Hazcom 2012: Changes to the OSHA Hazard Communication Standard

Risk Engineering
Objectives

- Outline changes to the OSHA Hazard Communication Standard
- Review key changes to labels
- Discuss the new Safety Data Sheet (SDS) format
- Summarize what to expect going forward
Background

• Hazard Communication Standard (HCS) released in 1983
• Major update in 1988 allowed it to apply to most industries
• Last major changes occurred in 1994

• Major aspects of the current standard
  – Evaluate the hazards of chemicals that are sold
  – Communicate these hazards, generally via labels and MSDS
  – Train employees on the hazards of chemicals in their work area
  – Develop a comprehensive program to document activities
Hazcom 2012

- Align the HCS standard to the Globally Harmonized System (GHS)
- GHS is established by the United Nations
  - United Nations guidance for a uniform (harmonized) hazard communication system
    - Initiated at the 1992 United Nations Conference on Environment and Development (UNCED) & refined over the next twenty years
  - Based on “major” existing systems
    - USA and Canadian systems for the workplace, consumers and pesticides
    - European Union directives for classification and labeling of substances and preparations
    - United Nations recommendations on the transport of dangerous goods
- GHS is being implemented globally following various time tables by countries such as Canada, the European Union, Japan, China and Australia
Major changes

• Chemical hazard classification
  – Manner in which manufacturers/importers evaluate chemicals is changing
  – Chemicals must be reclassified following ten health, sixteen physical hazard and three OSHA specific hazard classifications

• Labels
  – Transform to a standardized global template following GHS
  – Labels will include expanded information and be consistent

• Safety data sheets (SDS)
  – MSDS will transfer to a harmonized SDS format containing 16 sections
  – Consistent information no matter the source

• Information and training
  – Changes in the HCS, new labeling system and SDS
  – Update on hazards of chemicals used based on the reclassification
Chemical classification

• Health hazards (10)
  – Several toxicity classifications, skin/eye irritation/damage, sensitization, mutagenicity, carcinogenicity

• Physical hazards (16)
  – Flammable aerosols, gases, liquids, solids, oxidizers, organic peroxides
  – Pyrophoric liquids/solids, self-reactive, self-heating, gases under pressure, corrosive to metals

• OSHA defined hazards (3)
  – Pyrophoric gases
  – Simple asphyxiants
  – Combustible dusts
Labels

• Labels required to have the following information:
  – Product Identifier
  – Signal Word
  – Hazard Statement
  – Pictograms
  – Precautionary Statements
  – Name, address, and telephone number of chemical manufacturer, importer, or other responsible party.
Labels

• Labels required to have the following information:
  – Product Identifier
  – Signal Word
  – Hazard Statement
  – Pictograms
  – Precautionary Statements
  – Name, address, and telephone number of chemical manufacturer, importer, or other responsible party.
  – Also, any specific wording as required in other OSHA standards
Labels

• Signal Words
  – Danger (most severe hazard)
  – Warning

• Hazard Statement
  – The text of all applicable hazard statements will appear on the label, except as otherwise specified.
  – Hazard statements may be combined where appropriate to reduce the information on the label and improve readability, as long as all of the hazards are conveyed as required.
  – Examples:
    “Extremely flammable liquid and vapor”
    “Causes eye irritation”
    “May cause cancer”
# Pictograms

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flame</th>
<th>Exclamation Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogen</td>
<td>Flammables</td>
<td>Irritant (skin and eye)</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Pyrophorics</td>
<td>Skin Sensitizer</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>Self-Heating</td>
<td>Acute Toxicity</td>
</tr>
<tr>
<td>Respiratory Sensitizer</td>
<td>Emits Flammable Gas</td>
<td>Narcotic Effects</td>
</tr>
<tr>
<td>Target Organ Toxicity</td>
<td>Self-Reactives</td>
<td>Respiratory Tract Irritant</td>
</tr>
<tr>
<td>Aspiration Toxicity</td>
<td>Organic Peroxides</td>
<td>Hazardous to Ozone Layer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Non-Mandatory)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas Cylinder</th>
<th>Corrosion</th>
<th>Exploding Bomb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gases Under Pressure</td>
<td>Skin Corrosion/Burns</td>
<td>Explosives</td>
</tr>
<tr>
<td></td>
<td>Eye Damage</td>
<td>Self-Reactives</td>
</tr>
<tr>
<td></td>
<td>Corrosive to Metals</td>
<td>Organic Peroxides</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flame Over Circle</th>
<th>Environment</th>
<th>Skull and Crossbones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidizers</td>
<td>Aquatic Toxicity</td>
<td>Acute Toxicity (fatal or toxic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: OSHA
Precautionary Statements

- **Prevention** – “Do not eat, drink, or smoke when using this product”
- **Response** – “If on skin, wash with plenty of water”
- **Storage** – “Store in a well ventilated space. Keep container tightly closed”
- **Disposal** – “Dispose of contents/containers in accordance with local, regional, national regulations”.

Sample GHS label

Source: OSHA
Safety data sheets (SDS)

• The SDS can have up to 16 sections in the specified order
• Sections 1 – 11 and 16 are mandatory under the OSHA Hazard Communication Standard
• Sections 12 – 15 may be included, but are not mandatory
• The Hazard Communication standard specifies the minimum information in each section of the SDS
• SDS must be in English (copies in other languages are allowed)
Safety data sheets (SDS) sections

- Identification
- Hazard identification
- Composition/information on ingredients
- First-aid measures
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection

- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information *
- Disposal considerations *
- Transport information *
- Regulatory information *
- Other information

*Not enforced by OSHA
• Section 1 – Identification
  – Product identifier used on label
  – Other means of identification
  – Recommended use of chemical and restrictions on use
  – Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party
  – Emergency Phone Number(s)
Safety Data Sheet

• Section 2 – Hazard(s) Identification
  – Classification of chemical (per standard)
  – Signal word, hazard statement(s), symbol(s) and precautionary statements.
  – Describe any hazards not otherwise classified that have been identified during the classification process.
Safety Data Sheet

• Section 3 – Composition/information on ingredients
  – For substances
    – Chemical Name
    – Common name and synonyms
    – CAS number and other unique identifiers
    – Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.
• Section 3 – Composition/information on ingredients
  – For Mixtures - In addition to the information required for substances include the chemical name and concentration (exact %) or concentration ranges of all ingredients which are classified as health hazards
  – Statement as to whether the specific chemical identity or exact percentage (concentration) is a trade secret
Safety Data Sheet

- Section 4 – First-aid Measures
  - Description of necessary measures – subdivided according to routes of exposure (i.e., inhalation, skin and eye contact, ingestion).
  - Most important symptoms, acute and delayed
  - Indication of immediate medical attention and special treatment needed, if necessary
Safety Data Sheet

• Section 5 – Fire-Fighting Measures
  – Suitable (and unsuitable) extinguishing media
  – Specific hazards arising from the chemical (e.g., nature of hazardous combustion products).
  – Special protective equipment and precautions for fire fighters
Safety Data Sheets

• Section 6 – Accidental Release Measures
  – Personal precautions, protective equipment, and emergency procedures.
  – Methods and materials for containment and cleaning up

• Section 7 – Handling and Storage
  – Precautions for safe handling
  – Conditions for safe storage, including incompatibilities
Safety Data Sheets

• Section 8 – Exposure Controls/Personal Protection

  – OSHA Permissible Exposure Limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV®), and any other exposure limit used or recommended by the chemical manufacturer, or employer preparing the SDS, where available

  – Appropriate Engineering Controls

  – Individual protection measures, such as personal protective equipment
Safety Data Sheets

• Section 9 – Physical and Chemical Properties
  – Appearance (physical state, color, etc.)
  – Odor
  – Odor Threshold
  – pH
  – Melting Point/Freezing Point
  – Initial boiling point and boiling range
  – Flash Point
  – Evaporation Rate
  – Flammability (solid, gas)
Safety Data Sheets

• Section 9 – Physical and Chemical Properties (continued)
  – Upper/Lower flammability or explosive limits
  – Vapor Pressure
  – Vapor Density
  – Relative Density
  – Solubility
  – Partition Coefficient (n-octanol/water)
  – Auto-ignition temperature
  – Decomposition temperature
  – Viscosity
Safety Data Sheets

• Section 10 – Stability and Reactivity
  – Reactivity
  – Chemical Stability
  – Possibility of hazardous reactions
  – Conditions to avoid (e.g., static discharge, shock, or vibration)
  – Incompatible Materials
  – Hazardous Decomposition Products
Safety Data Sheets

• Section 11 – Toxicological Information
  – Description of the various toxicological (health) effects and the available data used to identify those effects.
  – Information on likely routes of exposure (e.g., inhalation, ingestion, skin and eye contact)
  – Symptoms related to physical, chemical and toxicological characteristics
  – Delayed and immediate effects and also chronic effects from short- and long term exposure
  – Numerical measures of toxicity (such as acute toxicity measurements)
  – If chemical is a listed carcinogen
Safety Data Sheets

• Section 12 – Ecological Information (non-mandatory)
  – Ecotoxicity (aquatic and terrestrial, where available)
  – Persistence and degradability
  – Bioaccumulative potential
  – Mobility in Soil
  – Other adverse effects (such as hazardous to ozone layer)
Safety Data Sheets

• Section 13 – Disposal Considerations (Non-mandatory)
  – Description of waste residues and information on their safe handling and methods of disposal, including disposal of any contaminated packaging

• Section 14 – Transport Information (Non-mandatory)
  – UN Number
  – UN Proper Shipping Name
  – Transport Hazard Class(es)
  – Packing Group, if applicable
  – Environmental Hazards (e.g., Marine Pollutant (Yes/No)
  – Transport in Bulk
  – Special user precautions or compliance information in connection with transport or conveyance within or outside their premises
Safety Data Sheets

• Section 15 – Regulatory Information (Non-Mandatory)
  – Safety, health and environmental regulations specific for the product in question.

• Section 16 – Other Information including date of preparation or last revision
Key dates

• December 1, 2013 – initial training of employees on new labeling and SDS
• June 1, 2015 – comply with remaining provisions of standard (reclassification of chemicals, use of GHS labels and SDS updates) *
• June 1, 2016 – provide additional employee training as needed based on chemical reclassification, update in-plant labeling, update hazard communication program elements based on the changes

*Chemical distributors may ship products with old labels until December 1, 2015
What to expect going forward

• Initial training is completed
  – Changes in the HCS standard
  – Understanding the new GHS style labels
  – Understanding the SDS
• Watch for new SDS and labels as they arrive
• Review of any in-plant labeling
• Adjustment of hazard communication program
• Expect additional training at a later time
  – Changes in the characteristics of chemicals based on updated SDS and label information
  – Hazard communication program changes based on changes in the standard
  – Any changes to in-plant labeling or process documents (batch tickets, etc.)
Questions?
Thank you

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