Revised Hazard Communication Standard - Aligning with the GHS

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Occupational Safety and Health Administration



- Why adopt GHS
- Description of the major changes to the HCS
 - What has not changed
 - What has changed
- · Changes that will be seen in the field
- Guidance Products



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



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



Principles & Assumptions

- Other aspects of the standard have minimal modifications in terminology to make them consistent with GHS
 - The scope and application is basically unchanged, maintaining practical accommodations made by OSHA
 - Written hazard communication program requirements, worker training, and trade secret provisions are all largely unchanged from the existing rule



Notable Changes

- Using "hazard classification" rather than "hazard determination" (along with related terms)
- Labels are more defined
 - Product identifier, pictogram, signal word, hazard statement (s), precautionary statement(s), name, address and telephone number
- Safety Data Sheets
 - Formalized the format and changed the name
- Bulk of the technical requirements in Appendices, rather than in the primary paragraphs of the regulatory text



Organization of the Final Rule

(a) Purpose (b) Scope and Application (c) Definitions (d) Hazard Classification (e) Written Hazard Communication Program (f) Labels and Other Forms of Warning (g) Safety Data Sheets (h) Employee Information and Training (i) Trade Secrets (j) Effective Dates



Appendices

- Appendix A, Health Hazard Criteria (Mandatory) (NEW)
- Appendix B, Physical Hazard Criteria (Mandatory) (NEW)
- Appendix C, Allocation of Label Elements (Mandatory) (NEW)
- Appendix D, Safety Data Sheets (Mandatory) (NEW)
- Appendix E, Definition of "Trade Secret" (Mandatory)
- Appendix F, Guidance for Hazard Classifications re: Carcinogenicity (Non-Mandatory) (NEW)





- Maintains the purpose to preempt state laws unless under an OSHA-approved state plan (supported by stakeholder comments)
- Added that the Agency's specific intent is to align this rule with the GHS, Revision 3
- Replaced the word "evaluating" with "classified"
- Added clarification language for preemption in (a)(2)



(b) Scope and Application

- Paragraph (b)(1) has been modified to remove the reference to Appendix E
- The remainder of the scope provisions are unchanged (practical accommodations based on types of exposures; interface with other Federal agency requirements)



- All definitions for the GHS are located at 1900.1200(c)
- Under this final rule, physical hazard criteria are more detailed and are provided in Appendix B rather than in paragraph (c)
- Minor edits were made to some of the definitions located throughout this section in order to ensure they conformed with the GHS



- The following physical hazard terms were removed from the final rules definition section:
 - Combustible liquid; compressed gas; explosive; flammable; flashpoint; organic peroxide; oxidizer; pyrophoric; unstable (reactive); and water-reactive



- Terms no longer being defined due to changes in terminology:
 - Hazard warning; identity; and material safety data sheet (MSDS)
- Terms revised to be consistent with the GHS:
 - Chemical; chemical name; hazardous chemical; health hazard; label; mixture; physical hazard; and trade secret



- The following terms are being added to the definitions section:
 - Classification; hazard category; hazard class; hazard not otherwise classified; hazard statement; label elements; pictogram; precautionary statement; product identifier; pyrophoric gas; safety data sheet (SDS); signal word; simple asphyxiant; and substance
 - These terms are primarily related to the changes in approach to evaluating hazards, and providing label information



Use of the Term "Chemical"

- OSHA previously used "chemical" to indicate both substances and mixtures
- OSHA has decided to continue using "chemical" in the final rule as meaning those situations where both substances and mixtures are being addressed
- "Hazardous chemical" means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.



Hazards Not Otherwise Classified

- One unique aspect to the OSHA's final rule is the definition of "hazards not otherwise classified"
- This definition was added to ensure that hazards currently covered by HCS continue to be covered
- Changes from current practices are not anticipated (used during literature reviews)



Hazards Not Otherwise Classified

"Hazard not otherwise classified (HNOC)" means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).



Hazards Not Otherwise Classified

- Information will be required on the safety data sheets in Section 2
- Hazard information on the label, is not mandatory, but can be provided under supplementary information
- Such hazards must also be addressed in worker training



HCS 1994 v. HCS 2012

- Very similar in scope and concept
 - Provide downstream flow of information
 - Self-classification
- Revised standard builds in specific criteria to help to ensure consistency worldwide
 - Addresses the degree of severity
 - Assigns categories of hazards within hazard classes
 - Provides detailed scientific approaches





- Evaluation of literature and scientific data to determine whether a chemical is hazardous as defined in the HCS
- For mixtures, the approach for health hazards is to base it on a percentage cut-off of 0.1% for carcinogens, and 1% for all other effects



HCS 2012: Hazard Classification

- Criteria and definitions of health and physical hazards are provided in Appendix A, B, and in the definitions paragraph
- Appendices A and B provide additional parameters for evaluating health and physical hazard data



(d) Hazard Classification

- 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 (Category 1 or 2)



(d) Hazard Classification: Classification Provisions

- Chemical manufacturers and importers must classify each chemical they produce or import:
 - Determine the appropriate hazard classes and associated hazard categories
 - Base this on an evaluation of the full range of available data/evidence on the chemical (no testing is required)
 - Use Appendix A for health hazard criteria and Appendix B for physical hazard criteria
 - The introduction to Appendix A provides the general approach to classification, including bridging principles



Appendix A, Health Hazards

- OSHA adopted all of the health hazard classes in the GHS—the criteria to define each of these are found in Appendix A
- However, the Agency did not adopt the following hazard categories:
 - Acute toxicity: Category 5
 - Skin Corrosion/irritation: Category 3
 - Aspiration hazard: Category 2



Appendix A, Health Hazards

For carcinogens - OSHA is allowing classifiers to use determinations of IARC/NTP for classification instead of performing their own hazard evaluation – New Appendix F



Health Hazards

Hazard Class	Hazard Category						
Acute Toxicity	1	2	3	4			
Skin Corrosion/Irritation	1A	1B	1C	2			
Serious Eye Damage/ Eye Irritation	1	2A	2B				
Respiratory or Skin Sensitization	1						
Germ Cell Mutagenicity	1A	1B	2				
Carcinogenicity	1A	1B	2				
Reproductive Toxicity	1A	1B	2	Lactation			
STOT – Single Exposure	1	2	3				
STOT – Repeated Exposure	1	2					
Aspiration	1						
Simple Asphyxiants	Single Category						



- HCS 2012 has a tiered approach to mixtures, with each health hazard class having a specific approach
 - Step 1: Use available test data on the mixture as a whole to classify the mixture based on the substance criteria
 - Step 2: Use bridging principles to extrapolate from other data (e.g., dilution principle)
 - Step 3: Estimate hazards based on known information regarding the ingredients of the mixture (cut-offs may be applied)
 - Except for chronic health hazards
- Chemical manufacturers and importers may rely on the information provided in ingredient SDSs unless they have a reason to know that it is inaccurate



Appendix B, Physical Hazards

- The physical hazard criteria in Appendix B are based on the UN Recommendations for the Transport of Dangerous Goods, and are already used by the Department of Transportation in hazardous materials regulations
- OSHA has adopted the GHS criteria for all physical hazards



Physical Hazards

Hazard Class	Hazard Category							
Explosives	Unstable	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6	
	Explosives							
Flammable Gases	1	2						
Flammable Aerosols	1	2						
Oxidizing Gases	1							
Gases under Pressure	1							
Compressed Gases								
Liquefied Gases								
Refrigerated Liquefied Gases								
Elemmeble Liquide	1	2	2	1				
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Self-Reactive Chemicals	Type A	Type B	Type C	Type D	Type E	Type F	Type G	
Pyrophoric Liquids	1							
Pyrophoric Solid	1							
Pyrophoric Gases	Single							
	category							
Self-heating Chemicals	1	2						
Chemicals, which in	1	2	3					
contact with water, emit								
flammable gases								
Oxidizing Liquids	1	2	3					
Oxidizing Solids	1	2	3					
Organic Peroxides	Type A	Type B	Type C	Type D	Type E	Type F	Type G	
Corrosive to Metals	1							
Combustible Dusts	Single							
	Category							



 OSHA did not modify the written hazard communication requirements except for minor terminology edits.





• This paragraph has been extensively rewritten to incorporate the GHS approach.

• This final rule sets forth detailed, required elements for labels.



(f) Labels and Other Forms of Warning

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



Harmonized Information

- Signal words, hazard statements, and pictograms have been harmonized, and assigned to each hazard class and category in the GHS
- Once a chemical has been classified, the label preparer can obtain the relevant harmonized information from Appendix C



Harmonized Information

"Signal word" - a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.

- "Danger" is used for the more severe hazards,
- "Warning" is used for the less severe



Harmonized Information

"Pictogram" means a composition that may include a symbol plus other graphic elements, such as a 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.


HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)	
 Carcinogen Mutagenicity Reproductive Toxicity Respiratory Sensitizer Target Organ Toxicity Aspiration Toxicity 	 Flammables Pyrophorics Self-Heating Emits Flammable Gas Self Reactives Organic Peroxides 		
Gas Cylinder	Corrosion	Exploding Bomb	
• Gases under pressure	 Skin Corrosion/ Burns Eye Damage Corrosive to Metals 	 Explosives Self-Reactives Organic Peroxides 	
Flame Over Circle	Environment (Non-Mandatory)	Skull and Crossbones	
• Oxidizers	Aquatic Toxicity	Acute Toxicity (fatal or toxic)	



- Red borders required
- No blank pictograms





Harmonized Information

"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 [for Category 4 Acute Toxicity - Inhalation]



Precautionary Statements/ Hazard Statements

"Precautionary statement" means a phrase that 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 [for Explosives, Division 1.1]



Precautionary Statements

- OSHA has adopted the precautionary statements from the GHS
 - Statements are in Appendix C, and assigned to classes and categories
 - Also provides better consistency and comprehensibility than allowing the development of company-specific statements
- Rule provides flexibility for hazard and precautionary statement application



Additional Hazards

- Labeling elements for these hazards are found in Appendix C:
 - Simple asphyxiant
 - Pyrophoric gas
 - Combustible dust
 - Provides practical accommodations for labels



Additional Requirements

- Harmonized information is to be provided together on the label
- All information is to be prominently displayed, and in English (although other languages may also be provided)
- The requirement that information not conflict with transport labels remains the same



Updating Labels

- The HCS 1994 required labels to be updated within 3 months but a stay prevented OSHA from enforcing this requirement
- This rulemaking removes the stay Labels are to be updated within 6 months of getting new and significant information about the hazards, or ways to protect those exposed



Workplace Labeling

- OSHA is maintaining the approach used in the current HCS that allows employers to use workplace-specific labeling systems as long as they provide the required information
- However, such workplace label systems may need to be updated to make sure the information is consistent with the new classifications
- NFPA/HMIS Systems
 - (ratings systems v. classification)



Other Requirements that Remain the Same in HCS 2012

- OSHA is maintaining the current approach to allowing alternatives to labels on each stationary process container; and the exception for portable containers under the control of the person who filled them with the chemical
- Labels on incoming containers are not to be removed or defaced unless immediately replaced by another label
- Workplace labels are to be prominently displayed and in English, although other languages are permitted as well



Label Example



Sample HS85 Label

HS85



Batch number: 85L6543

Harmful if swallowed. Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Dispose of contents/container in accordance with local, state and federal regulations.

First aid: If swallowed: Call a doctor if you feel unwell. Rinse mouth. GHS Example Company, 123 Global Circle, Anyville, NY 130XX Emergency Telephone (888) 888-8888



This paragraph has been extensively re-written to incorporate a uniform format.



(g) Safety Data Sheets

- 16-section safety data sheet (SDS)
- Several sections will not be mandatory since *they address information outside OSHA's* jurisdiction (Sections 12-15)
- A new Appendix D, Safety Data Sheets, provides the details of what is to be included in each section



Safety Data Sheet Format

1.Identification of the substance or mixture and of the supplier

- 2.Hazards identification
- **3.Composition/information on ingredients**
- 4.First-aid measures
- 5.Fire-fighting measures
- 6.Accidental release measures
- 7.Handling and storage
- 8.Exposure controls/personal protection.
- 9. Physical and chemical properties
- **10.Stability and reactivity**
- **11.Toxicological information**
- 12. Ecological information (non-mandatory)
- 13. Disposal considerations (non-mandatory)
- 14. Transport information (non-mandatory)
- 15. Regulatory information (non-mandatory)

16.Other information, including date of preparation or last revision



(h) Employee Information and Training

- Although this paragraph remains essentially the same, updates include
 - Training to include label elements and new safety data sheet format by December 1, 2013
 - Training to reflect any new hazards identified in the workplace - by June 1, 2016



(i) Trade Secrets

- Generally consistent with HCS 1994
- However, because this final rule requires disclosure of the percentage composition of mixtures or concentration from the SDS
 - HCS 1994 did not require disclosure of this information
 - Manufacturers may still claim trade secret protection for this requirement
- Some clarifications were made in the final rule



(j) Effective Dates

Effective Completion Date	Requirement(s)	Who	
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers	
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers	
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers	
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers	





 During the transition period after the final rule is promulgated, either the HCS 1994 or the new final rule (HCS 2012) can be followed



Other Affected Standards

Maureen Ruskin /Jenmfer Silk, SCHC, 10/6/2009-

Approach to Other Standards

- Many other OSHA standards contain criteria related to defining hazards, as well as other provisions that rely on those criteria
- OSHA undertook a comprehensive review of its rules to identify what needed to be changed
- OSHA maintained the scope of existing standards



Wide Range of Standards

- The standards affected ranged from comprehensive rules, such as that addressing flammable liquids, to the label provisions of substance-specific health standards
- In this rulemaking, OSHA has modified all of those standards that it determined needed to be consistent with the HCS 2012
- These included all of the substance-specific rulemakings, as well as a number of safety standards that involve physical hazards



Health Standards

- The substance-specific standards generally pre-date the HCS, and do not have a comprehensive approach to hazard communication
- The final rule references the HCS 2012 in each of these standards to ensure they have all the protections of the rule
- In addition, OSHA updated the provisions regarding what is to be communicated to workers to ensure the health effects are consistent with the GHS criteria
- Regulated area signs will need to be updated to reflect the new language.
- Timing June 1, 2016



Table XIII-4. Regulated Area Signs in Substance-SpecificHealth Standards

Standard	Substance	Original signs	Final Changes
Standard 1910.1001 1915.1001	Asbestos Regulated areas Where the use of respirators and protected clothing is required	DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA	DANGER ASBESTOS MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AUTHORIZED PERSONNEL ONLY WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA



Safety Standards

- OSHA updated a number of safety standards to be consistent with the criteria in the HCS 2012
- The manner in which this was done depended on the provisions of the standard being considered, and approaches varied
- In some cases, it was decided that changes could not be made at this time given the source of the standard or other constraints
- OSHA sought to minimize the impact on the scope or substantive provisions of the standards that were
 updated

Flammable Liquid Classification GHS - OSHA Crosswalk

GHS			Flammable and Combustible Liquids Standard (29 CFR 1910.106)		
Category	Flashpoint ^o C (°F)	Boiling Point °C (°F)	Class	Flashpoint ^o C (°F)	Boiling Point °C (°F)
Flammable 1	< 23 (73.4)	≤ 35 (95)	Flammable Class IA	< 22.8 (73)	< 37.8 (100)
Flammable 2	< 23 (73.4)	> 35 (95)	Flammable Class IB	< 22.8 (73)	≥ 37.8 (100)
Flammable 3	$\geq 23 (73.4) \text{ and } \leq 60 (140)$		Flammable Class IC Combustible Class II	$\geq 22.8 (73) \text{ and } < 37.8 (100)$ $\geq 37.8 (100) \text{ and } < 60 (140)$	
Flammable 4	> 60 (140) and ≤93 (199.4)		Combustible Class IIIA	$\geq 60 (140) \text{ and } <93.3$ (200)	
None			Combustible Class IIIB	≥ 93.3 (200)	

** Not covered by § 1910.1200 or § 1910.106 however interpretation letter indicates these are covered by § 1910.107



Safety Standards Flammable Liquids 1910.106

• HCS 1994

Flame arresters or venting devices required in subdivision (f) of this subdivision may be omitted for Class IB and IC liquids where conditions are such that their use may, in case of obstruction, result in tank damage.

• HCS 2012

(g) Flame arresters or venting devices required in paragraph (B)(2)(iv)(f) of this section may be omitted for **Category 2** *flammable liquids and Category 3 flammable liquids with a flashpoint below 100 ° F (37.8 ° C)* where conditions are such that their use may, in case of obstruction, result in tank damage.



Safety Standards PSM 1910.119(a)(1)(ii)

• HCS 1994

A process which involves a flammable liquid or gas (as defined in 1910.1200(c) of this part) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:

• HCS 2012

A process which involves a *Category 1* flammable gas (as defined in 1910.1200 (c)) or a flammable liquid *with a flashpoint below 100 ° F (37.8 ° C)* on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:



How Does This Affect the Workplace ?

Employers

- Training on label elements pictograms, signal words, hazard statements and precautionary statements
- Training on new SDS format
- Continue to maintain the updated SDSs

For Manufacturers

 Initial start-up costs associated with reclassification, producing new labels, safety data sheets, training.



What Changes You Will See - Labels

 Labels are still required, but now the elements are standardized

Labeling may already be changing in the field as many companies import and export on international levels, so you may already be seeing pictograms, and new chemical labels.



What Changes You will see – Labels (cont.)

- Employers are responsible for maintaining the labels on the containers, including, but not limited to, tanks, totes, drums, and for training their employees on the hazards listed on the labels in the workplace.
- Labels must continue to be:
 - legible
 - contain the pertinent information (such as the hazards and directions for use)
 - does not get defaced, (i.e., fade, get washed off,) or removed in any way as stated in revised Hazard Communication Standard, 29 CFR 1910.1200(f)(9).



Guidance & Outreach





GHS Webpage: http://www.osha.gov/dsg/hazcom/index.html

Hazard Communication Webpage: http://www.osha.gov/dsg/hazcom/index2.html



To Summarize....

Establish Procedures to Update When Necessary; Evaluate Effectiveness; Use Information to Select and Maintain Needed Protective Measures

> Effective Hazard Communication Program

Read and Understand the Rule; Assign Responsibilities for Tasks

Inform and Train Employees About the HCS, Workplace Hazards, and Protective Measures

> Maintain Safety Data Sheets for All Hazardous Chemicals and Make Accessible to Employees

Prepare and Implement a Written Hazard Communication Program with Chemical List

Ensure All Containers are Labeled

Questions?

Contact Information

Regional Haz Com Coordinators

• See information on word file provided

Directorate of Standards and Guidance:

Kathy Landkrohn: <u>landkrohn.kathy@dol.gov</u>

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Webinar Objectives

Upon completion of this webinar, participants will be able to:

- List those HCS sections that have changed and describe the major changes
- Describe changes in requirements for labeling hazardous chemicals
- Describe changes in (Material) Safety Data Sheet requirements
- State effective dates for changes mandated by the revised HCS
- List other OSHA standards affected by the revised HCS



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http://www.surveymonkey.com/s/7MF92MR



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