Disclaimers:
The following presentation is provided only as a guide to assist employers and employees in complying with the training requirements of the Occupational Safety and Health Administration’s (OSHA) Hazard Communication Standard, 29 Code of Federal Regulations (CFR) 1910.1200, as well as to provide other helpful information. It is not intended to supersede the requirements of the standard. An employer should review the standard for particular requirements that are applicable to their individual situation, and make adjustments to this program that are specific to their company. An employer will most likely need to add information relevant to their particular facility in order to develop an effective, comprehensive program.

Objectives:
- Explain the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- Explain why the United States has adopted usage of the GHS.
- Cover the applicable changes to the existing Hazard Communication Standard.
- Review the new label and data sheet formats.
- Inform employers about GHS training requirements and obligations to their employees.
Hazard Communication Standard (HCS)

- The Occupational Safety and Health Administration (OSHA) revised its HCS to align with the United Nation (UN)’s publication “Globally Harmonized System of Classification and Labeling of Chemicals” (i.e. The Purple Book).
- Published March 26, 2012; 77 Federal Register (FR) 17574.

Globally Harmonized System (GHS)

- The major changes to the HCS are:
  - Hazard classification (implementation date: June 1, 2015);
  - Labels;
  - Safety Data Sheets (SDSs); and
  - Information and training requirements.

- The parts of the HCS standard that do not relate to the GHS that are remaining largely unchanged are:
  - basic framework;
  - scope; and
  - Exemptions.

Effective Dates (j)

<table>
<thead>
<tr>
<th>Effective Completion Date</th>
<th>Requirements</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1, 2013</td>
<td>Train employees on the new label elements and SDS format.</td>
<td>Employers</td>
</tr>
<tr>
<td>June 1, 2015 (not December 1, 2015)</td>
<td>Compliance with all modified provisions of this final rule, except: “the Distributor may ship containers labeled under the HCS 1994 by a manufacturer or importer until December 1, 2015.”</td>
<td>Chemical manufacturers, importers, distributors, and employers</td>
</tr>
<tr>
<td>June 1, 2016</td>
<td>Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.</td>
<td>Employers</td>
</tr>
<tr>
<td>Transition period to the effective completion dates noted above</td>
<td>May comply with either 29 CFR §1910.1200 (the final standard), or the current standard, or both.</td>
<td>Chemical manufacturers, importers, distributors, and employers</td>
</tr>
</tbody>
</table>
Training Requirements

- By December 1, 2013, employers must have trained their employees on two significant changes to the revised standard:
  - Use of the new labeling elements; and
  - Use of the standardized format for SDSs, formerly Material Safety Data Sheets (MSDSs).

GHS Labeling

- Training on label elements must include information on:
  - Product identifier;
  - Signal word (standardized);
  - Pictogram (standardized);
  - Hazard statement (standardized);
  - Precautionary statement(s); and
  - Name, address, and phone number of the chemical manufacturer, distributor, or importer.
GHS Labeling Elements

- **Product Identifier**: How the hazardous chemical is identified. This can be the chemical name, code number, or batch number. The manufacturer, importer or distributor will decide the appropriate identifier. The same identifier must be used on both the label and Section 1 of the SDS.

- **Signal Word (standardized)**: Used to indicate the relative level of severity of hazard and alert to potential hazards.
  - Danger: more severe hazards
  - Warning: less severe hazards

- **Pictogram (standardized)**: OSHA has designated eight mandatory pictograms and one non-mandatory pictogram under this standard for use in a hazard category.

GHS Labeling Elements (cont.)

- **Hazard Statement (standardized)**: Describes the nature of the hazard(s) of a chemical, including the degree of hazard. Can be found in the UN’s Globally Harmonized System of Classification and Labeling of Chemicals, Annex 3.

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

- **Name, address and phone number of the chemical manufacturer, distributor, or importer.**

GHS Pictograms

OSHA’s required pictograms must be in the shape of a square set at a point and include a black hazard symbol on a white background with a red frame sufficiently wide enough to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label.
Hazard Classes May Have Categories

GHS Label Elements for Flammable and Combustible Liquids

GHS Label Elements for Acute Oral Toxicity

Example of GHS Inner Container Label

The GHS hazard pictograms, signal word, and hazard statements should be located together on the label. The actual label format or layout is not specified in the GHS. National authorities may choose to specify where information should appear on the label or allow supplier discretion.

Workplace Label Usage

- Training must include how an employee may use the labels in the workplace. For example, one could explain how the information on the label:
  - can be used to ensure proper storage of hazardous chemicals; and
  - might be used to quickly locate information on first aid when needed by employees or emergency personnel.
How Label Elements Work Together

- Training must address employee and employer general understanding of how the elements of the label work together. For example:
  - Where a chemical has multiple hazards, different pictograms are used to identify the various hazards.
  - When there are similar precautionary statements, the one providing the more protective information will be included on labels.

Safety Data Sheets

- Training on the format of the SDS must include information on:
  - Standardized 16-section format, including the type of information found in the various sections; and
  - How the information on the label is related to the SDS.
Material Safety Data Sheets vs. Safety Data Sheets

**MSDS**
- The MSDS has eight non-mandatory sections.
- The MSDS is the current version, but is being replaced completely by the SDS by June 1, 2015.

**SDS**
- The SDS will be in a standardized 16 section format.
- Essentially follows the American National Standards Institute (ANSI) Z400.1-2004 format.

Minimum Information for an SDS

<table>
<thead>
<tr>
<th>#</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification of the substance or mixture and of the supplier</td>
<td>GHS product identifier; other means of identification; supplier's details (name, address, phone number, etc); emergency phone number.</td>
</tr>
<tr>
<td>2</td>
<td>Hazards Identification</td>
<td>Includes all hazards regarding the chemical; required label elements.</td>
</tr>
<tr>
<td>3</td>
<td>Composition and information on ingredients</td>
<td>Includes information on chemical ingredients; trade secret claims.</td>
</tr>
<tr>
<td>4</td>
<td>First Aid Measures</td>
<td>Includes important symptoms and effects (acute/delayed); required treatment.</td>
</tr>
<tr>
<td>5</td>
<td>Firefighting Measures</td>
<td>Lists suitable extinguishing methods and equipment; chemical hazards from fire.</td>
</tr>
</tbody>
</table>

Minimum Information (cont.)

<table>
<thead>
<tr>
<th>#</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Accidental Release Measures</td>
<td>Lists emergency procedures; protective equipment; proper methods of containment and cleanup.</td>
</tr>
<tr>
<td>7</td>
<td>Handling and Storage</td>
<td>Precautions for safe handling; conditions for safe storage, including any incompatibilities.</td>
</tr>
<tr>
<td>8</td>
<td>Exposure Controls and Personal Protection</td>
<td>Control parameters (occupational exposure limit values, etc.); appropriate engineering controls; individual protection measures.</td>
</tr>
<tr>
<td>9</td>
<td>Physical and Chemical Properties</td>
<td>Appearance; odor; odor threshold; pH; melting and freezing points; boiling point/range; flash point; evaporation rate; flammability; etc.</td>
</tr>
<tr>
<td>10</td>
<td>Stability and Reactivity</td>
<td>Chemical stability; possibility of hazardous reactions; incompatible materials.</td>
</tr>
</tbody>
</table>
### Minimum Information (cont.)

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Toxicological Information</td>
<td>Includes routes of exposure, related symptoms, acute and chronic effects, numerical measures of toxicity.</td>
</tr>
<tr>
<td>12. Ecological Information</td>
<td>Ecotoxicity, mobility in soil, persistence and degradability, other adverse effects.</td>
</tr>
<tr>
<td>13. Disposal Considerations</td>
<td>Description of waste residues and information on their safe handling and methods of disposal.</td>
</tr>
<tr>
<td>14. Transport Information</td>
<td>United Nations (UN) number, UN proper shipping name, transport hazard classes.</td>
</tr>
<tr>
<td>15. Regulatory Information</td>
<td>Safety, health, and environmental regulations specific for the product in question.</td>
</tr>
<tr>
<td>16. Other Information</td>
<td>Includes the date of preparation or last revision.</td>
</tr>
</tbody>
</table>

### OSHA Compliant Optional Information

- All 16 sections are required to be included on the SDS; however, sections 12-15 are not mandatory for OSHA compliance as they cover Ecological, Disposal, Transport, and Regulatory information and fall under other agencies’ jurisdictions.
  - **Ecological**: Environmental Protection Agency
  - **Disposal**: Environmental Protection Agency
  - **Transport**: United States Department of Transportation, Federal Motor Carrier Safety Administration
  - **Regulatory**: Various, dependent on the specific hazardous material

### Example of the First Page of an SDS

- Identification of the substance
- Hazard identification
- Composition/information on ingredients
- First aid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal information
- Transport information
- Regulatory information
- Other information (issue date)
SDSs

- Training must show how the information on the SDS relates to the label.
  - Example: the precautionary statements would be the same on label as on the SDS.
- Both SDSs and labels must be updated in an appropriate and timely manner to “new and significant information.”
  - “new and significant information” is defined as information that changes the GHS hazard classification.

General Training Requirements

- OSHA requires employers to present information in a manner and language that their employees can understand.
- If the employee’s vocabulary is limited or the employee is not literate, the GHS training must account for those limitations.

Summary

- Explain the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- Explain why the United States has adopted usage of the GHS.
- Cover the applicable changes to the existing Hazard Communication Standard.
- Review the new label and data sheet formats.
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Resources

- Comparison of OSHA's current HCS and GHS
- UN’s Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
  - http://www.unece.org/trans/danger/publi/ghs/ghs_rev01/01files_e.html
  Includes physical, health, and environmental hazard classification guidelines; hazard statements; information on SDSs and labels; and examples.

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