The Globally Harmonized System (GHS) for Hazard
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Compliance Dates

- By December 1, 2013
  - Employee Training
- By June 1, 2015
  - Compliance with standard
- By December 1, 2015
  - Manufacturing labeling requirements

≈32 million workers are potentially exposed to 1 or more chemical hazards.

≈ 650,000 chemical products in existence, and hundreds of new ones introduced each year
Regulations

OSHA
29 CFR 1910.1200

PEOSH
NJAC 12:100-7

NJDHSS
NJSA 34:5A-1

Hazard Communication Regulation

● OSHA / NJPEOSH
  – Chemical Manufacturer Responsibility:
    ● Determine
    ● Document
    ● Communicate
      The hazards associated with their product and appropriate protective measures to purchasers/users of the product

Regulation

● OSHA / NJPEOSH
  – Employer Responsibility:
    ● Identify – products containing hazardous Chemicals in the workplace
    ● Obtain – an MSDS for each product
      An HSFS for hazardous ingredient (if available)
    ● Label - chemical containers
    ● Document – written program
    ● Train – All employees that may potentially be exposed
Hazard Communication
Your Employer’s Program
– Should be
  ◆ Specific to your facility
  ◆ Include
    – List of all hazardous chemicals in the workplace
    – Information about those chemicals
  ◆ Identifies staff responsible for compliance
  ◆ Outlines employee training procedures

What are Your Rights?
A safe and healthful workplace
– Properly labeled containers in your workplace
– Additional information about the hazards of
  – Chemicals you may be exposed to
– Access to hazard and protection information
– Ability to file a complaint for non-compliance

Chemical Inventory / Hazard Info
◆ Chemical Inventory
  – Must include every hazardous substance onsite
  – Most NJ employers use the Right-to-Know Survey
  – Must be reviewed / updated regularly (annually at least)
Right-to-Know Survey

Includes:
- Chemical Inventory by Product Name
- Hazardous Product Ingredients by CAS Number
- List by Substance Number
- Number of Employees Potentially Exposed
- Location of the Product Storage

Updated Annually and Submitted to:
- NJ Department of Health and Senior Services
- Local and County Health Departments
- Police, Fire, and Emergency Management Offices

Chemical Labeling

- Product Identification
  - Name of the Product
  - Manufacturer’s Name
  - Hazardous Ingredients (by name and CAS#)

- Hazard Identification
  - Employer may choose the system
    - Words, Pictures, Symbols
    - Labeling Systems such as NFPA or HMIS

What is the GHS?

- A common and coherent approach to defining and classifying hazards, and communicating information on labels and safety data sheets.

- Provides the underlying infrastructure for establishment of national, comprehensive chemical safety programs.
Why is the GHS needed?

- No country has the ability to identify and specifically regulate every hazardous chemical product.
- For example, in the United States, there are an estimated 650,000 such products.
- Adoption of requirements for information to accompany the product helps address protection needs.

Why? (cont.)

- Many different countries have come to the same conclusion about using information dissemination as a regulatory means to address chemical hazards.
- While similar, they are different enough to require multiple labels and safety data sheets for the same product in international trade.

Why? (cont.)

- Countries with systems have different requirements for hazard definitions as well as information to be included on a label or material safety data sheet.
- For example, a product may be considered flammable or toxic in one country, but not in another to which it is being shipped.
Why? (cont.)

- These differences impact both protection and trade.
- In the area of protection, users in countries that don’t have specific requirements may see different label warnings or data sheet information for the same chemical.

Why? (cont.)

- In the area of trade, the need to comply with multiple regulations regarding hazard classification and labelling is costly and time-consuming.
- Small to medium enterprises are effectively precluded from international trade in chemicals due to the regulatory burden of compliance.

Benefits of Harmonization

- Countries, international organizations, chemical producers and users of chemicals all benefit.
  - Enhance protection of humans and environment.
  - Facilitate international trade in chemicals.
  - Reduce need for testing and evaluation.
  - Assist countries and international organizations to ensure the sound management of chemicals.
International Mandate

- An international mandate to harmonize was adopted at the United Nations Conference on the Environment and Development (UNCED) in 1992 in Brazil:
  - A globally-harmonized hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols, should be available, if feasible, by the year 2000.

Major Existing Systems

- UN Transport Recommendations
- European Union (EU) Directives on Substances and Preparations
- Canadian Requirements for Workplace, Consumers and Pesticides
- US Requirements for Workplace, Consumers and Pesticides

Principles Of Harmonization

- Protections will not be reduced; comprehensibility will be key.
- All types of chemicals will be covered; will be based on intrinsic properties (hazards) of chemicals.
- All systems will have to be changed.
The GHS Elements
Classification Criteria
- Health and Environmental Hazards
- Physical Hazards
- Mixtures
Hazard Communication
- Labels
- Safety Data Sheets

Health & Environmental Hazards
- Acute Toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage/Eye Irritation
- Respiratory or Skin Sensitization
- Germ Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicity
- Target Organ Systemic Toxicity – Single and Repeated Dose
- Hazardous to the Aquatic Environment

Physical Hazards
- Definitions, test methods and classification criteria for transport were used as a basis for the work since they were already harmonized.
Physical Hazards

- Explosives
- Flammability – gases, aerosols, liquids, solids
- Oxidizers – liquid, solid, gases
- Self-Reactive
- Pyrophoric – liquids, solids
- Self-Heating
- Organic Peroxides
- Corrosive to Metals
- Gases Under Pressure
- Water-Activated Flammable Gases

Labels

- The Working Group identified about 35 different types of information that were required on labels by different systems.
- To harmonize, key information elements was identified.
- Additional harmonization may occur on other elements in time, in particular for precautionary statements.

Key Label Elements

- Product identifier
- Supplier identifier
- Chemical identity
- Hazard pictograms*
- Signal words*
- Hazard statements*
- Precautionary Information

*Standardized
**Pictogram Shape and Colour**

- For transport, pictograms will have the background and symbol colours currently used.

- For other sectors, pictograms will have a black symbol on a white background with a red diamond frame. A black frame may be used for shipments within one country.

- Where a transport pictogram appears, the GHS pictogram for the same hazard should not appear.

**Transport Pictograms**

- 16 hazard Classes
- 11 Hazard Classes
- 2 HC's
Health Hazard
- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

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

Exclamation Mark
- Irritant (skin and eyes)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer
  (Non-Mandatory)
Gas Cylinder
- Gases Under Pressure

Oxidizers
- Oxidizer: Yields oxygen that may contribute to the combustion of other materials.

Corrosion
- Skin Corrosions/ Burns
- Eye Damage
- Corrosive to Metals
  - Examples:
    - Acid and Basic solutions
    - Salts
Exploding Bomb

- Explosives
- Self Reactives: thermally unstable compounds that may undergo exothermic decomposition
- Organic Peroxides: $R-O-O-R$

Environment

- Aquatic Toxicity
- May include terms LC50

Skull and Cross Bones

- Acute Toxicity: Fatal or Toxic
Signal Words

“Danger” or “Warning”

- Used to emphasize hazard and discriminate between levels of hazard.

Hazard Statements

- A single harmonized hazard statement for each level of hazard within each hazard class
  - Example: Flammable liquids
    - Category 1: Extremely flammable liquid and vapour
    - Category 2: Highly flammable liquid and vapour
    - Category 3: Flammable liquid and vapour
    - Category 4: Combustible liquid

Precautionary Information

- GHS label should include appropriate precautionary information.
- The GHS document includes examples of precautionary statements which can be used.
- The intent is to harmonize precautionary statements in the future.
Role of the SDS in the GHS

- The SDS should provide comprehensive information about a chemical substance or mixture.

- Primary Use: The Workplace

- Employers and workers use the SDS as a source of information about hazards and to obtain advice on safety precautions.

**SDS**

- Safety Data Sheet
- Prepared by the Manufacturer
- Generally for mixtures
- Sometimes for pure substances
- Contain information on hazards (health/safety/flammability/reactivity)
- Describe means of protection and storage precautions
- Outline emergency response protocol

SDS Format: 16 headings

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/personal protection
Format: 16 headings (cont.)

9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

HSFS

- Hazardous Substance Fact Sheet
- Prepared by NJ Department of Health
- Generally for Pure Substances/ingredients
- Sometimes for Common mixtures
- Contain information on hazards
- Describe means of protection and storage precautions
- Outline emergency response protocol

So what does this mean for purchasing

- The Hazard Communication Standard
  Was amended to include GHS
  29 CFR 1910.1200
- NJPEOSH has not yet adopted the standard
- NJRTK still applies- PEOSH will enforce SDS
Questions

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