



Hazard Communication Initial

Terminal Objective

- Participants will be able to **identify** the different sections of Hazardous Chemical Warning Labels and interpret/cross reference the information in each section with Safety Data Sheet (SDS) information, in accordance with the Pantex and Y-12 Hazard Communication Programs.

Enabling Objectives

- EO1 State the purpose of the Hazard Communication Program
- EO2 Identify methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
- EO3 Identify hazardous chemicals and products not covered by the Hazard Communication Standard.
- EO4 Identify the terms and definition associated with a Safety Data Sheet (SDS).
- EO5 List the information contained in a SDS.
- EO6 Identify the information required on a manufacturer's Hazardous Chemical Label.
- EO7 Identify the information contained on the Pantex or Y-12 Hazardous Chemical Warning Workplace Label.
- EO8 Identify the points of contact for the Hazard Communication Program.

Introduction

- Base-line knowledge
- Additional training if job requires it
- Compliance with the Hazard Communication Standard (29 CFR 1910.1200) which defines the right of employees to know about the hazards of the chemicals they work with.

EO1: Purpose of the Hazard Communication Program

- Known as the “Federal Worker’s Right to Know” program
- It is the **right** of every worker to know the hazards of the chemicals with which they work, and the methods in use to monitor for, and mitigate, the possibility of exposure to those chemicals.
- All new employees are required to be trained



EO1: Purpose of the Hazard Communication Program

Goals:

- Reduce illness and injury caused by chemical hazards in the work place.
- Ensure that chemical manufacturers and importers identify, evaluate and classify the hazards of chemicals they produce and distribute.
- Ensure that hazardous chemical information and appropriate protective measures are communicated to personnel who use the hazardous chemical.

EO1: Purpose of the Hazard Communication Program

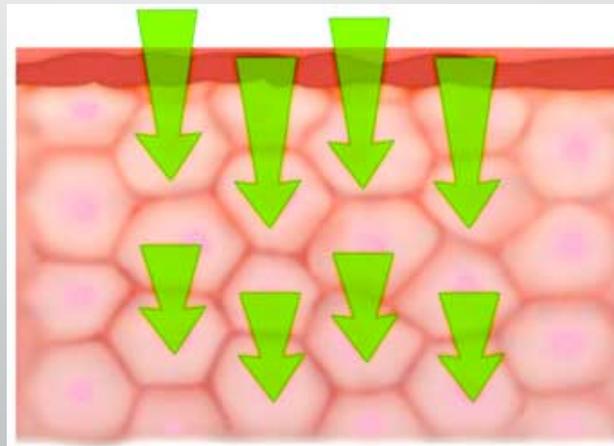
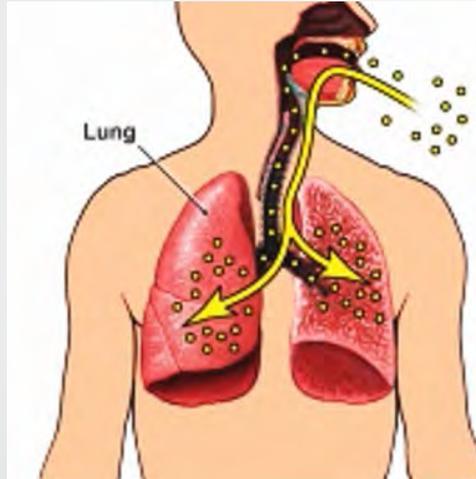
Required Actions:

- Chemical manufacturers and importers must identify, evaluate and classify the hazards of chemicals they make or sell.
- Safety Data Sheets (SDSs) must be provided by the chemical manufacturer or importer.
- Employers must make the SDSs available to the employees.
- Employers must ensure that hazardous chemical containers are properly labeled.
- Employers must list all hazardous chemicals used in the work place. There is a master list of all chemicals on site. There also is a list for each building/facility. This list is accessible upon request.
- Employers must provide employees with training and information.
- Employers must write a Hazard Communication Program.

EO₂: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical

Hazardous chemicals can enter the body in four ways.

1. Inhalation
2. Absorption
3. Ingestion
4. Injection



EO₂: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical



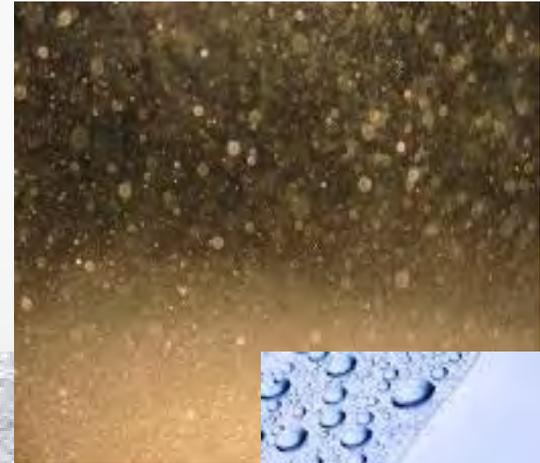
- Personal and area monitoring is routinely performed
- Continuously operating monitoring equipment



EO2: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical

Chemicals that are spilled or released may be in the form of:

- clumps
- powders
- dusts
- liquids
- a cloud of gas



EO2: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical

Employees should be aware of these possibilities and understand their responsibilities for:

- Sounding the alarm
- Effecting an evacuation of all unprotected personnel in the area
- Notifying the OC/supervision
- Securing the area (if it can be done safely without increasing their own potential for exposure to the material)
- Checking for signs and symptoms of possible exposure to the chemical(s)

EO₂: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical



- Personal Protective Equipment (PPE)
- It is your responsibility to:
 - understand how/when to use the PPE
 - how to maintain it in serviceable condition when not in use
 - how to get it replaced when it becomes unserviceable

EO2: Methods & Observations Used to Detect the Presence or Release of a Hazardous Chemical

As an employee, you should:

- **Read** SDSs before using a chemical
- **Be aware** of the monitoring results for chemicals that are used in your routine operations
- **Be aware** of the monitors and alarms that may be present in your areas
- **Be aware** of your responsibilities in the event of a spill or release of a hazardous chemical

Exemptions

EO₃: Hazardous Chemicals & Products Not Covered by the Hazard Communication Standard

- Non-hazardous chemicals
- Pesticides
- Chemicals that are to be used as food additives, color additives for food, drugs, cosmetics, or medical or veterinary devices
- Distilled Spirits intended for non-industrial use
- Consumer products as defined in the Consumer Product Safety Act that are subject to a consumer product safety standard
- Agricultural or vegetable seed treated with pesticides



Exemptions

EO3: Hazardous Chemicals & Products Not Covered by the Hazard Communication Standard

- Hazardous waste
- Hazardous chemicals subject to environmental remediation or removal under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- Tobacco or tobacco products
- Wood or wood products that will not be cut or sawed as a part of use



Exemptions

EO3: Hazardous Chemicals & Products Not Covered by the Hazard Communication Standard

- Articles: manufactured items other than a fluid or particle that are formed to a specific shape or design during manufacture, have an end use function dependent in whole or in part upon the shape or design during use, do not release more than minute or trace amounts of hazardous chemical during use, and do not pose a physical hazard or health risk to employees.
- Foods intended for personal consumption in the workplace.
- Cosmetics packaged for sale.



Exemptions

EO₃: Hazardous Chemicals & Products Not Covered by the Hazard Communication Standard

- Common consumer items that are used in the workplace for the purposes intended by the manufacturer of the product and which results in a duration and frequency of exposure not greater than that of a common consumer.



Exemptions

EO₃: Hazardous Chemicals & Products Not Covered by the Hazard Communication Standard

- Nuisance particulates that do not pose a physical or health hazard.
- Biological hazards
- Ionizing and non-ionizing radiation



EO4: Terms & Definitions Associated with a Safety Data Sheet (SDS)

- An SDS is a technical document provided by the chemical manufacturer for each hazardous chemical they produce.
- It outlines the hazards of the chemical as well as protective measures for its use, storage, and shipment.
- SDSs were formerly referred to as a MSDS (Material Safety Data Sheet).



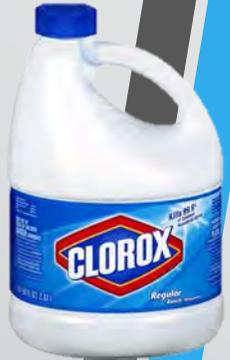
EO4: Terms & Definitions Associated with an SDS

- A **hazardous chemical** is any chemical which is classified as a
 - **Physical hazard and/or**
 - **Health hazard**
 - Simple asphyxiant
 - Combustible dust
 - Pyrophoric gas
 - Hazard not otherwise classified under the standard

EO4: Terms & Definitions Associated with an SDS

A Physical Hazard is:

- Explosive
- Flammable Gas
- Flammable Liquid
- Flammable Solid
- Flammable Aerosol
- Oxidizer (liquid or solid)
- Oxidizer (gas)
- Self-reactive



EO4: Terms & Definitions Associated with an SDS

A Physical Hazard is:

- Pyrophoric Liquid or Solid
- Self-heating
- Organic Peroxide
- Corrosive to Metal
- Gas Under Pressure
- Flammable Gas Emitted on Contact with Water

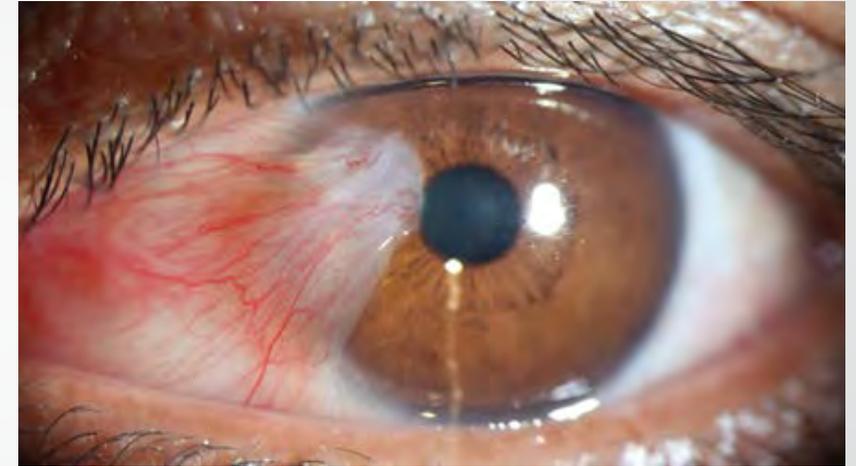


EO4: Terms & Definitions Associated with an SDS



A Health Hazard is/has:

- Acute Toxicity
- Chronic Toxicity
- Corrosive to Skin
- Irritant
- Cryogen
- Serious Eye Damage
- Eye Irritant
- Skin Sensitizer
- Respiratory Sensitizer



EO4: Terms & Definitions Associated with an SDS

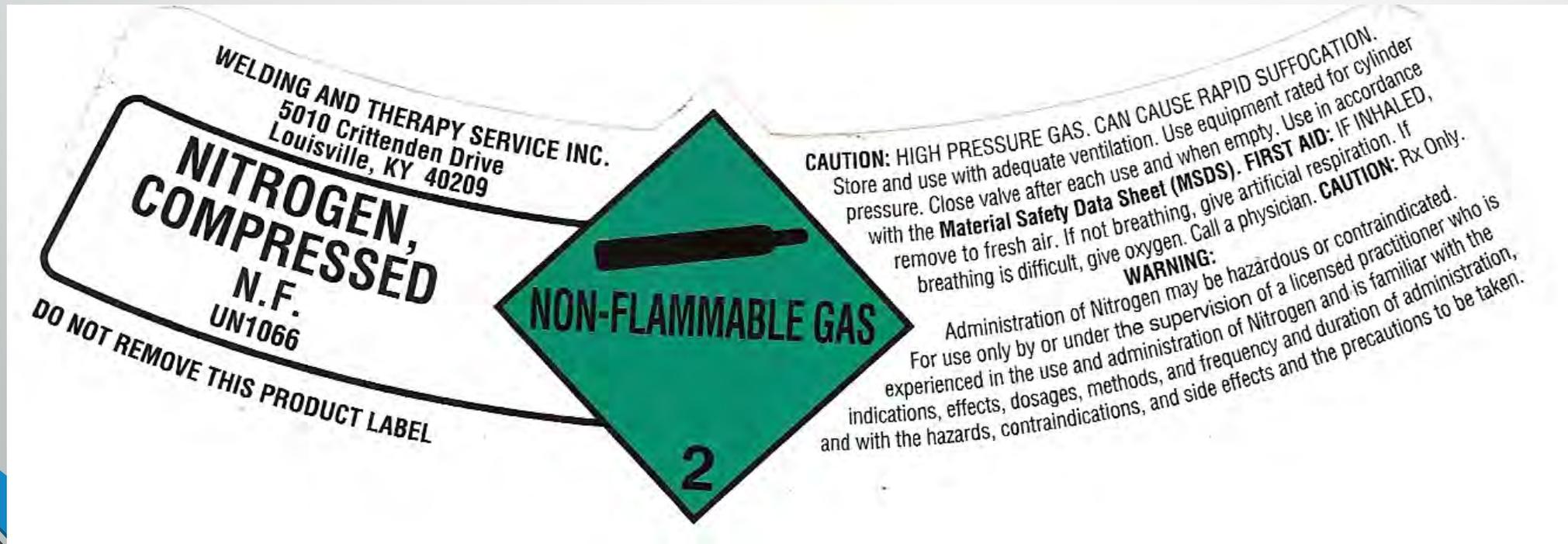
Health Hazard (continued):

- Mutagen: causes genetic mutation
- Teratogen: causes damage to fetus
- Carcinogen: known to have caused cancer
- Suspect Carcinogen: known to have caused cancer in animals
- Reproductive Toxin: causes adverse effects on sexual function and fertility
- Specific Target Organ Toxin: causes non-lethal damage to a specific organ or organ system
- Aspiration Hazard: adversely effects the trachea/lower respiratory system



EO4: Terms & Definitions Associated with an SDS

- A simple asphyxiant is a chemical that can cause unconsciousness or death by suffocation because of oxygen displacement but has no other health effects.



EO4: Terms & Definitions Associated with an SDS



- A **combustible dust** is a solid particulate which is combustible and presents a fire or explosion hazard when suspended in air.

- A **pyrophoric gas** is a gas that will spontaneously ignite upon contact with air or oxygen at or below 130°F.



- A hazard not otherwise classified is a hazard not covered above which could pose a risk to employees.

EO5: Information Contained in an SDS

- Manufacturers have to comply with a specific format
- Required to contain certain types of information
- Effective June 1, 2015; therefore, SDS issued with new chemical shipments must now have the updated format
- Different manufacturers will have different SDSs on the same chemical

EO5: Information Contained in an SDS

1. Product Identification

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Nitric acid, $\geq 99.5\%$ (T)

Product Number : 84390

Brand : Fluka

Index-No. : 007-004-00-1

CAS-No. : 7697-37-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

EO5: Information Contained in an SDS

2. Hazard Identification

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing liquids (Category 3), H272

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H272

May intensify fire; oxidiser.

H314

Causes severe skin burns and eye damage.

Precautionary statement(s)

P210

Keep away from heat.

P220

Keep/Store away from clothing/ combustible materials.

P221

Take any precaution to avoid mixing with combustibles.

P264

Wash skin thoroughly after handling.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated

P304 + P340

clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

P310

P321

P363

P370 + P378

Specific treatment (see supplemental first aid instructions on this label). Wash contaminated clothing before reuse. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

EO5: Information Contained in an SDS

3. Composition / Information on Ingredients

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : HNO₃
Molecular Weight : 63.01 g/mol
CAS-No. : 7697-37-2
EC-No. : 231-714-2
Index-No. : 007-004-00-1

Hazardous components

Component	Classification	Concentration
Nitric acid	Ox. Liq. 3; Skin Corr. 1A; Eye Dam. 1; H272, H314	-

When a Trade Secret is claimed, a statement must be included stating that the chemical ingredient and/or the concentration has been withheld as a trade secret.

Mixtures must have the exact percent concentration or a percent concentration range.

EO5: Information Contained in an SDS

4. First Aid Measures

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

EO5: Information Contained in an SDS

5. Fire Fighting Measures

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. Accidental Release Measures

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

EO5: Information Contained in an SDS

7. Handling and Storage

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

EO5: Information Contained in an SDS

8. Exposure Controls / Personal Protection

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Nitric acid	7697-37-2	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Dental erosion		
		STEL	4 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Dental erosion		
		ST	4 ppm 10 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	2 ppm 5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	2 ppm 5 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m ³ is approximate.		

The standard calls this section Exposure Limits.

EO5: Information Contained in an SDS

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 120 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

EO5: Information Contained in an SDS

9. Physical and Chemical Properties

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|---------------------------------|------------------------------------|
| a) Appearance | Form: liquid
Colour: colourless |
| b) Odour | no data available |
| c) Odour Threshold | no data available |
| d) pH | < 1 at 20 °C (68 °F) |
| e) Melting point/freezing point | no data available |

- | | |
|---|--|
| f) Initial boiling point and boiling range | 100 °C (212 °F) at 1,013 hPa (760 mmHg) |
| g) Flash point | not applicable |
| h) Evaporation rate | no data available |
| i) Flammability (solid, gas) | no data available |
| j) Upper/lower flammability or explosive limits | no data available |
| k) Vapour pressure | 11 hPa (8 mmHg) at 20 °C (68 °F) |
| l) Vapour density | no data available |
| m) Relative density | 1.4 g/cm ³ |
| n) Water solubility | completely soluble |
| o) Partition coefficient: n-octanol/water | no data available |
| p) Auto-ignition temperature | no data available |
| q) Decomposition temperature | no data available |
| r) Viscosity | no data available |
| s) Explosive properties | no data available |
| t) Oxidizing properties | The substance or mixture is classified as oxidizing with the category 3. |
- 9.2 Other safety information
no data available

EO5: Information Contained in an SDS

10. Stability and Reactivity

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

May discolor on exposure to air and light.

10.5 Incompatible materials

Alkali metals, Organic materials, Acetic anhydride, Acetonitrile, Alcohols, Acrylonitrile

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

EO5: Information Contained in an SDS

11. Toxicological Information

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LDLO Oral - Human - 430 mg/kg

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation

Skin - rabbit

Result: Extremely corrosive and destructive to tissue.
(Draize Test)

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Reproductive toxicity - rat - Oral

Effects on Newborn: Biochemical and metabolic.

no data available

Developmental Toxicity - rat - Oral

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: Not available

Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

EO5: Information Contained in an SDS

12. Ecological Information (NOT MANDATORY)

This section may or may not have populated information.

13. Disposal Considerations (NOT MANDATORY)

This section may or may not have populated information.

14. Transport Information (NOT MANDATORY)

This section may or may not have populated information.

15. Regulatory Information (NOT MANDATORY)

This section may or may not have populated information.

EO5: Information Contained in an SDS

16. Other Information

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Dam.	Serious eye damage
H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
Ox. Liq.	Oxidizing liquids
Skin Corr.	Skin corrosion

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	3

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	3
Special hazard.I:	OX

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

- Labels MUST:
 - Meet OSHA requirements
 - Comply with the Globally Harmonized System (GHS)
 - Help the user better understand the hazards/precautions
 - Be on EVERY container shipped

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

- Example of an OSHA Chemical Label Compliant with GHS.

Acetone

Danger!

Highly flammable liquid vapor. Causes severe eye irritation.



Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.

IF CONTACT WITH EYES: Flush eyes with water for at least 15 minutes while holding eyelids open.

In case of fire, use water spray, fog or mist. Dry chemicals. Halon. Powder, foam or CO2.

See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

The label MUST contain:

1. The **Product Name** as it appears on the SDS.
2. The **Name, Address, and Telephone Number** of the chemical manufacturer or responsible party.

1 → **Acetone**

Danger!

Highly flammable liquid vapor. Causes severe eye irritation.

Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.

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See Safety Data Sheet for further details regarding safe use of this product.

2 → ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

3. **Signal Word:** a word used to indicate the severity of hazard level and alert the chemical user to a potential hazard. There are two signal words—**Danger** (for more severe hazards) and **Warning** (for less severe hazards).

3



Acetone

Danger!

Highly flammable liquid vapor. Causes severe eye irritation.

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In case of fire, use water spray, fog or mist. Dry chemicals. Halon. Powder, foam or CO2.

See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567



EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

4. **Hazard Statement(s):** a statement prescribed by OSHA that describes the nature of the hazards(s) of a chemical including, when appropriate, the degree of hazard. For example, "causes damage to the liver and kidneys through prolonged or repeated exposure by inhalation and skin absorption."

4

Acetone

Danger!



Highly flammable liquid vapor. Causes severe eye irritation.

Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.

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See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

5. **Precautionary Statement(s):** a phrase that gives recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or its improper use or handling. There are four types of precautionary statements which fall under **prevention, response, storage, and disposal**. These are often combined into one phrase or short paragraph.

Acetone

Danger!

Highly flammable liquid vapor. Causes severe eye irritation.

5 → Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.

IF CONTACT WITH EYES: Flush eyes with water for at least 15 minutes while holding eyelids open.

In case of fire, use water spray, fog or mist. Dry chemicals. Halon. Powder, foam or CO2.

See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

6. **Pictograms:** There are eight pictograms prescribed by OSHA to represent different types of hazards visually.

	<ul style="list-style-type: none">• Flammable• Self-Reactive• Pyrophoric• Self-Heating• Emits Flammable Gas• Organic Peroxide		<ul style="list-style-type: none">• Carcinogen• Respiratory Sensitizer• Reproductive Toxin• Target Organ Toxin• Mutagen• Aspiration Toxin		<ul style="list-style-type: none">• Corrosive
	<ul style="list-style-type: none">• Oxidizer		<ul style="list-style-type: none">• Explosive• Self-Reactive• Organic Peroxide		<ul style="list-style-type: none">• Gas under Pressure
	<ul style="list-style-type: none">• Irritant• Dermal Sensitizer• Acute Toxin (harmful)• Narcotic Effects• Respiratory Tract Irritant		<ul style="list-style-type: none">• Acute Toxin (severe)		

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

6. Pictograms (continued)

Acetone

Danger!

Highly flammable liquid vapor. Causes severe eye irritation.

Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.

IF CONTACT WITH EYES: Flush eyes with water for at least 15 minutes while holding eyelids open.

In case of fire, use water spray, fog or mist. Dry chemicals. Halon. Powder, foam or CO2.

See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567



6

EO6: Information Required on a Manufacturer's Hazardous Chemical Warning Label

- **NOTE:** there are **NO** numbers on the GHS label indicating health, flammability, or reactivity ratings as there would be on a National Fire Protection Association (NFPA) or Hazardous Material Information System (HMIS) type sticker.
- While OSHA does have classification ratings (numbers) for health and flammability that help establish the proper signal words and hazard/precautionary statements (and those ratings are different from NFPA or HMIS) they appear **nowhere on the label** alleviating possible confusion.

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- OSHA allows individual workplaces to continue to label hazardous chemicals that enter their worksites with labeling of their choice as long as the information is consistent with the overall hazard classification of the chemical.



EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

PANTEX

- Labels are attached to containers upon receipt in order to
 - make hazard determinations
 - chemical storage determinations
 - assist in the proper inventory of chemicals on site
- Uses a 0 - 4 numbering system
 - 0 = Least Hazardous 4 = Highest Hazard
- More conservative
- Unique to Pantex
- Color-coded for easy identification

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- Example of a Pantex Hazardous Chemical Warning Workplace Label

10/9/2015

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN T-ORG	

MSDS#: 21114

56709

Family Code: 320

F

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

1. Name (White): Common chemical name/date that label was printed (useful when determining shelf-life/rotation of stock issues)

10/9/2015

1

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN: T-ORG	

MSDS#: 21114

56709

Family Code: 320

F

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

2. Health (Blue): Exposure limits and/or other toxicological data for the chemical.

10/9/2015

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN: T-ORG	

MSDS#: 21114

56709

Family Code: 320

F



EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

3. Flammability (Red): Chemical's flashpoint (gases/liquids) or it's NFPA flammability rating (solids). Ratings of 2-4 must be stored in an approved flammable cabinet when not in use.

10/9/2015

NAME: ACETONE

HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L

SPECIAL INFORMATION

SKIN T-ORG

Family Code: 320

MSDS#: 21114

56709

F

3

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

- 4. Reactivity (Yellow): Chemical stability (higher the number, the more unstable)

10/9/2015

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN T-ORG	

MSDS#: 2114

56709

Family Code: 320

4 →

F

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

5. Form (White): The physical form of the chemical – solid (S); liquid (L), gas (G); or gel (P).

10/9/2015

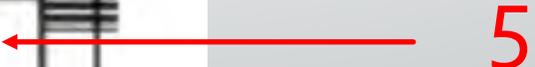
NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN T-ORG	

MSDS#: 21114

56709

Family Code: 320

F



EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

6. Special Information (White): Additional information concerning the chemical which the employee needs to be aware of.

10/9/2015

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN. T-ORG.	
Family Code: 320	

MSDS#: 21114

56709

F

6

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

6. Special Information (continued): The following codes may appear in the Special Information block.

SPECIAL INFORMATION CRITERIA			
A⁺	Releases a toxic/flammable gas on contact with acids	PER	May form explosive peroxides
AIR	Spontaneously ignites in air	PLY	May hazardously polymerize
ASPX	Simple asphyxiant	R	Reproductive toxin
C	Contains a Carcinogen	S	Sensitizing agent
COR	Corrosive	SC	Contains a Suspect Carcinogen
CYL	Pressurized gas cylinder	SEE MSDS	SDS Coversheet has important storage/compatibility information
EXP	Explosive or shock sensitive	SKIN	Irritates or is readily absorbed through the skin
NFPA IA/IB	35Account Use Only	T-ORG	Targets one or more organs of the body
OX	Oxidizer	WA⁺	Releases a toxic/flammable gas on contact with water
P	Pressurized container	-W-	Releases heat on contact with water

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

- **Barcode:** the barcode provides inventory information to the Hazard Communication Group.
- **Compatibility Code:** the alphabetic code is found below the barcode and provides direction for proper storage of the chemical.

10/9/2015

NAME: ACETONE	
HEALTH	FLAMMABILITY
1	4
REACTIVITY	FORM
1	L
SPECIAL INFORMATION	
SKIN: T-ORG	

MSDS#: 21114

Barcode: 56709

Compatibility Code: **F**

Family Code: 320

Barcode

Compatibility Code

EO7: Information Contained on the **Pantex** or Y-12 Chemical Warning Workplace Label

- The rule is to store only like-coded items together (i.e. As with As, Bs with Bs, etc.). For exceptions refer to the SDS Special Information section
- An "X" in the sections of the label (Health, Reactivity, and Flammability) means the information contained on the Manufacturer's Label is to be used. Where chemicals are regulated under FIFRA, the Manufacturer's Label must be used.

10/9/2015

NAME: OFFI ACTIVE INSECT REPELLENT	
HEALTH	FLAMMABILITY
X	X
REACTIVITY	FORM
X	X
SPECIAL INFORMATION	
INSECT REPELLENT	
SEE MFGR LABEL	
Family Code: 12842	

MSDS# 40931
LC50P
64519
F

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

Y-12

- Containers that have a manufacturer's label Do Not require additional labeling.
- UNLESS the manufacturer's label is inadequate, defaced, or removed.
- 4 Segments on label: Health, Fire, Reactivity Ratings and a numerical rating
- Color coded to represent the different hazard categories
- Each class of hazard is rated on a scale of 0 to 4 (4 being the most serious)

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- Example of a Y-12 Hazardous Chemical Warning Workplace Label



EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- The following criteria are used to rate the sections of the workplace label:

Health Hazard (Blue) Rating Criteria		
Rating	Term	Rating Criteria
4	Extreme Health Hazard	Exposure may be life threatening
3	High Health Hazard	Major temporary or permanent injury; may threaten life
2	Moderate Health Hazard	Minor temporary or permanent injury (includes non-life-threatening substances for the majority of exposed workers)
1	Slight Health Hazard	Minor injury, readily reversible
0	No significant health hazard	Materials that produce toxic effects only under the most unusual conditions or from an overwhelming dosage

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- The following criteria are used to rate the sections of the workplace label:

Flammability (Red) Rating Criteria		
Rating	Term	Rating Criteria
4	Extremely Flammable	<ul style="list-style-type: none">Any liquid or gaseous material that is a liquid while under pressure and has a flash point below 73°F (22.8°C) and a boiling point below 100°F (37.8°C).Materials that because of their physical form or other conditions can form explosive mixtures with air, such as dusts of combustible solids and mists of flammable or combustible liquids.
3	Highly Flammable	<ul style="list-style-type: none">Liquids having a flash point below 73°F (22.8°C) and having a boiling point at or above 100°F (37.8°C).Liquids having a flash point at or above 73°F (22.8°C) and below 100°F (37.8°C).Solid materials in the form of coarse dusts, fibers, or shredded form that may burn rapidly but that generally do not form explosive atmospheres in air.
2	Moderately Flammable	<ul style="list-style-type: none">Liquids having a flash point above 100°F (37.8°C), but not exceeding 200°F (93.4°C).Solids and semisolids that readily give off flammable vapors when moderately heated or exposed to high ambient temperatures.
1	Slightly Flammable	<ul style="list-style-type: none">Liquids, solids, and semisolids having a flash point above 200°F (93.4°C).Materials that will burn in air when exposed to a temperature of 1500°F (815.6°C) for 5 minutes or less.
0	Nonflammable	<ul style="list-style-type: none">Any materials that will not burn in air when exposed to a temperature of 1500°F (815.6°C) for 5 minutes or less.

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- The following criteria are used to rate the sections of the workplace label:

Reactivity(Yellow) Rating Criteria	
Rating	Susceptibility of Material to Release Energy
4	Readily capable of <u>detonation</u> or <u>explosive decomposition</u> at normal temperatures and pressures (i.e., <u>nitroglycerin</u> , <u>chlorine azide</u> , <u>chlorine dioxide</u>)
3	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (i.e. <u>ammonium nitrate</u> , <u>chlorine trifluoride</u>)
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (i.e., <u>white phosphorus</u> , <u>potassium</u> , <u>sodium</u>)
1	Normally stable, but can become unstable at elevated temperatures and pressures (i.e. <u>propene</u>)
0	Normally stable, even under fire exposure conditions, and is not reactive with water (i.e. <u>helium</u>)

EO7: Information Contained on the Pantex or Y-12 Chemical Warning Workplace Label

- The following criteria are used to rate the sections of the workplace label:

Specific or Special (White) Rating Information (The white "special notice" area can contain several symbols)	
Rating	Susceptibility of Material to Release Energy
OX	<u>Oxidizer</u> (i.e., <u>potassium perchlorate</u> , <u>ammonium nitrate</u> , <u>hydrogen peroxide</u>)
W	Reacts with <u>water</u> in an unusual or dangerous manner (i.e., <u>cesium</u> , <u>sodium</u> , <u>sulfuric acid</u>)
SA	Simple <u>asphyxiant gas</u> . (i.e., <u>nitrogen</u> , <u>helium</u> , <u>neon</u> , <u>argon</u> , <u>krypton</u> and <u>xenon</u>)
COR	<u>Corrosive</u> ; strong <u>acid</u> or <u>base</u> (i.e., <u>sulfuric acid</u> , <u>potassium hydroxide</u>) ACID and ALK to be more specific
CRYO	<u>Cryogenic</u> (i.e., <u>Liquid Nitrogen</u>)

EO8: Points-of-Contact for the Hazard Communication Program

- *Industrial Hygiene maintains the master database for all of the SDSs used on-site.*
- A SDS is available for every hazardous chemical used on-site.
- If there is not an SDS for a chemical you need to work or if an SDS does not contain all of the information you need, call :
 - **Pantex**—Safety & Industrial Hygiene Dept. at (806) 477-6486
 - **Y-12**—Industrial Hygiene Dept. at (865) 574-1590

EO8: Points-of-Contact for the Hazard Communication Program

If a hazardous chemical is spilled or leaking, you should contact the following immediately:

- **Pantex**—Operations Center at (806) 477-5000
- **Y-12**—911 (land line only) or Plant Shift Superintendent Office (PSS) at (865) 574-7172



EO8: Points-of-Contact for the Hazard Communication Program

For more information, please reference:

- **Pantex:** MNL-352230 "Hazard Communication Program Manual"
- **Y-12:** Y73-208PD "Hazard Communication Program"
: Y73-939 "Hazardous Chemical Storage"