The MAP

The Top 10 Safety Violations for 2015 include:

1. Fall Protection: 6,721 citations (1926.501)
3. Scaffolding: 4,295 citations (1926.451)
4. Respiratory Protection: 3,305 citations (1910.134)
5. Lockout/Tagout: 3,002 citations (1910.147)
6. Powered Industrial Trucks: 2,760 citations (1910.178)
7. Ladders: 2,489 citations (1910.1053)
8. Electrical-Wiring Methods: 2,404 citations (1910.305)
10. Electrical-General Requirements: 1,973 citations (1910.303)
Revised Hazard Communication Standard - Aligning with the GHS

A common, coherent approach to classifying and communicating chemical hazards.

- Harmonized definitions of hazards
- Specific criteria for labels
- Harmonized format for safety data sheets

Objectives

- Brief overview of GHS changes
- Brief overview of the hazcom standard
- Describe changes in requirements for labeling hazardous chemicals – Secondary Containers
- Describe changes in (Material) Safety Data Sheet requirements
- List other OSHA standards affected by the revised HCS

Why Did OSHA Align the HCS with GHS?

- A common, coherent approach to classifying and communicating chemical hazards
  - Harmonized definitions of hazards
  - Specific criteria for labels
  - Harmonized format for safety data sheets
Why Did OSHA Align the HCS with GHS?

- The GHS approach is designed to improve comprehensibility, and thus the effectiveness of the HCS, and help to further reduce illnesses and injuries
- Increase the quality and consistency of information provided to the workers, employers and chemical users
- Other benefits include facilitation of international trade in chemicals

Bipartisan Budget Act of 2015

Have you heard of it?

The House of Representatives passed the Bipartisan Budget Act of 2015 on October 28th, 2015 by a vote of 266-167. The Senate passed the measure on October 30th, 2015 by a vote of 64-35. The President signed the bill into law on November 2nd, 2015.
Section—by—Section Summary

Title IX -- Judiciary

Sec. 701. Civil monetary penalty inflation adjustments.

Apply these provisions to the Occupational Safety and Health Act and civil penalties assessed under the Social Security Act.

Require all agencies with civil monetary penalties covered by the statute to update penalties based on their value in the last update prior to 1996 and the change in the CPI between that date and October 2015. The increase in penalties that results from this “catch up” calculation would be capped at 150% (so a penalty now set at $10,000 could not increase to more than $25,000).
Some things never change.

Bromomethane, commonly known as methyl bromide, is an organobromine compound with formula \( \text{CH}_3\text{Br} \). This colorless, odorless, nonflammable gas is produced both industrially and particularly biologically.

See things for what they are

My first OSHA Fatality investigation
State of Kentucky
PhD chemist
chronic overexposure
Bromomethane
Chemical Compound

Bromomethane, commonly known as methyl bromide, is an organobromine compound with formula \( \text{CH}_3\text{Br} \). This colorless, odorless, nonflammable gas is produced both industrially and particularly biologically.
Principles & Assumptions

• OSHA has modified only the provisions of the HCS that must be changed to align with the GHS
  – The basic framework of the HCS remains the same
    • Chemical manufacturers and importers are responsible for providing information about the identities and hazards of chemicals they produce or import
    • All employers with hazardous chemicals in their workplaces are still required to have a hazard communication program, and provide information to employees about their hazards and associated protective measures
• OSHA has maintained the overall current level of protection of the HCS
Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under that Act by the Department of Transportation.

This Standard Does Not Apply To

- Hazard waste under the jurisdiction of EPA
- Tobacco or tobacco products
- Wood or wood products which are not going to be processed further and do not pose a hazard other than combustibility
- Articles
- Food, drugs or cosmetics intended for personal consumption
- Drugs in solid final form for direct administration to patient
- Consumer products
- Radiation and biological hazards
- Nuisance particulates

Hazard Communication
Subpart Number: Z 1910.1200
Toxic and Hazardous Substances

- (d) “Hazard determination.”
  - Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.
Hazard Communication, Subpart Number: Z 1910.1200
Toxic and Hazardous Substances

• (e) "Written hazard communication program."

Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met.

• (f) "Labels and other forms of warning."

• (g) "Safety data sheets."

• (h) "Employee information and training."

Hazard Communication, Subpart Number: Z 1910.1200
Toxic and Hazardous Substances

(e) "Written hazard communication program." (continued)

• A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

• The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

(e) "Written hazard communication program." (continued)

• "Multi-employer workplaces."

  – The methods the employer will use to provide the other employer(s) information on hazcom

  – The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken

  – The methods the employer will use to inform the other employer(s) of the labeling system
Hazard Communication
Subpart Number: Z 1910.1200
Toxic and Hazardous Substances

(f) "Labels and other forms of warning." The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

– Identity of the hazardous chemical(s);
– Appropriate hazard warnings; and
– Name and address of the chemical manufacturer, importer, or other responsible party.

(g) "Safety data sheets."

Chemical manufacturers and importers shall obtain or develop a safety data sheet for each hazardous chemical they produce or import. Employers shall have a safety data sheet in the workplace for each hazardous chemical which they use.

(h) "Employee information and training."

– Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area.
### Effective Dates – HazCom 2012

<table>
<thead>
<tr>
<th>Effective Completion Date</th>
<th>Requirement(s)</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*</td>
<td>Comply with all modified provisions of this final rule, except: Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.</td>
<td>Chemical manufacturers, importers, distributors and employers</td>
</tr>
<tr>
<td>December 1, 2015</td>
<td>Comply with all modified provisions of this final rule, except: Distributors may ship products labeled by manufacturers under the old system 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</td>
<td>Comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both.</td>
<td>All chemical manufacturers, importers, distributors and employers</td>
</tr>
</tbody>
</table>

*This date coincides with the European Union implementation date for classification of mixtures.

### Notable Changes in HCS 2012

- Most of the old CPL 02-02-038 guidance remains in place.
- "Hazard classification" replaces "Hazard determination."
- New requirements for labels:
  - Product identifier, pictogram, signal word, hazard statement(s), precautionary statement(s), name, address and telephone number of responsible party.
- SDS replace MSDSs
  - 16-section format.
Hazard Classification

**HazCom 1994**
- Performance-oriented
  - Definitions in paragraph (c), Appendices A and B
  - Appendix B—parameters for evaluating data
  - “Floor” of chemicals considered hazardous
  - “One study” rule
  - Standardized mixture cut-off rules

**HazCom 2012**
- Specific and detailed
  - Concept of “classification” vs. determination in HazCom 1994
  - Each hazard class has detailed criteria to apply to data on the chemical
  - No floor; based on weight of evidence
  - Mixture rules are specific to each hazard class

Hazard Classes and Categories

- Each type of hazard covered is considered a “hazard class”—such as acute toxicity, carcinogenicity.
- However, most of these hazard classes are also subdivided into “hazard categories” to reflect the degree of severity of the effect.
- This is the concept of “classification”—rather than just determining that there is a hazardous effect (carcinogenicity), there is also a finding of how severe that effect might be (ex. Category 1 or 2).
How to Classify a Hazard

• Chemical manufacturers and importers must classify each chemical they produce or import:
  • Determine the appropriate hazard classes and associated hazard categories.
  • Base on an evaluation of the full range of available data/evidence on the chemical (no testing is required).
    • Weight of evidence.
    • Bridging Principles.
  • Use Appendix A for health hazard criteria and Appendix B for physical hazard criteria.

Classification of a Chemical in the Course of Normal Use

• Requirements of the HCS are triggered where a chemical “is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.”

• “Exposure” is defined as including “potential (e.g. accidental or possible) exposure.”
  – OSHA has interpreted this language as excluding “substances for which the hazardous chemical is inextricably bound or is not readily available, and, therefore, presents no potential for exposure.”

• Example: A sanding operation where downstream worker is potentially exposed during normal conditions of use or a foreseeable emergency, must be considered in classification.
### Health Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Health Hazard Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>1</td>
<td>1A</td>
</tr>
<tr>
<td>Serious Eye Damage/ Eye Irritation</td>
<td>1</td>
<td>1A</td>
</tr>
<tr>
<td>Respiratory or Skin Sensitization</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>1A</td>
<td>1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>1A</td>
<td>1B</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>1A</td>
<td>1B</td>
</tr>
<tr>
<td>STOT – Single Exposure</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>STOT – Repeated Exposure</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Aspiration</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Physical Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Physical Hazard Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosives</td>
<td>Unstable Explosives</td>
<td>Div 1.1</td>
</tr>
<tr>
<td>Flammable Gases</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Oxidizing Gases</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Gases under Pressure</td>
<td>Compressed Gases</td>
<td>Liquefied Gases</td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Flammable Solids</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Self-Reactive Chemicals</td>
<td>Type A</td>
<td>Type B</td>
</tr>
<tr>
<td>Pyrophoric Liquids</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pyrophoric Solid</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pyrophoric Gases</td>
<td>Single Category</td>
<td></td>
</tr>
<tr>
<td>Self-heating Chemicals</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chemicals, which in contact with water, emit flammable gases</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Oxidizing Liquids</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Oxidizing Solids</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Organic Peroxides</td>
<td>Type A</td>
<td>Type B</td>
</tr>
<tr>
<td>Corrosive to Metals</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Combustible Dusts</td>
<td>Single Category</td>
<td></td>
</tr>
<tr>
<td>Simple Asphyxiants</td>
<td>Single Category</td>
<td></td>
</tr>
</tbody>
</table>
Labels – (f)

**HazCom 1994**
- Shipped containers to be labeled with identity, appropriate hazard warnings, and responsible party
- Performance-oriented, specifics left to discretion of chemical manufacturer or importer

**HazCom 2012**
- Shipped containers to be labeled, tagged, or marked with:
  - Product identifier
  - Signal word
  - Hazard statement(s)
  - Pictograms
  - Precautionary statements, and
  - Name, address, and phone number of the responsible party
- Specifies information by hazard class and category

---

**How to Determine What Goes on a Label**

- The final rule—like the GHS—is a specification approach to labels. In Appendix C, OSHA has indicated by hazard class and hazard category the label elements that must be on the label.
- Use of Appendix C allows a “cookbook” approach to labeling - after completing classification of hazards (using Appendices A & B), consult Appendix C to determine how to convey the required information.

---

- Appendix A: Health Hazard Criteria (Mandatory)
- Appendix B: Physical Criteria (Mandatory)

ONLY for manufacturers of chemicals. Users follow Appendices C & D

- Appendix C: Allocation of Label Elements (Mandatory)
  
  The label for each hazardous chemical shall include the product identifier used on the safety data sheet.

  Appendix D: Safety Data Sheets (Mandatory)
Label Elements

- **“Pictogram”** - a symbol plus other graphic elements, such as border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical.
  - Eight pictograms are designated under this standard for application to a hazard category.

Labeling – Appendix C

- Pictograms must have white background/red frame.
- Sufficiently wide to be clearly visible.
- Unused pictograms must be fully blacked-out when not in use.
- Blank red frames, words, the letter “X,” or other means to indicate that the red frame has been intentionally left blank should not be used on labels.

Label Elements (cont’d)

- **“Signal Word”** - indicates the relative level of severity and alert the reader to a potential hazard on the label.
  - “Danger” or “Warning”
- **“Precautionary statement”** - describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.
  - For example: Wear face protection
- **“Hazard statement”** - a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
  - For example: Harmful if inhaled
Label Example

Not labeled properly

GH

Required Elements
- Product identifier
- Signal words
- Hazard statements
- Pictograms
- Precautionary statements
- Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

A new Appendix C, Allocation of Label Elements, has been provided to indicate the label requirements by hazard class and category.
Example GHS Label
The Basic Parts of A GHS-Compliant Label

GHS Pictograms and Hazards

GHS Label Elements

Signal Words
Danger or Warning

Carbon Dioxide

OSHA
GHS Label Elements

Hazard Statements

Precautionary Statements

Meaning of numbers require training

• NFPA Code for Flammability
  4 is the worst
• GHS Classification & Categories
  1 is the worst category

Methanol, GHS Flammability Category = 2

Safety Data Sheets – (g)

HazCom 1994
- Specified what information is required, but chemical manufacturer or importer can use whatever format or order of information they want

HazCom 2012
- Mandates 16-section SDS headings, order of information, and what information is to be provided under the headings
- Will not enforce sections 12-15 that require information outside OSHA’s jurisdiction
16-Section Safety Data Sheet (Appendix D)

- Identification of the substance or mixture and of the supplier
- Hazards identification
- Composition / information on ingredients Substance / Mixture
- First aid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Exposure controls / personal protection.
- Physical and chemical properties
- Stability and reactivity
- Toxicological
- Ecological information (non mandatory)
- Disposal considerations (non mandatory)
- Transport information (non mandatory)
- Regulatory information (non mandatory)
- Other information including information on preparation and revision of the SDS

Training – (h)

- No significant change from HCS 1994 training requirements.
- Highlights:
  - (h)(3)(ii):
    - Physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified.
  - (h)(3)(iv):
    - Labels on shipped containers, workplace labeling system, and SDS.

February 9, 2015 Enforcement Memo

- HCS 2012 went fully into effect on June 1, 2015.
- The Feb. 9, 2015 Memo provides additional time to fully comply with HCS 2012 in limited situations.
- Applies to manufacturers and importers that have exercised “reasonable diligence and good faith” to classify chemical mixtures according to HCS 2012, but have not been able to due to circumstances beyond their control.
- Memo only applies if manufacturer’s MSDS and label comply with HCS 94.
February 9 Memo and Distributors

- Distributors permitted to ship chemicals with HCS 94 labels until Dec. 1, 2015.
- When manufacturer/importer cannot comply with the June 1 effective date despite reasonable diligence and good faith efforts, distributors can continue to ship HCS 94 labels if also exercised good faith.

Distributor - Labeling of Existing Stock

- Existing stock packaged for shipment and containers that are HCS 1994-compliant labeled before December 1, 2015, may continue to ship those containers downstream.
  - No requirement to re-label packaged for shipment containers with HCS 2012-compliant labels.
- All containers in the control of a distributor after December 1, 2017, must be HCS 2012-compliant labeled prior to shipping.

Distributor - Labeling of Existing Stock (cont’d)

- If HCS 2012-compliant labels and SDS are available, the distributor must provide a HCS 2012-compliant label for each and every container shipped and the appropriate HCS 2012-compliant SDS(s).
- Must provide HCS 2012-compliant SDSs to downstream users with the first shipment after a new or revised SDS is provided by the manufacturer or importer.
Highlighted Responses to Frequently Asked HCS Questions

Small Package Labeling (cont'd)

- If tags, pull-out labels, or fold-back labels cannot be used, OSHA's practical accommodation for small shipped containers includes:
  - Product Identifier
  - Appropriate pictogram(s)
  - Manufacturer's name and phone number
  - Signal word
  - A statement indicating the full label information for the chemical is provided on the outside package.

Does HCS Labeling Need to Be on the Outside Packaging?

- The HCS 2012 requires the immediate container to be labeled, the standard does not require labels on outside shipping containers.

- If a shipped container is also the immediate container, then DOT and HCS 2012 labels are both required.
What About Other Regulatory Agency or Consensus Standard Organization Labeling?

- OSHA does not regulate labels that are required or recommended by another regulatory agency or consensus standard organization such as CPSC, FDA, or NFPA.

- However, supplemental information is permitted if it does not conflict with the required HCS information.

Can Multiple Countries’ Hazard Classifications Be on a Label?

- All of the required HCS 2012 information must be on the label.

- Section C.3.1 of Appendix C to HCS 2012 allows supplemental information to be added to labels so long as the information does not contradict or cast doubt on the validity of the required HCS 2012 label information.

Secondary Containers ???
**Do Samples of Chemicals Have to Be Labeled with All of the HCS 2012 Information?**

- Samples must have all of the HCS 2012 label information on the immediate container, unless it's a portable container and is intended for immediate use of the employee who performs the transfer.

---

**Small Package Example**

- Inner packaging/immediate container with minimum required OSHA label elements

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- Signal Word
- Hazard statements
- Precautionary statements
- Additional information as required by the competent authority or appropriate supplier identification.
SDSs for Multiple Chemicals Packaged Together in Separate Inner Compartments

- A separate SDS is required for each distinct hazardous chemical.
- When a manufacturer or importer intends for a chemical to be used with another chemical and that use creates a new hazard, the manufacturer must also disclose those hazards on the SDS (Section 10).
  - Example – epoxy glue

Is a Safety Data Sheet Required for a Non-Hazardous Chemical?

- For materials that are not considered hazardous by HCS 2012:
  - SDS is not required.
  - Encouraged to follow SDS 16-section format to reduce any confusion to the worker, if one is created.

Can I Staple Multiple SDSs Together and Send Downstream?

- The manufacturer or importer is not allowed to staple multiple SDSs together and send downstream. Each mixture must have its own classification.
- Multiple SDSs from the individual components of a mixture may NOT be substituted for a single SDS that describes the hazards of the product or material.
Covered by GHS or Lab Standard?

1910.1450(b) definition

**Laboratory Scale:**
Work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person.

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Chemical Hygiene Plan

**Purpose:**
- Protect from health hazards.
- Ensure chemical exposures are kept below regulatory limits.
- Promote a positive safety culture.

*Note, the CHP was not designed to address safety hazards, like fire hazards.*

---

Chemical Hygiene

- Specific operating procedures
- Criteria for measures taken
- Fume hood function
- Procedures requiring special authorization
- Training
- Provisions for medical consult and examine
Chemical Hygiene Plan (CHP)

- Written CHP, including CHO
- SOP’s
- Hazard Identification
- Equipment must work
- Information & Training
- Exposure Monitoring
- Medical Consult and Examination

Chemical Hygiene Plan

- CHO and chemical hygiene committee responsibilities.
- Particularly hazardous substance provisions.
- Foundation of the lab safety program and must be reviewed annually.

Jurisdiction – Nothing Changed

- CPSC vs. HCS 2012 labeling requirements
  - Any hazardous chemical that is not subject to CPSC exemptions or other exemptions listed in (b)(5) must be labeled in accordance with the HCS 2012 requirements
- Academic and research laboratories that are covered under 1910.1450 are exempt from the HCS 2012.
- Federal Railroad Administration (FRA) does not preempt OSHA from enforcing the HCS 2012 with regards to hazmat workers.
- RCRA vs. HCS 2012
  - When waste does not meet the definition of “hazardous waste” under the RCRA regulations, it is covered by the HCS if it meets the standard’s definition of “hazardous chemical” and if it does not fall under any of the other HCS exemptions.
Litigation Challenging HCS 2012

- Several industry groups in four petitions for review.
- Two cases settled:
  - American Chemistry Council v. OSHA
  - American Petroleum Institute v. OSHA
- Two cases were litigated:
  - American Tort Reform Ass’n v. OSHA
  - Nat’l Oilseed Processors Ass’n v. OSHA

Cases that OSHA Settled

- **American Chemistry Council v. OSHA**: settlement resulted in OSHA issuing guidance related to labels and SDSs for combustible dust
- **American Petroleum Institute v. OSHA**: settlement resulted in OSHA issuing guidance on several technical issues, including how manufacturers could classify the health hazards of petroleum streams under HCS 2012

Combustible Dust Labeling Accommodation

- Appendix C, C.3.1 of HCS 2012 says that additional information may be provided as long as it does not contradict or cast doubt on the validity of the hazard information.
- Hazard statement required for combustible dust is “May form combustible dust concentrations in air.”
- March 25, 2013 Letter of Interpretation (ACC).
Combustible Dust Labeling Accommodation (cont’d)

• If converted to small particles during further processing, handling, or by other means, may form combustible dust concentrations in air.

• If small particles are generated during further processing, handling, or by other means, may form combustible dust concentrations in air.

• Permissible to have this language on label and SDS.

• March 25, 2013 Letter of Interpretation to Jonathan Snare.

Combustible Dust SDS Accommodation (cont’d)

• For chemical that is not a combustible dust in the form shipped, does not present any other hazard under HCS 2012 in the form shipped, and will not present a combustible dust hazard or any other hazard in normal conditions of use or foreseeable emergencies unless processed downstream, permissible to state on the SDS:

  – This product is not hazardous in the form in which it is shipped by the manufacturer, but may become hazardous through downstream activities (e.g., grinding, pulverizing) that reduce its particle size. Those hazards are described below.

• March 4, 2014 Letter of Interpretation to Erik Baptist (American Petroleum Institute).

Defining Combustible Dust

• OSHA’s Combustible Dust NEP defines combustible dust as a "combustible particulate solid that presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape."

• Consensus standards also have various tests, data, and criteria that can be used to determine whether a material presents a combustible dust hazard.
2013 Galassi Memo

- Chemical should be classified as combustible dust when classifier knows it has been involved in deflagration or dust explosion.
- In the absence of that knowledge, classification based on:
  - Laboratory testing
  - Published test results (e.g. NFPA 61, 68, 484, 499)
  - Dust particle size (e.g. 420 microns or smaller)
  - Other reliable methods

Combustible Dust

- Resources available:
  - December 2013 Galassi Memo
  - Combustible Dust NEP, CPL 03-00-008 (2008)
  - Directorate of Enforcement Programs and the Salt Lake Technical Center (SLTC)

Petroleum Streams

- HCS 2012 preamble said that petroleum streams were a “complex mixture”; would have to therefore follow the mixture rules in Appendix A.
- March 4, 2014 Letter of Interpretation to Erik Baptist, American Petroleum Institute provided additional guidance.
Petroleum Streams
• Slightly different classification for health hazards than mixture rules in Appendix A.
• Slightly different disclosure requirements on Section 3 of SDS because too hard to identify all constituents in a petroleum stream.
• Can group constituents that are toxicologically similar (e.g. polycyclic aromatic hydrocarbons (PAHs)).
• Other constituents, like benzene or n-hexane, that are known to be present in the stream, and present classified health hazards must be listed individually in Section 3.

Domestic/International

International Implementation
• Many countries around the world have already adopted the GHS:
  – Canada, Australia, New Zealand
  – Countries of the European Union
  – South American countries, including Brazil, Bolivia, Argentina
  – Asia, including Japan, China, Korea, Thailand
  – African Nations, including Congo, Nigeria, South Africa, Zambia
Working Group Activities

• Precautionary Statements
• Nanomaterials
• Global List
• Combustible Dust
• Practical Classification Issues

Looking Ahead – UN activities

• Work will continue on
  – Combustible Dust; Global List of classifications pilot program; Nanomaterials; Precautionary Statements; Physical hazard test methods; PCI working group; Aspiration hazards
• New work items
  – Review of the explosive chapter for guidance for workplace handling; Labeling of small packages – initiate work on another example; Classification of Flammable gases

Educational Materials and Outreach

• OSHA’s HCS safety and Health Topics Page
    • Labeling, Safety data sheet, Pictograms, Training, FAQs, Presentations
• Materials in progress
  – US/Canada fact sheets