] is intended as guidance to the person adapting this plan rather than as part of the plan and so can be deleted.

Note: This model plan has been written around the US federal OSHA Hazard Communication standard. States and local authorities may have additional requirements and facilities using this model must determine whether any additional state or local requirements need to be added. **This guide is intended to be consistent with current OSHA standards; but, if an area is considered by the reader to be inconsistent with a standard, then the OSHA standard must be followed.**

#### Legal Notices:

This document is intended to provide a general outline for a Hazcom plan and does not purport to provide legal advice. The requirements of each facility are different and so each facility is fully responsible for adapting this plan for its own use and for ensuring that the plan meets all the requirements of federal, state and local regulations. ChemDAQ accepts no responsibility for the accuracy or completeness of this document.

With the exception of quotes from OSHA standards and OSHA documents, this document is copyrighted by ChemDAQ Inc., but a license is offered to copy, modify this work or to incorporate it into other documents or be the basis for derivative works, without charge, provided that such licensee agrees to hold ChemDAQ harmless from all damages including consequential damages, however such may arise from the use of this document.



---

**Abbreviations Used in this Plan**

ACGIH	American Conference of Governmental Industrial Hygienists
AAMI	Association for Advancement of Medical Instrumentation
ANSI	American National Standards Institute
CFR	Code of Federal Regulations
CS	Central Services, Sterile Processing Department
EtO	Ethylene oxide
GHS	Global Harmonization Standard
Hazcom	OSHA's Hazard Communication Standard, 29 CFR 1910.1200
HLD	High level disinfectant
IDLH	Immediately Dangerous to Life and Health (NIOSH)
NIOSH	National Institute of Occupational Safety and Health (part of CDC)
OSHA	Occupational Safety and Health Administration (part of Dept. of Labor)
PEL	Permissible exposure limit (OSHA)
PPE	Personal protective equipment
ppm	parts per million by volume (for gases), but weight (for liquids)
SDS	Safety Data Sheet (formerly called MSDS, Material Safety Data Sheet)
TLV	Threshold limit value (ACGIH occupational exposure limit)

**Policy**

The management of \_\_\_\_\_ [name of this facility] is committed to preventing accidents and ensuring the safety and health of our employees. We will comply with all applicable federal and state health and safety rules and provide a safe, healthful environment for all our employees.



## Table of Contents

Introduction.....	5
<b>Hazard Communication Plan</b> .....	8
Accessibility of Hazcom Plan .....	8
Container Labels .....	8
Safety Data Sheets (SDSs) .....	11
Training .....	12
Contractors .....	13
Chemical Inventory List.....	13
<b>Fire Prevention Plan</b> .....	16
Source of flammable or combustible materials.....	16
Potential Sources of Ignition .....	16
Training .....	17
<b>Emergency Action Plans</b> .....	18
Detection of Emergency and Alerting Employees.....	18
Emergency Response to Chemical Release .....	19
Emergency Responders and Remediation of Chemical Release.....	20
<b>Ethylene Oxide Emergency Plan</b> .....	22
EtO Emergency Plan .....	22
Respiratory Protection.....	23
Other PPE.....	23
First Aid .....	23

## Introduction

The 1970 Occupational and Health Act imposed a legal duty on employees to provide a safe work environment (sec. 5a) and the Act also created the Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH). OSHA's role is to create legally enforceable regulations/standards and to enforce them, whereas NIOSH's role is to conduct research into occupational safety and health.

OSHA has promulgated many standards, which can be found at [http://www.osha.gov/pls/oshaweb/owasrch.search\\_form?p\\_doc\\_type=STANDARDS&p\\_toc\\_level=1&p\\_keyvalue=1910](http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=1&p_keyvalue=1910). These standards overlap and intended to work together.

The philosophy behind the Hazard Communication (Hazcom) standard (29 CFR 1910.1200) is that informed workers are safe workers, and so the standard focuses on educating workers about the properties and hazards of the chemicals and how to use them safely. Therefore, workplace chemical hazards must be evaluated, and information about



those hazards must be communicated to workers so that they are better able to protect themselves

#### Related Standards

There are many OSHA standards relevant to a CS department including the following:

#### Federal Standards

- 29 CFR 1910.38 Employee Emergency Plans
- 29 CFR 1910.39 Fire Prevention
- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1910.1000 Air Contaminants
- 29 CFR 1910.1030 Blood Borne Pathogen
- 29 CFR 1910.1047 Ethylene Oxide

This document focuses on the requirements of the written plan portions of the Hazcom, Fire Prevention Standard, Employee Emergency and Ethylene Oxide standards. The remaining parts of these standards and the requirements of other OSHA standards are not covered by this document.

Throughout this document there are citations to the relevant OSHA standard. These are provided for the convenience of anyone who wants additional information. All the OSHA standards are in volume 29 of the Code of Federal Regulations, and these standards are all in section 1910.

The Hazcom standard requires a written plan (1910.1200(e)), in addition, every employer with more than 10 employees is required to have written fire prevention and emergency response plan and employers that use ethylene oxide (EtO) are also required to have a written emergency action plan for EtO. [This document will attempt to cover all of these requirements. Users who do not use EtO, or who for example already have a fire prevention and emergency response plan may simply leave out those sections. If the EtO plan is retained, then the fire prevention and emergency action plans should be retained or substituted for existing fire prevention and emergency action plans since the EtO standard references them.]

This document does not address the other OSHA standards that are applicable in a CS department, especially the blood borne pathogen standard. These standards have additional requirements and may require additional training.



---

State and Local Standards [ Delete this section if no state or local regulations are applicable]

In addition there may be state and local standards or regulations that are also applicable. When both state or local and the federal government regulate an activity such as workplace safety, in general the most stringent requirement should be followed.

•  
[Enter standards if applicable]

Other Standards

There are many other non-regulatory standards that are applicable to workplace safety in the CS Department; these include

- ACGIH TLVs.
- ANSI/AAMI ST41:2008 Ethylene Oxide Sterilization in Health Care Facilities: Safety and Effectiveness
- ANSI/AAMI ST58:2005 Chemical Sterilization and High-Level Disinfection in Health Care Facilities.
- AAMI/FDS: ST79:2011 Comprehensive Guide to Steam Sterilization and Sterility Assurance in Health Care Facilities
- Joint Commission standards
- [Check for latest versions and Add other standards as applicable]



---

## Hazard Communication Plan (29 CFR 1910.1200)

### Accessibility of Hazcom Plan

The written hazard communication program is available to all employees, their representatives and representatives from OSHA from \_\_\_\_\_  
[Enter location or person/title where the Hazcom plan may be obtained.] The person responsible for maintaining the Hazcom plan is \_\_\_\_\_ [Enter Name & Title or Department]

### Container Labels

Every container of a chemical must have a label, tag or mark with the name of the contents and the appropriate warnings. Any product in its original container from the manufacturer should contain all the necessary information.

Chemical suppliers shall label their products according to the Hazcom standard










- Product identifier, e.g. ethylene oxide
- Hazard Statements (e.g. oxidizer, flammable)
- Pictograms (see below)
- Precautionary statements (e.g. wear suitable protective clothing)
- Name, address, and telephone number of the supplier.
- Suppliers receiving significant changes to the information on the label should update the label within six months.





### Pictograms

There are standard pictograms denoting various hazards:<sup>1</sup> (The pictograms are a new GHS requirement since June 2012). Some of the pictograms are shown below:

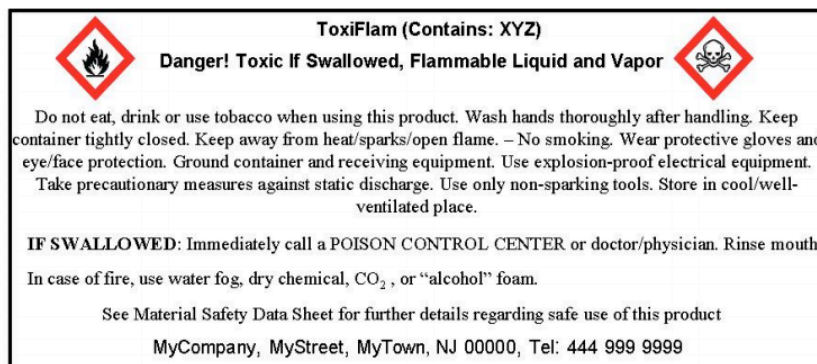
GHS Pictograms and Hazard Classes		
 <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	 <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Self Reactives</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Organic Peroxides</li> </ul>	 <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self Reactives</li> <li>• Organic Peroxides</li> </ul>
 <ul style="list-style-type: none"> <li>• Acute toxicity (severe)</li> </ul>	 <ul style="list-style-type: none"> <li>• Corrosives</li> </ul>	 <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>
 <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Respiratory Sensitizer</li> <li>• Reproductive Toxicity</li> <li>• Target Organ Toxicity</li> <li>• Mutagenicity</li> <li>• Aspiration Toxicity</li> </ul>	 <ul style="list-style-type: none"> <li>• Environmental Toxicity</li> </ul>	 <ul style="list-style-type: none"> <li>• Irritant</li> <li>• Dermal Sensitizer</li> <li>• Acute toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritation</li> </ul>

All chemicals used in the workplace should be marked as described above, or at least the label should contain the chemical name and words, signal words (such as WARNING or for more serious hazards DANGER), pictures, symbols, etc. which provides sufficient information, in conjunction with other immediately available information sources (SDS etc.) to assess the physical and health hazards of the hazardous chemical.”

<sup>1</sup> “A Guide to The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)” available from <http://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf>



A example label for a fictional material is shown below:<sup>1</sup>



Labels on chemical containers must not be removed or defaced, unless the container is immediately marked with the required information. Labels must be legible and in English, though if there are employees who speak another language, this language can be added in addition to English.

#### Transferring Chemicals to New Containers

If you must transfer a chemical to another container for dilution or just to use a smaller container, then you must label this new container with the appropriate information. OSHA does not require users to label portable containers into which hazardous chemicals are transferred for the immediate use, i.e. same shift for use by the same employee who performs the transfer. However, it is still recommended that these containers also be labeled. **[Recommend making it a facility/Department policy]**

#### Pipes

No employee or contractor shall begin work on or near unlabelled pipes that may contain potentially harmful chemicals unless that employee or contractor has been trained on the hazards and safety requirements necessary for that work.

Contact your supervisor or \_\_\_\_\_ **[Enter Name/title/department]** for assistance in attaching warning labels.

#### Responsible Person

The person who is responsible for ensuring that all chemical containers are properly labeled is \_\_\_\_\_ **[Enter Name & Title. Note whether only that one person can label or relabel chemical containers or if all or several employees label or relabel chemical containers but the named individual is ultimately responsible, depends on the policy of the facility].**



If a container is found to not have a label or to be labeled incorrectly, \_\_\_\_\_  
[Enter Name and Title or Department] is to be promptly notified.

**Safety Data Sheets (SDSs) (29 CFR 1910.1200(g))**

Chemical suppliers will provide a safety data sheet for each hazardous chemical they provide and employers should ensure that they keep an SDS for each hazardous chemical they use in the work place. The SDS should be in English, though copies in other languages may be kept as well.

The SDS should have the following 16 section format (change required under the GHS)

1. Identification;
2. Hazard(s) identification;
3. Composition/information on ingredients;
4. First-aid measures;
5. Fire-fighting measures;
6. Accidental release measures;
7. Handling and storage;
8. Exposure controls/personal protection;
9. Physical and chemical properties;
10. Stability and reactivity;
11. Toxicological information;
12. Ecological information;
13. Disposal considerations;
14. Transport information;
15. Regulatory information;
16. Other information, including date of preparation or last revision.

The chemical supplier may prepare one safety data sheet to apply to several mixtures with similar ingredients and hazards. If significant new information becomes available, the chemical supplier shall add the information to the SDS within 3 months.



### Suppliers of SDSs

Chemical suppliers shall provide an SDS with the first shipment or upon request and whenever there are changes to the SDS, either with the chemical or sent soon afterwards. Retailers need not supply SDSs, unless selling to a commercial account. Retailers selling to employers without commercial accounts must, upon request, provide the contact name of the chemical supplier from which an SDS may be obtained.

### Maintain SDSs

Employers shall maintain a copy of all current SDSs in the workplace and make them available to all employees and their representatives (and OSHA representatives too).

### Filing SDSs

Safety Data Sheets are filed alphabetically by the product name, i.e. the same name as is on the label, in the SDS Binder. The person who is responsible for maintaining the safety data sheets is \_\_\_\_\_ [Enter Name & Title. Note whether only that one person updates the safety data sheets or if all or several employees update the SDSs but the named individual is ultimately responsible, depends on the policy of the facility]. ]. If a Safety Data Sheet is not available for a hazardous chemical, immediately notify \_\_\_\_\_ [enter Name & Title].

### Accessing SDSs

The SDS Binder(s) is(are) located at \_\_\_\_\_. [enter location or other means for employees to access SDSs, such as on-line database or service. This location should be accessible to employees and others at all hours, so an office that is locked in the evenings is not an appropriate location.] The SDSs can be kept in electronic format, so long as they are readily available to employees. [Some companies offer a service to maintain SDSs on-line/by fax.] If you have difficulty locating an SDS for any product, contact your supervisor or \_\_\_\_\_ [Name/title or department] for assistance.

If employees need to travel, the SDSs may be kept at their primary location, so long as the employee has access to the information in case of an emergency.

### **Training (29 CFR 1910.1200(h))**

Employees shall be trained when they are first assigned to work with chemicals or work in a location where chemicals are used, and whenever there is a change in the risk of exposure to chemical(s), such as a new chemical or new process are introduced.

The training should include:

- The Hazcom standard and how it has been implemented by the employer
- Which operations are performed in the work area
- The location of the written Hazcom program, chemical inventory list and SDSs.



- Methods to detect the presence or release of a hazardous chemical in the work area (such as continuous monitoring devices.)
- The hazards of the chemical (flammability, carcinogenicity etc).
- The measures employees can take to protect themselves from these hazards, such as specific work practices and procedures and emergency procedures and PPE to protect themselves and others from exposure.
- How to read labels, label compounds in the workplace, find & read SDSs and obtain and use other safety information.

After attending the training, employees will sign a form verifying that they understand the above topics and how the topics are related to the hazard communication plan. [It is a good idea to have employees sign a form, or better to take a short test to show competency. These documents may be saved as evidence the training was completed; though retaining training records is not a requirement of the Hazcom standard.]

#### Non-Routine Tasks

No employee shall work on any non-routine task that involves the exposure or potential exposure to hazardous chemicals unless that employee has been trained as required under this standard.

#### **Contractors (29 CFR 1910.1200(e))**

When outside contractors may be exposed to any chemical hazard in the normal course of their work on the premises, they must receive Hazcom training, including the in-house labeling system in use, the protective measures to be taken, the safe handling procedures to be used, and the location and availability of SDSs.

Before a contractor brings chemicals into the facility which may affect the safety of the facility's employees, the contractor must provide the facility with the appropriate hazard information, including SDSs and quantities for all chemicals. The facility shall ensure that all affected employees, both facility employees and non-facility employees working at the facility, have received adequate Hazcom training for these new chemicals.

#### **Chemical Inventory List**

The Hazcom standard requires (1910.1200(e)(1)) that employers compile a list of all hazardous chemicals. This list is often included as part of the Hazcom plan, or it can be separate document.

A complete list of potentially hazardous chemicals in the department/facility [Chemical inventory lists can be by department or facility] has been compiled and is accessible to all employees at \_\_\_\_\_.



For each chemical listed, detailed information can be found on the SDS, labels, package inserts, and other references located at \_\_\_\_\_ [Enter references/sources, location etc., e.g. facility library if applicable] or from \_\_\_\_\_ [name & title of person to contact for more information]. SDSs are located at \_\_\_\_\_

Each time a new chemical product is received, it will be evaluated to determine whether it should be added to the inventory. As a rule of thumb, if the chemical has an SDS, then it should be included in the Chemical Inventory List [since if it is hazardous, it should have an SDS]. However, some chemicals purchased through retail stores may require SDSs even if one was not provided by the seller.

#### Responsible Person

The person who is responsible for maintaining the chemical inventory list is \_\_\_\_\_ [Enter Name & Title. Note whether only that one person updates the chemical inventory list or if all or several employees update the chemical inventory list but the named individual is ultimately responsible, depends on the policy of the facility].

#### **Chemical Leaks and Spills**

The facility should review the chemicals on-site and consider potential chemical leaks and spills. Employees should be trained how to respond to a leak or spill; see \_\_\_\_\_ [Enter appropriate plan, such as emergency response plan] located at \_\_\_\_\_ [enter location where plan is available to employees] [In most facilities there are only a small number of chemicals that pose a risk if they leak or spill. The questions to be addressed are:

- How do employees detect if a chemical has leaked or spilt? (Typically depends on the chemical, liquids are usually detected by employees present, gases and vapors by continuous gas monitors.)
- Who or what assess the severity of the leak? (E.g. a person for example may conclude that 100 ml of IPA is not a serious risk, or a continuous monitoring system may go into alarm if the vapor concentration exceeds safe limits).
- How are employees alerted if there is a chemical leak or spill?
- What should employees do if alerted?
- Who/what cleans up the spill (e.g. designated employee, Hazmat, leave it to the ventilation)?
- How do employees know when it is safe to return? (E.g. Hazmat personnel informs employees it is safe to return, or continuous monitor for that compound indicates that it is safe to return)
- What happens to employees who are injured or exposed to potentially hazardous chemicals?



These questions can be part of the Hazcom plan, but more usually they are addressed in the emergency action/fire prevention/Ethylene oxide emergency plan, as applicable; but they need to be addressed somewhere. See Emergency Response to Chemical Release in Emergency Action Plan below.]

### **Disposal of Chemicals**

All chemicals are to be disposed according to federal, state and local regulations. Specific disposal instructions for chemicals used at this location are: \_\_\_\_\_  
[Enter specific chemical disposal information.]

Disposal information can be found from the manufacturer and on the SDS and other sources. Information about disposal of specific chemicals may also be obtained from \_\_\_\_\_ [Enter name and title of person responsible. If one person is responsible for ensuring compliance with pollution regulations, then this person's name and title can also be entered here].

[Specific disposal procedures can be obtained from the manufacturer and where applicable local authorities, for example some chemicals can be disposed of down the sink if adequately treated (glutaraldehyde), or if diluted and the pH is within certain limits (many acids and bases). The regulations often vary so check with the local municipality before discharging chemicals to the sewer.]



## Fire Prevention Plan (29 CFR 1910.39)

Source of flammable or combustible materials

The \_\_\_\_\_ [enter name of work area covered by this plan] has been reviewed for fire risk and the following potential fire hazards have been identified:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. [Modify list as appropriate]

Handling and Storage Procedures for hazardous Materials

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

[Describe handling and storage procedures, e.g. EtO cartridges must be stored in the actively vented NFPA approved flammable cabinet used solely for EtO next to the EtO sterilizer; solvents such as isopropyl alcohol will be stored in the flammable cabinet at XXXXX location.]

Procedures to control accumulation of flammable and combustible materials

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

[Describe procedures to prevent accumulation of flammable and combustible materials; e.g. volumes of solvents to be kept to a minimum, paper waste not allowed to accumulate]

Person/people responsible for control of fuel source hazards is

\_\_\_\_\_ [Name(s) & Title(s)]

### Potential Sources of Ignition

1. \_\_\_\_\_
2. \_\_\_\_\_

[List or describe potential sources of ignition, for the particular department such as heaters, electrical equipment. Consider malfunctions as well as normal operation.]





---

Methods for fire control and fire protection equipment

1. \_\_\_\_\_
2. \_\_\_\_\_

[Describe or list fire control methods and equipment necessary to control fires at each of the above identified fire hazards, e.g. different types of fire extinguishers, sprinkler system]

Procedures for maintaining safeguards

1. \_\_\_\_\_
2. \_\_\_\_\_

[Describe procedures for regularly maintaining safeguards installed on heat-producing equipment (sources of ignition identified above) to prevent accidental ignition of combustible materials, e.g. work practices, fire extinguisher maintenance schedule]

Person/people responsible for maintaining equipment to prevent or control sources of ignition or fires is \_\_\_\_\_ [Name(s), Title(s), and company if external organization]

### Training

All employees must be trained about the fire hazards to which they are potentially exposed upon initial assignment to that position and whenever necessary to protect the employee, such as when changes are made that affect the risk of fire.



## Emergency Action Plans (1910.38)

### Detection of Emergency and Alerting Employees

If an employee discovers a fire or other emergency he/she should \_\_\_\_\_.  
 [Describe action that employee should take, such as i) activate nearest fire alarm, move to a safe location (specify where), and call 911].

If the alarm system is activated automatically it will sound a distinctive alarm in case of fire or other emergency \_\_\_\_\_. [Describe sound, e.g. two tone warble]

If the fire or emergency alarms are activated all employees shall leave the \_\_\_\_\_ [Define area to be evacuated, such as CS Department] and shall go to \_\_\_\_\_ [state area employees are to go to on evacuation], where all employees shall be accounted for by \_\_\_\_\_ [enter means how employees will be accounted for, e.g. the CS manager shall be responsible for ensuring that all employees are present and shall report this information to ...]. The \_\_\_\_\_ [enter name and title, or any employee etc.] should take the following actions \_\_\_\_\_ [e.g. call the emergency responders/safety office etc.]

The following employees \_\_\_\_\_ [Enter name(s) and title(s)] shall guide and assist the other employees in evacuating the area.

The following employees \_\_\_\_\_ [Enter name(s) and title(s)] shall perform the following actions \_\_\_\_\_ [Enter the actions these employees should take, e.g. shut down sterilizer] before they leave, provided that they can do so safely without personal risk.

The following employees \_\_\_\_\_ [Enter name(s) and title(s)] shall wait at \_\_\_\_\_ [Enter non-hazardous location, e.g. main elevators] to \_\_\_\_\_ [Enter action, such as give direction and assist emergency responders] provided that they can do so safely without personal risk. These employees are to \_\_\_\_\_ [Enter action to allow for them to be accounted for, e.g. call security office].

Employees performing rescue or medical duties shall \_\_\_\_\_ [Enter procedures to be followed by employees performing rescue or medical duties].

Non-Emergency responder personnel shall not return to an evacuated area until told to do so by \_\_\_\_\_ [enter name of person authorized to allow return, e.g. fire department, safety officer etc.]



Additional information about the Emergency Action Plan and the responsibility of employees under the plan may be obtained from \_\_\_\_\_ [Enter name, title, office].

\_\_\_\_\_ [Enter name of facility] shall train every employee whenever a new employee begins work, an employee's job changes with respect to the emergency and fire prevention plan or when the plan is changed. [Many employers have a policy of annual training and this is recommended]

#### Emergency Response to Chemical Release or Spill

The chemicals present in the department which potentially could require evacuation are \_\_\_\_\_ [these will typically be gas sterilants (EtO, hydrogen peroxide, ozone) or liquid sterilants/HLDs (glutaraldehyde, OPA, peracetic acid)].

In the event of a large spill or release, the release will be detected by \_\_\_\_\_ [e.g. continuous monitoring system] and the alarm to evacuate will be sounded by \_\_\_\_\_

[enter procedure how alarm will be sounded, e.g. automated alarm. If the procedure is that workers must perform some action, such as call safety, notify the CS manager, then this procedure should be described. Some facilities may have a policy that if the chemical release alarms sound, then everyone evacuates, or there may be an evaluation step to assess whether evacuation is needed. The procedures will vary with facility and with the chemical involved. A leak of ethylene oxide may require everyone to evacuate automatically, but a small spill of isopropanol may be handled by employees]

In the event of a chemical release, \_\_\_\_\_ [name & title of person] shall determine if the situation can be handled within the department, by the facility \_\_\_\_\_ [name/titles of responsible people, e.g. Safety Dept] or if external help is required [e.g. fire, hazmat]

If evacuation is necessary, all employees shall evaluate the immediate area to \_\_\_\_\_ [evacuation location] and \_\_\_\_\_ [Name/title of person] shall coordinate the emergency responders and transport/treatment of people exposed to the chemical(s). [Enter appropriate information here]

\_\_\_\_\_ [Enter Name/title] shall contact \_\_\_\_\_ [e.g. police, fire, safety etc.] and inform them of the chemical release including identity of the chemical, quantity, whether there are any injuries, actions taken and any other pertinent information.



If the chemical release is associated with a particular piece of equipment, such as EtO from an EtO sterilizer, then \_\_\_\_\_ [enter name/title] shall contact the manufacturer/maintenance organization responsible for that equipment and request they send a representative to the facility.

\_\_\_\_\_ [Enter name/title] shall stay at \_\_\_\_\_ [non-hazardous location] to advise and guide emergency responders.

Unprotected employees shall not return to the area until told it is safe to do so by the emergency responders.

#### Emergency Responders and Remediation of Chemical Release

The \_\_\_\_\_ [e.g. Safety Dept] and \_\_\_\_\_ [e.g. local fire department] is responsible for responding to a hazardous chemical release. This may include clean-up, fire prevention or control and other means to restore the affected area to normal operations.

The \_\_\_\_\_ [Safety Department or an individual (name/title)] shall coordinate with facilities management, equipment manufacturers (e.g. sterilizer manufacturers etc.) as necessary.

All personnel, whether employees or not, entering an area with potentially hazardous concentrations of gas or vapor (e.g. peracetic acid or hydrogen peroxide) shall wear appropriate PPE.

After a gas or vapor leak, an area shall not be deemed safe to return until \_\_\_\_\_ [e.g. continuous gas monitor indicates that it is safe to return]

Non-Emergency responder personnel shall not return to an evacuated area until told to do so by \_\_\_\_\_ [enter name of person authorized to allow return, e.g. fire department, safety officer etc.]

#### First Aid

Anyone exposed or potentially exposed to hazardous concentrations of chemicals without proper protective equipment should seek medical attention at \_\_\_\_\_ [specify where they should go].



---

Injured employees should immediately report to \_\_\_\_\_ [the  
emergency department located at XXX]



## Ethylene Oxide Emergency Plan

### EtO Emergency Plan

The ethylene oxide standard also requires a written emergency plan (29 CFR 1910.1047(h)) and this can be included as part of the Hazcom plan. [If the facility is using EtO, then you need to have the EtO emergency plan as well as the emergency action and fire prevention plans. If EtO is not being used, then you just need the emergency action (1910.38) and fire prevention (1910.39) plans.]

### Detection of EtO and Alerting Employees

If there is an emergency situation where employees could potentially be exposed to high EtO concentrations, the ethylene oxide will be detected by

\_\_\_\_\_ [e.g. EtO continuous monitoring system.

OSHA does not say what minimum EtO exposure constitutes an emergency, but a potential exposure to 50 ppm is considered an emergency.<sup>2</sup> The odor threshold for EtO is reported to be over 400 ppm<sup>3</sup> and so EtO is imperceptible until well above the emergency concentration, therefore some automatic means needs to be employed to detect EtO. The relevant part of the standard reads:

*"Alerting employees." Where there is the possibility of employee exposure to EtO due to an emergency, means shall be developed to alert potentially affected employees of such occurrences promptly. Affected employees shall be immediately evacuated from the area in the event that an emergency occurs. (29 CFR 1910.1047(h)(2))*

Employees will be alerted to the emergency situation by \_\_\_\_\_ [for example, audible and visual alarm provided by continuous EtO monitor] . On being alerted, all employees shall leave the \_\_\_\_\_ [Define area to be evacuated, such as CS Department] and shall go to \_\_\_\_\_ [state area employees are to go to on evacuation], where all employees shall be accounted for by \_\_\_\_\_ [enter means how employees will be accounted for, e.g. the CS manager shall be responsible for ensuring that all employees are present ...].

<sup>2</sup> See OSHA standard Interpretation, Clarification of 29 CFR 1910.1047(h)(2) Requirements for Emergency EtO Limit, dated April 27, 1990; available at [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=19968](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=19968)

<sup>3</sup> EPA Hazard Summary for Ethylene Oxide-Created in April 1992; Revised in January, available from 2000 <http://www.epa.gov/ttnatw01/hlthef/ethylene.html>



---

### Respiratory Protection (1910.1047(g))

All employees who engage in correcting EtO leaks and other emergencies where there is a risk of exposure to EtO shall be equipped with appropriate respiratory protection until there is no more risk of exposure.

Each employee requiring a respirator will be provided one by the \_\_\_\_\_  
[enter name of employer/facility].

Respirators must be used:

- Initial installation/implementation of engineering controls if EtO may be present.  
[Recommend including repair of engineering controls as well]
- Whenever the EtO concentration is likely to be above the OSHA PEL (1 ppm calculated as an 8 hour time weighted average, or when engineering & work-practice controls are likely to be inadequate to prevent exposure (such as changing of ethylene oxide tanks on sterilizers).
- Emergencies
- Escape

This respirator must meet the following requirements:

- Respirators (filtered or supplied air), approved for use with EtO
- Full face mask not half mask (EtO can cause eye injury)
- The employer must implement a respiratory protection program in accordance with 1910.134, which includes fitting the respirator and training. See this standard for more details.

### Other PPE

When employees could have eye or skin contact with EtO, the employer must provide, appropriate protective clothing and equipment to protect the employee and must ensure that the employee wears the protective clothing and equipment provided.

(1910.1047(g)(4))

### First Aid

Anyone exposed or potentially exposed to hazardous concentrations of EtO without proper protective equipment should seek medical attention at

\_\_\_\_\_ [specify where they should go].

Injured employees should immediately report to \_\_\_\_\_ [the  
emergency department located at]



---

If EtO liquid has contacted skin, the affected area should be flushed with copious amount of water for at least 15 minutes unless advised otherwise by medical personnel or the SDS.

Clothing contaminated with EtO should be removed under an emergency shower. The clothing should be removed to a well ventilated area \_\_\_\_\_ since it may continue to give off EtO.

Follow the directions on the SDS or the manufacturer's instructions for First Aid.