

Harmonization of the Hazard Communication Standard

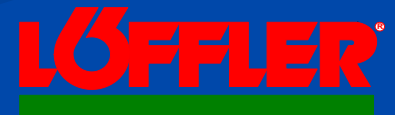
Globally Harmonized System

Presented by

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Loeffler Chemical Corporation



Craft Brewers Conference & BrewExpo America
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HAZARDS ARE EVERYWHERE



OSHA

OCCUPATIONAL
SAFETY
AND
HEALTH
ADMINISTRATION

HAZARD COMMUNICATION STANDARD (HCS)

- Defined in 29 CFR 1910.1200
- OSHA's Hazard Communication Standard (HCS) is based on a simple concept :
- Employees have both a need and the right to know the hazards and identities of the chemicals they are exposed to while working.
- Employees also need to know what protective measures (PPE, CO₂ alarms, etc.) are available to prevent adverse effects from occurring.
- The HCS is designed to provide employees with the information they require.
- The Globally Harmonized System (GHS) is designed to make it easier for the employee to understand the requirements of Hazcom.

HAZARD COMMUNICATION STANDARD (HCS)

- The knowledge acquired under the HCS will help employers provide a safer workplaces for their employees.
- When employers have information about the chemicals being used, they can take steps to reduce exposures, substitute less hazardous materials, and establish proper work practices.
- These efforts are designed to help reduce or prevent the occurrence of work-related illnesses and injuries caused by hazardous substances and chemicals.

HAZARD COMMUNICATION STANDARD (HCS)

- The OSHA Hazcom standard is long and complex and considered to be one of the most confusing OSHA standards.
- Employers often find it difficult to understand and implement all of the requirements. As a result, the HCS continues to be one of the most frequently cited OSHA standards.
- If you are operating in an OSHA-approved State Plan State, you must comply with the State's requirements, which may be different than those of the Federal rule.
- Many of the State Plan States had hazard communication or "right-to-know" laws prior to promulgation of the Federal rule. Employers in State Plan States should contact their State OSHA offices for more information regarding applicable requirements.

HAZARD COMMUNICATION STANDARD (HCS)

- The following 25 states and territories have their own OSHA approved Occupational Safety and Health Plans:

- | | | |
|----------------|----------------|----------------|
| • Alaska | Michigan | Tennessee |
| • Arizona | Minnesota | Utah |
| • California | Nevada | Vermont |
| • Connecticut* | New Mexico | Virginia |
| • Hawaii | New York* | Virgin Islands |
| • Indiana | North Carolina | Washington |
| • Iowa | Oregon | Wyoming |
| • Kentucky | Puerto Rico | |
| • Maryland | South Carolina | |

*(for state and local government employees only)

HAZARD DETERMINATION

- The HCS requires information to be prepared and transmitted regarding all hazardous chemicals.
- The HCS covers both physical hazards (such as flammability), and health hazards (such as irritation, lung damage, and cancer).
- Most chemicals used in the workplace have some hazard potential, and thus will be covered by the rule.
 - Sanitation Chemicals
 - Carbon Dioxide
 - Anhydrous Ammonia
 - Ozone
 - Chlorine Dioxide
 - DE Filter Aid

WHEN IS A CHEMICAL HAZARDOUS?

- Under the HCS, any chemical that presents a physical hazard or a health hazard is considered a hazardous chemical/substance.
- The HCS definitions for physical and health hazards are:
 - 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.
 - 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.

WHEN IS A CHEMICAL HAZARDOUS?

Table 1. HCS Listed Hazard Categories

Physical Hazards

Fire Hazards

Combustible liquid
Flammable liquid
Flammable aerosol
Flammable gas
Flammable solid
Oxidizer
Pyrophoric

Explosion Hazards

Compressed gas
Explosive

Reactive Hazards

Organic peroxide
Unstable (reactive)
Water-reactive

Health Hazards

Systemic Effects

Carcinogen
Toxic agent
Highly toxic agent
Corrosive
Irritant
Sensitizer

Target Organ Effects

Hepatotoxin
Nephrotoxin
Neurotoxin
Blood/hematopoietic toxin
Respiratory toxin
Reproductive toxin
Cutaneous hazard
Eye hazard

WHEN IS A CHEMICAL HAZARDOUS?

- For a hazard determination to be complete, one must consider all possible hazards, and document any hazards that are identified.
- While the hazards listed in the HCS represent the majority of potential workplace hazards, the list is not all-inclusive, especially for health hazards.
- Table 2 is a list of important health hazards that should be evaluated in addition to those specifically listed by the HCS. In conducting the hazard determination, one should be cognizant of all types of physical and health hazards.

Table 2. Other Important Health Hazards

Cardiovascular toxicity
Immunotoxicity
Connective tissue effects
Sensory organ toxicity (sight, hearing, taste)

Gastrointestinal toxicity
Skeletal/muscular effects
Endocrine system toxicity

OTHER OSHA STANDARDS

- **The HCS ties directly and indirectly into many other OSHA standards**
- **29 CFR 1910.120**
 - Hazardous waste operations and emergency response (Hazwoper)
- **29 CFR 1910.38**
 - Emergency action plans (Required for all facilities with chemicals)
- **29 CFR 1910.36/37**
 - *Design and construction requirements for exit routes*
 - *Maintenance, safeguards and operational features for exit routes*
- **29 CFR 1910.165**
 - *Employee alarm systems*
- **29 CFR 1910.111**
 - *Storage and handling of anhydrous ammonia*

HAZARD COMMUNICATION

- The standards design is fairly simple. Chemical manufacturers and importers must evaluate the hazards of the chemicals they produce or import (Hazard Determination).
- Using the information, they must then prepare labels for containers, as well as the more detailed Safety Data Sheets (SDS, formerly MSDS).
- Chemical manufacturers, importers, and distributors of hazardous chemicals are all required to provide the appropriate labels and Safety Data Sheets to the companies to which they ship the chemicals.
- *The information is to be provided automatically.* Every container of hazardous chemicals you receive must be labeled, tagged, or marked with the required information.
- This rule stays in effect in the brewery when chemicals are transferred into other containers. Each container must be labeled, marked or tagged!

HAZARD COMMUNICATION

- **Your suppliers must also send you a properly completed and formatted Safety Data Sheet (SDS) at the time of the first shipment of the chemical.**
- **And with the next shipment after the SDS is updated with new and significant information about the hazards (check SDS date and revision date).**
- **OSHA says that you can rely on the information received from your suppliers.**
- **You have no independent duty to analyze the chemical or evaluate the hazards of it.**

HAZARD COMMUNICATION

- Hazards are communicated to customers via:
 - Safety Data Sheets
 - Product Labels
 - DOT Labels and Placards
 - Signs
 - Other Means of communication

HAZARD COMMUNICATION



LOEFFLER CHEMICAL CORPORATION • 200 GREAT SOUTHWEST PARKWAY • ATLANTA, GEORGIA 30336 • 1-800-769-5020 • (404) 629-0999

LERAPUR™ 283

Heavy Duty Caustic CIP and Keg Cleaner

CHEMICAL EMERGENCY RESPONSE NUMBER:
In case of leak, spill, fire, exposure, or accident
CALL CHEMTREC (24hr): 1-800-424-9300

FOR COMMERCIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN

DIRECTIONS: See your Loeffler Representative or call our Technical Services for detailed use directions unique to your particular usage. Please refer to the Material Safety Data Sheet before use.

PRECAUTIONS: Do not get in eyes, on skin or on clothing. Contact with eyes causes severe burns with possible permanent damage. Contact with skin causes severe burns and may destroy the tissue on prolonged contact. Avoid breathing vapors. Inhalation of vapors may cause irritation and burns to the respiratory system. Do not take internally. Ingestion will cause severe burns to contacted tissue.

FIRST AID:

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

SKIN CONTACT: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and wash before reuse.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

INGESTION: DO NOT INDUCE VOMITING! If conscious, give large quantities of water. If vomiting occurs, administer additional water. Do not attempt to induce vomiting or give anything by mouth to an unconscious person.

GET MEDICAL ATTENTION IMMEDIATELY.

HANDLING AND STORAGE: Read Material Safety Data Sheet before using or handling this product. Make sure there is adequate ventilation. When handling, wear safety goggles, rubber gloves, rubber apron, and chemical resistant boots. Store in a cool, dry, and well ventilated area. Protect container from physical damage and direct sunlight. Keep container tightly closed when not in use. Make sure that all engineering and personal protective equipment is in working order. Do not eat, drink, or smoke during handling. Wash thoroughly after handling and before eating, drinking, smoking, or using the toilet.

IN CASE OF: SPILL OR LEAK - Confine spill. Small spills may be flushed away with plenty of water into an contained chemical sewer or waste water treatment system followed by neutralization with diluted acid. Large spills should be picked up with chemical absorbent or absorbent materials such as sand, earth, or vermiculite. If not possible, dilute material with large quantities of water and flush into self-contained chemical sewer or wastewater treatment system, followed by neutralization with diluted acid. Transfer absorbed spill material and any contaminated underlying soil to a suitable chemical waste container. After all visible traces have been removed, flush area with large amounts of water. Clean up personnel should wear safety glasses and protective clothing suitable for corrosive fluids. See MSDS for further information and disposal.

DANGER:
CAUSES BURNS TO EYES AND SKIN
HARMFUL IF SWALLOWED OR INHALED

Si usted no puede leer inglés, pregunta por favor a un supervisor para la ayuda antes de utilizar este producto.

NET WEIGHT:

BATCH NO.:

Hazardous Materials Identification System		
HEALTH	3	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
FLAMMABILITY	0	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
REACTIVITY	1	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
PERSONAL PROTECTION	C	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z

A: Acute Toxicity
 B: Acute Toxicity
 C: Acute Toxicity
 D: Acute Toxicity
 E: Acute Toxicity
 F: Acute Toxicity
 G: Acute Toxicity
 H: Health Hazard
 I: Health Hazard
 J: Health Hazard
 K: Health Hazard
 L: Health Hazard
 M: Health Hazard
 N: Health Hazard
 O: Health Hazard
 P: Health Hazard
 Q: Health Hazard
 R: Health Hazard
 S: Health Hazard
 T: Health Hazard
 U: Health Hazard
 V: Health Hazard
 W: Health Hazard
 X: Health Hazard
 Y: Health Hazard
 Z: Health Hazard

Consult your supervisor or S.D.S. for specific handling directions.
 Loeffler Chemical, CAS 1010712
 Hazardous Waste, CAS 8001-084
 2700 Highway 12, Atlanta, Georgia 30336, GA
 30336










HAZARD COMMUNICATION

DOT LABELS/PLACARDS



CAUTION: Products may be hazardous to humans even though they are not labeled hazardous under DOT regulations!!

HAZARD COMMUNICATION

<p>Health Hazard</p>  <ul style="list-style-type: none">• Carcinogen• Mutagenicity• Reproductive Toxicity• Respiratory Sensitizer• Target Organ Toxicity• Aspiration Toxicity	<p>Flame</p>  <ul style="list-style-type: none">• Flammables• Pyrophorics• Self-Heating• Emits Flammable Gas• Self-Reactives• Organic Peroxides	<p>Exclamation Mark</p>  <ul style="list-style-type: none">• Irritant (skin and eye)<ul style="list-style-type: none">• Skin Sensitizer• Acute Toxicity (harmful)<ul style="list-style-type: none">• Narcotic Effects• Respiratory Tract Irritant• Hazardous to Ozone Layer (Non Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none">• Gases under Pressure	<p>Corrosion</p>  <ul style="list-style-type: none">• Skin Corrosion/ burns• Eye Damage• Corrosive to Metals	<p>Exploding Bomb</p>  <ul style="list-style-type: none">• Explosives• Self-<u>Reactives</u>• Organic Peroxides
<p>Flame over Circle</p>  <ul style="list-style-type: none">• Oxidizers	<p>Environment *(Non Mandatory)</p>  <ul style="list-style-type: none">• Aquatic Toxicity	<p>Skull and Crossbones</p>  <ul style="list-style-type: none">• Acute Toxicity (fatal or toxic)

HAZARD COMMUNICATION

HMIS & NFPA LABELS

HMIS

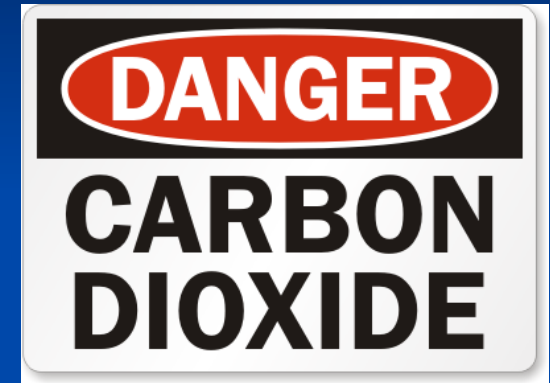
Route of Entry	3	Health
Health Hazards	4	Flammability
Physical Hazards	3	Reactivity
Target Organs	G	Protective Equipment

NFPA



HAZARD IDENTIFICATION

OTHER LABELS



HCS AND GHS

- **GHS = Globally Harmonized System**
- **GHS is part of the HCS**
- **Why GHS?**
- **According to OSHA, the revised HCS not only provides exposed workers the “right to know”, but now gives them the “right to understand”.**

GLOBALLY HARMONIZED SYSTEM

Checklist for Compliance with HCS/GHS:

- ✓ Get a copy of the new standard
- ✓ Read the requirements of the standard
- ✓ Prepare/Update the chemical inventory
- ✓ Obtain a Safety Data Sheet (SDS) for each hazardous chemical
- ✓ Review/develop the written Hazcom plan and update as necessary
- ✓ Assign responsibilities for the various Hazcom tasks
- ✓ Ensure containers are labeled
- ✓ Conduct worker training
- ✓ Make SDSs available to workers
- ✓ Establish procedures to keep SDSs current and available
- ✓ Establish procedures to revise/update the written program
- ✓ Establish procedures to evaluate the effectiveness of the program
- ✓ Review if other standards apply to you directly or indirectly

OSHA – HCS/GHS

How is the SDS changing under the revised standard:

- **Information will remain essentially the same as that in the current standard (Hazcom1994 old, Hazcom2012 new).**
- **Current standard indicates what information has to be included on an MSDS, but does not specify a format for presentation or order of information.**
- **The revised Hazard Communication Standard (HazCom 2012) requires that the information on the SDS be presented using specific headings in a specified sequence.**
- **The new SDS format is the same as the ANSI standard format which is widely used in the US and may already be familiar to many employees.**

NEW STANDARD FORMAT FOR SDS

The format of the 16-section SDS should include the following sections:

- Section 1. Identification
- Section 2. Hazard(s) identification
- Section 3. Composition/information on ingredients
- 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, including date of preparation or last revision

NEW LABELING REQUIREMENTS

How will labeling change?

- Under current HCS, the label preparer must provide the identity of the chemical, and the appropriate hazard warnings.
- This may be done in a variety of ways, and the method to convey the information is left to the preparer.
- Under the revised HCS, once the hazard classification is completed, the standard specifies what information is to be provided for each hazard class and category.

Labels will require the following elements:

- **Pictogram**: a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are adopted and required under the HCS.

GHS PICTOGRAMS

Health Hazard



- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

Flame



- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

Exclamation Mark



- Irritant (skin and eye)
 - Skin Sensitizer
- Acute Toxicity (harmful)
 - Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non Mandatory)

Gas Cylinder



- Gases under Pressure

Corrosion



- Skin Corrosion/ burns
- Eye Damage
- Corrosive to Metals

Exploding Bomb



- Explosives
- Self-Reactives
- Organic Peroxides

Flame over Circle



- Oxidizers

Environment *(Non Mandatory)



- Aquatic Toxicity

Skull and Crossbones



- Acute Toxicity (fatal or toxic)

OSHA – GHS

- **Signal words**: A single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.
- The signal words used are “**Danger**” and “**Warning**.”
- “**Danger**” is used for the more severe hazards, while “**Warning**” is used for less severe hazards.

- **Hazard Statement**: A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

- **Precautionary Statement**: a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling of a hazardous chemical.

GHS LABELS

The Basic Parts of A GHS-Compliant Label

1 →

n-Propyl Alcohol

UN No. 1274

CAS No. 71-23-8

2 →

DANGER

3 →

Highly flammable liquid and vapor. Causes serious eye damage.
May cause drowsiness and dizziness.

4 →

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

5 →

Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • www.acmechem.com • 123-444-5567



6 →

Fill Weight: 18.65 lbs.

Lot Number: B56754434

Gross Weight: 20 lbs.

Fill Date: 6/21/2013

Expiration Date: 6/21/2020

See SDS for further information.

1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.

CURRENT LABELS

LOEFFLER

CHEMICAL EMERGENCY RESPONSE NUMBER:
In case of leak, spill, fire, exposure, or accident
CALL CHEMTREC (24hr): 1-800-424-9300

LOEFFLER CHEMICAL CORPORATION • 200 GREAT SOUTHWEST PARKWAY • ATLANTA, GEORGIA 30336 • 1-800-769-5020 • (404) 629-0999

LERAPUR™ 283

Heavy Duty Caustic CIP and Keg Cleaner

FOR COMMERCIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN

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FIRST AID:

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SKIN CONTACT: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and wash before reuse.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
INGESTION: DO NOT INDUCE VOMITING! If conscious, give large quantities of water. If vomiting occurs, administer additional water. Do not attempt to induce vomiting or give anything by mouth to an unconscious person.

GET MEDICAL ATTENTION IMMEDIATELY.

HANDLING AND STORAGE: Read Material Safety Data Sheet before using or handling this product. Make sure there is adequate ventilation. When handling, wear safety goggles, rubber gloves, rubber apron, and chemical resistant boots. Store in a cool, dry, and well ventilated area. Protect container from physical damage and direct sunlight. Keep container tightly closed when not in use. Make sure that all engineering and personal protective equipment is in working order. Do not eat, drink, or smoke during handling. Wash thoroughly after handling and before eating, drinking, smoking, or using the toilet.

IN CASE OF: SPILL OR LEAK - Confine spill. Small spills may be flushed away with plenty of water into an contained chemical sewer or waste water treatment system followed by neutralization with diluted acid. Large spills should be picked up with chemical absorbent or absorbent materials such as sand, earth, or vermiculite. If not possible, dilute material with large quantities of water and flush into self-contained chemical sewer or wastewater treatment system, followed by neutralization with diluted acid. Transfer absorbed spill material and any contaminated underlying soil to a suitable chemical waste container. After all visible traces have been removed, flush area with large amounts of water. Clean up personnel should wear safety glasses and protective clothing suitable for corrosive fluids. See MSDS for further information and disposal.

DANGER:
CAUSES BURNS TO EYES AND SKIN
HARMFUL IF SWALLOWED OR INHALED

Si usted no puede leer inglés, pregunta por favor a un supervisor para la ayuda antes de utilizar este producto.

Health			Flammability			Reactivity			Personal Protection		
HEALTH	3		FLAMMABILITY	0		REACTIVITY	1		PERSONAL PROTECTION	C	


NET WEIGHT:

BATCH NO.:

GHS

Gradual Implementation:

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers



EMERGENCY PLANS

- Each brewery should have an Emergency Response Plan* or Emergency Action Plan in place
- Each brewery should have a Spill Response Plan in place

EMERGENCY RESPONSE PLAN

Emergency Response Plan [OSHA 1910.120(q)]

- An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations.
- The plan shall be in writing and available for inspection and copying by employees, their representatives, and OSHA personnel.

EMERGENCY RESPONSE PLAN

- *Employers who will evacuate their employees from the workplace when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an Emergency Action Plan in accordance with CFR 1910.38(a).*
- Employers who expect their employees to become actively involved in an emergency response due to a release of a hazardous substance are covered by 1910.120(a) and 1910.120(q), and must train their employees accordingly (HAZWOPER)

EMERGENCY RESPONSE PLAN

- Emergency Response Plan is a facility specific plan for dealing with emergencies
- It shall be implemented immediately whenever there is a fire, explosion, or release of a hazardous substance that threatens human health or the environment.
- The emergency response plan shall be reviewed and immediately amended whenever:
 - The plan fails in an emergency;
 - The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fire, explosions, or release of a hazardous substance;
 - The list of emergency contacts change; or
 - The list of emergency equipment changes.

EMERGENCY RESPONSE PLAN

- Training may include:
 - Emergency escape procedures and emergency escape routes (1910.36/37)
 - How all employees will be accounted for after the evacuation
 - Identifying personnel designated to perform rescue and medical duties (1910.151)
 - How to report fires and other emergencies
 - A demonstration of the employee alarm system (1910.165)

EMERGENCY RESPONSE PLAN



Account for all Employees

Ensure all employees are safely evacuated

Roll call



Account for all Employees

- **Let supervisor know when away from workstation**
- **Let supervisor know where you are**



Rescue and Medical Duties

- Know the potential emergency situations that could occur
- Emergency responders must be trained



Reporting

- Pull alarms
- Automatic alarms
- Phone call



Alarm Systems

- When there is an alarm, evacuate or perform your assigned emergency actions
- *Know the different types of alarm signals*



Alarm Systems

- Flashing lights may be installed in areas where alarms may not be heard
- Alarm systems may use an auxiliary power source so they can operate when power fails



Personal Protective Equipment



HAZARD COMMUNICATION STANDARD (HCS)

- The best way to protect employees is controlling a hazard at its source.
- Depending on the hazard or workplace conditions, OSHA recommends the use of engineering or work practice controls to manage or eliminate hazards to the greatest extent possible.
- For example
 - Building a barrier between the hazard and the employees is an engineering control (e.g. chemical room, splash guards, etc.)
 - Changing the way in which employees perform their work is a work practice control (e.g., automation, safer procedures).
- When engineering, work practice and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment (PPE) to their employees and ensure its use.
- Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to a variety of hazards.

PPE

- To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthful work environment.
- In general, employers are responsible for:
 - Performing a "hazard assessment" of the workplace to identify and control physical and health hazards.
 - Identifying and providing appropriate PPE for employees.
 - Training employees in the use and care of the PPE.
 - Maintaining PPE, including replacing worn or damaged PPE.
 - Periodically reviewing, updating and evaluating the effectiveness of the PPE program.

PPE

- In general, employees should:
 - Properly wear PPE,
 - Attend training sessions on PPE,
 - Care for, clean and maintain PPE, and
 - Inform a supervisor of the need to repair or replace any PPE.
- Specific requirements for PPE are presented in many different OSHA standards, published in 29 CFR.
- Some standards require that employers provide PPE at no cost to the employee while others simply state that the employer must provide PPE.
- Appendix A lists those standards that require the employer to provide PPE and those that require the employer to provide PPE at no cost to the employee.

PPE

The Hazard Assessment

- A first critical step in developing a comprehensive safety and health program is to identify physical and health hazards in the workplace. This process is known as a "hazard assessment."
- Potential hazards may be physical or health-related and a comprehensive hazard assessment should identify hazards in both categories.
- Note that both types may be present when dealing with chemicals and other hazardous materials

PPE

- When the walk-through is complete, the employer should organize and analyze the data so that it may be efficiently used in determining the proper types of PPE required at the worksite.
- The employer should become aware of the different types of PPE available and the levels of protection offered. *It is definitely a good idea to select PPE that will provide a level of protection greater than the minimum required to protect employees from hazards.*

The workplace should be periodically reassessed for any changes in conditions, equipment or operating procedures that could affect occupational hazards. This periodic reassessment should also include a review of injury, illness and near miss records to spot any trends or areas of concern and taking appropriate corrective action.

- The suitability of existing PPE, including an evaluation of its condition and age, should be included in the reassessment.

PPE

- **Documentation of the hazard assessment is required through a written certification that includes the following information:**
 - **Identification of the workplace evaluated;**
 - **Name of the person conducting the assessment;**
 - **Date of the assessment; and**
 - **Identification of the document certifying completion of the hazard assessment.**

SELECTING PPE

- All PPE clothing and equipment should be of safe design and construction
- PPE should be maintained in a clean and reliable fashion.
- Employers should take the fit and comfort of PPE into consideration when selecting appropriate items for their workplace (one size does not fit all!).
- PPE that fits well and is comfortable to wear will encourage employee use of PPE. Most protective devices are available in multiple sizes and *care should be taken to select the proper size for each employee.*
- If several different types of PPE are worn together, make sure they are compatible. If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use.

TRAINING EMPLOYEES IN PPE

- Training Employees in the Proper Use of PPE

Employers are required to train each employee who must use PPE.

- Employees must be trained to know at least the following:
 - When PPE is necessary.
 - What PPE is necessary.
 - How to properly put on, take off, adjust and wear the PPE.
 - The limitations of the PPE.
 - Proper care, maintenance, useful life and disposal of PPE.
- Employers should make sure that each employee demonstrates an understanding of the PPE training as well as the ability to properly wear and use PPE before they are allowed to perform work requiring the use of the PPE.

PPE

- **Training Employees in the Proper Use of PPE**

If an employer believes that a previously trained employee is not demonstrating the proper understanding and skill level in the use of PPE, that employee should receive retraining.

- **Other situations that require additional or retraining of employees include changes in the workplace or in the type of required PPE that make prior training obsolete.**

The employer must document the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

PPE

SAFETY SHOWERS – EYE WASH STATIONS

- b. 29 CFR 1910.151(c) and as adopted by 29 CFR 1926.51, where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.
- Consider the 10 second unobstructed walk/run rule
- Employee should be able to safely get to a safety shower and/or eye wash station within 10 seconds after exposure
- The shower/eye wash station should be in a place where no obstructions are in the way (not always practical, but recommended – planning ahead can help)

PPE

A QUICK POLL

- a. I wear my pants tucked into my boots
- b. I wear my pants over my boots
- c. I usually wear shorts, not an issue
- d. What boots? I wear sandals or athletic shoes

PPE

**ALWAYS WEAR
LONG PANTS
OVER BOOTS!**

PPE



CHEMICAL STORAGE

- Proper storage information can usually be obtained from the Safety Data Sheet (SDS), label, or directly from the supplier of the material.
- As required by 29 CFR 1910.1200, an SDS must be on hand for every hazardous chemical in your workplace. SDSs must be provided by the manufacturer or distributor of chemicals purchased.



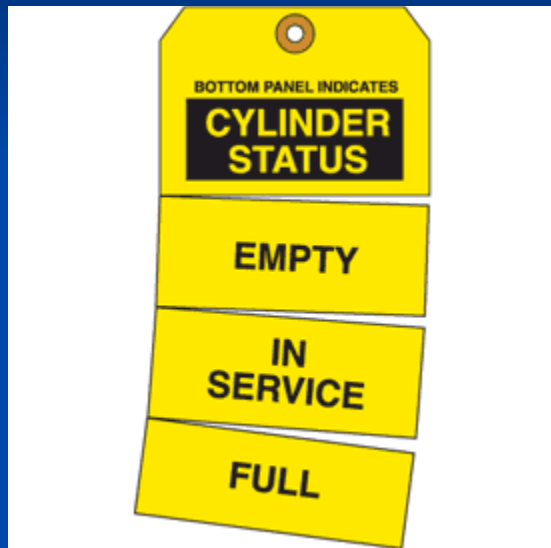
CHEMICAL STORAGE

- Ensure all containers of hazardous chemicals are properly labeled with the identity of the hazardous chemical(s) and appropriate hazard warnings.
- Where possible, segregate all incompatible chemicals.
- Store like chemicals together and away from other chemicals that might cause reactions if mixed.
- Do not store chemicals alphabetically except within a grouping of compatible chemicals.
- Always store chemicals in/on secondary containments*.

*see OSHA & EPA requirements

CHEMICAL STORAGE

- Properly label and secure all compressed gas cylinders



- Keep all stored chemicals, especially flammable liquids, away from heat and direct sunlight.

SECONDARY CONTAINMENTS

EPA Regulations (264.175):

"(a) Container storage area must have a containment system that is designed and operated in accordance with paragraph (b)."

"(b) A containment system must be designed and operated as follows: (1) a base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills.

"(3) The containment system must have sufficient capacity to contain 10% of the volume of all containers or the volume of the largest container, whichever is greater."

- Plan secondary containments with growth in mind

SECONDARY CONTAINMENTS



SPILL RESPONSE



SPILL RESPONSE

- *It is important that key employees are trained to carry out the spill response actions (Hazwoper)*
- Each employee should be familiar with the site drawing that shows where hazardous materials/substances, spill kit(s), and all potentially susceptible and vulnerable storm drains/catch basins are located (the site drawing may be depicted on the reverse side of the spill response plan).

SPILL RESPONSE

- Develop a Spill Response Plan for each hazardous material on site.
- Take into consideration different size containers of same product when developing plan (e.g. drums, IBCs & bulk tank)
- Perform regular training exercises with staff and designated spill response teams
- Perform regular evacuation exercises with all staff
- Have a plan, execute the plan!

SUMMARY FOR HCS/GHS COMPLIANCE

Checklist for Compliance with HCS/GHS:

- ✓ **Get a copy of the standard**
- ✓ **Read the requirements of the standard**
- ✓ **Prepare/Update the chemical inventory**
- ✓ **Obtain a Safety Data Sheet (SDS) for each hazardous chemical**
- ✓ **Review/develop the written Hazcom plan and update as necessary**
- ✓ **Review/develop any other plans requires (Emergency Action Plan, etc.)**
- ✓ **Assign responsibilities for the various Hazcom tasks (Hazwoper, etc.)**
- ✓ **Ensure containers are labeled, including jugs, pails, bottles, etc.**
- ✓ **Conduct worker training (Spill response, medical, evacuation, etc.)**
- ✓ **Make SDSs available to workers (readily accessible station)**
- ✓ **Establish procedures to keep SDSs current and available**
- ✓ **Establish procedures to revise/update the written program**
- ✓ **Establish procedures to evaluate the effectiveness of the program**
- ✓ **Review if other standards apply to you directly or indirectly**

HCS/GHS COMPLIANCE

- **Work closely with your chemical supplier**
- **Assign responsibilities to dedicated personnel**
- **Hazcom most cited standard of all OSHA standards**
- **Keep in mind that other standards may apply directly or indirectly as well**
- **Compliance = Safety**
- **Safety = Safe and sustainable work environment**

BE SAFE



THANK YOU!