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.
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
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
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
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.
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.**
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
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

1.1 Product identifiers

Product name: Nitric acid, ≥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**

2.1 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 + P333: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated

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

### 3. Composition / Information on Ingredients

#### 3.1 Substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>Formula</th>
<th>Molecular Weight</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>HNO₃</td>
<td>63.01 g/mol</td>
<td>7697-37-2</td>
<td>231-714-2</td>
<td>007-004-00-1</td>
</tr>
</tbody>
</table>

**Hazardous components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>Ox. Liq. 3; Skin Corr. 1A; Eye Dam. 1; H272, H314</td>
<td>-</td>
</tr>
</tbody>
</table>
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
5. Fire Fighting 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 (NOx)

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

6.1 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).
## 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.
8. **Exposure Controls / Personal Protection**

The standard calls this section Exposure Limits.
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: Vitroject® (KCL 890 / Aldrich Z877698, 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-38124 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 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).
## 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 |

### 9.2 Other safety information

| 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/cm³ |
| 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. |

<table>
<thead>
<tr>
<th>g) Initial boiling point and boiling range</th>
<th>100 °C (212 °F) at 1,013 hPa (760 mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>h) Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>i) Evaporation rate</td>
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<tr>
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<tr>
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<td>o) Water solubility</td>
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<tr>
<td>p) Partition coefficient: n-octanol/water</td>
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</tr>
<tr>
<td>q) Auto-ignition temperature</td>
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<tr>
<td>u) Oxidizing properties</td>
<td>The substance or mixture is classified as oxidizing with the category 3.</td>
</tr>
</tbody>
</table>
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
11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity
LD50 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
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(s): 0X

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.4 Revision Date: 07/10/2014 Print Date: 10/09/2015
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.
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.
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).
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.”
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 Label](image)
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.
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
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
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
2. Health (Blue): Exposure limits and/or other toxicological data for the chemical.
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.
4. Reactivity (Yellow): Chemical stability (higher the number, the more unstable)
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).
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.
6. Special Information (continued): The following codes may appear in the Special Information block.

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

![Chemical Warning Label Diagram]
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:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Term</th>
<th>Rating Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Extreme Health Hazard</td>
<td>Exposure may be life threatening</td>
</tr>
<tr>
<td>3</td>
<td>High Health Hazard</td>
<td>Major temporary or permanent injury; may threaten life</td>
</tr>
<tr>
<td>2</td>
<td>Moderate Health Hazard</td>
<td>Minor temporary or permanent injury (includes non-life-threatening substances for the majority of exposed workers)</td>
</tr>
<tr>
<td>1</td>
<td>Slight Health Hazard</td>
<td>Minor injury, readily reversible</td>
</tr>
<tr>
<td>0</td>
<td>No significant health hazard</td>
<td>Materials that produce toxic effects only under the most unusual conditions or from an overwhelming dosage</td>
</tr>
</tbody>
</table>
The following criteria are used to rate the sections of the workplace label:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Term</th>
<th>Rating Criteria</th>
</tr>
</thead>
</table>
| 4      | Extremely Flammable   | • 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      | • 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  | • 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    | • 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          | • 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:

<table>
<thead>
<tr>
<th>Reactivity(Yellow) Rating Criteria</th>
<th>Susceptibility of Material to Release Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating</td>
<td>Description</td>
</tr>
<tr>
<td>4</td>
<td>Readily capable of detonation or explosive decomposition at normal temperatures and pressures (i.e., nitroglycerin, chlorine azide, chlorine dioxide)</td>
</tr>
<tr>
<td>3</td>
<td>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. ammonium nitrate, chlorine trifluoride)</td>
</tr>
<tr>
<td>2</td>
<td>Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (i.e., white phosphorus, potassium, sodium)</td>
</tr>
<tr>
<td>1</td>
<td>Normally stable, but can become unstable at elevated temperatures and pressures (i.e. propene)</td>
</tr>
<tr>
<td>0</td>
<td>Normally stable, even under fire exposure conditions, and is not reactive with water (i.e. helium)</td>
</tr>
</tbody>
</table>
The following criteria are used to rate the sections of the workplace label:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Susceptibility of Material to Release Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>OX</td>
<td>Oxidizer (i.e., potassium perchlorate, ammonium nitrate, hydrogen peroxide)</td>
</tr>
<tr>
<td>W</td>
<td>Reacts with water in an unusual or dangerous manner (i.e., cesium, sodium, sulfuric acid)</td>
</tr>
<tr>
<td>SA</td>
<td>Simple asphyxiant gas. (i.e., nitrogen, helium, neon, argon, krypton and xenon)</td>
</tr>
<tr>
<td>COR</td>
<td>Corrosive; strong acid or base (i.e., sulfuric acid, potassium hydroxide) <strong>ACID</strong> and <strong>ALK</strong> to be more specific</td>
</tr>
<tr>
<td>CRYO</td>
<td>Cryogenic (i.e., Liquid Nitrogen)</td>
</tr>
</tbody>
</table>
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”