

Hazard Communication (HazCom) 2012: Global Harmonization Systems(GHS)

Changes to OSHA's HazCom Standard (HCS)

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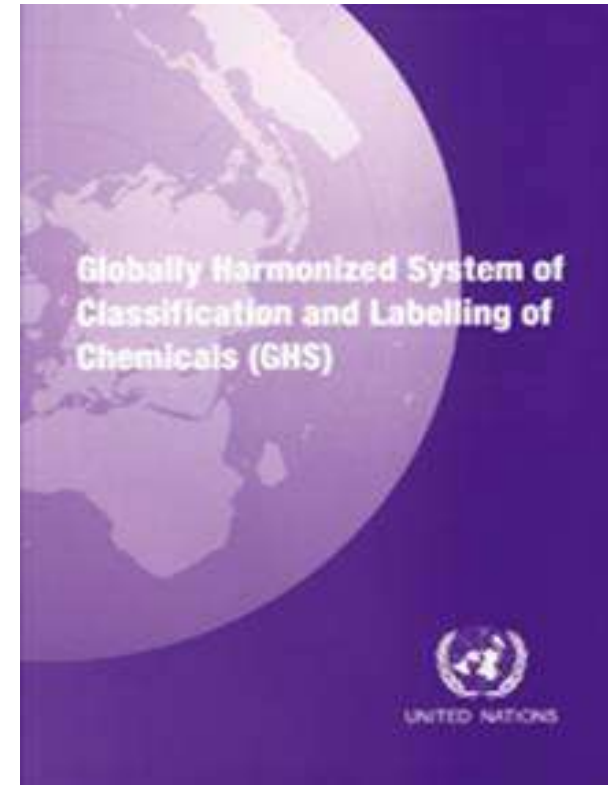
Ohio Bureau of Workers' Compensation

HazCom 2012

- Objectives
 - Brief overview of HCS
 - What is GHS?
 - Describe HazCom GHS → HazCom 2012 transition
 - What Changed?
 - What Didn't?
 - What's Next (implementation timetable)?

What is the GHS?

- The 1992 United Nations Conference on Environment and Development (UNCED) Agreement, endorsed by the UN General Assembly, resulted in the first edition of the “Purple Book” in 2002.
- Updated every three years; current 4th edition published in 2011.



What is the GHS?

- A common approach to defining and classifying hazards of chemical substances and mixtures, and communicating the information about those hazards on labels and safety data sheets (SDSs)
- One system for workers, consumers, transport workers and emergency responders
- Provides the underlying infrastructure for establishment of international, comprehensive chemical safety programs

What is GHS?

- Will allow the hazard communication elements of the existing systems to converge
- Competent authorities will decide how to apply the various elements of the GHS based on the needs of the competent authority and the target audiences.
- The harmonized elements of the GHS you may see as a collection of building blocks from which to form a regulatory approach

Building Block Approach

HazCom 2012

SUMMARY: In this final rule, OSHA is modifying its HCS to conform to the United Nations' GHS - "Globally Harmonized System of Classification and Labeling of Chemicals". OSHA has determined that the modifications will significantly reduce costs and burdens while also improving the quality and consistency of information provided to employers and employees regarding chemical hazards and associated protective measures.

Rule first proposed September 2009; Final rule

Published March 26, 2012; Effective Date May 25, 2012.

What's Changed? – Standard Outline

- 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

What's Changed?

- **Hazard classification**
 - It's markedly different from the performance-oriented approach of pre-GHS HCS.
 - Haz Com 2012 has specific criteria for determining health and physical hazards as well as determination criteria for mixtures.
 - Haz Com 2012 contains two mandatory appendices that provide prescriptive guidance for health (App. A) and physical (App. B) hazard determination.
 - Definitions section changed to reflect new hazard definitions.

What's Changed? Appendix A

Health & Environmental Hazards

- Acute toxicity
- Skin corrosion/irritation
- Serious eye damage/eye irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity – Single and repeated exposure
- Aspiration hazard

- *Aquatic toxicity – acute and chronic**
- *Hazardous to the ozone layer**

* GHS definition not included in HCS 2012

What's Changed?

Appendix B – Physical Hazards

- Explosives
- Flammable gases
- Flammable aerosols
- Oxidizing gases
- Gases under pressure
- Flammable liquids
- Flammable solids
- Self-reactive substances and mixtures
- Self-heating substances and mixtures
- Pyrophoric liquids
- Pyrophoric solids
- Substances and mixtures which in contact with water, emit flammable gases
- Oxidizing liquids
- Oxidizing solids
- Organic peroxides
- Corrosive to metals

What's Changed?

Hazard code	Physical hazard statement	Hazard class	Hazard category
H224	Extremely Flammable liquid and vapor	Flammable liquids	1
H225	Highly Flammable liquid and vapor	Flammable liquids	2
H226	Flammable liquid and vapor	Flammable liquids	3
H227	Combustible liquid	Flammable liquids	4

What's Changed?

Hazard classification – new definition

Hazard Not Otherwise Classified (HNOC)

- 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 or health hazard classes addressed in this section
- Not required on the label

What's Changed? – Labels

The requirement for labeling is unchanged. However, label content changed based on hazard classification. Appendix C has specific requirements (from the Purple book, Annex 1).

Label content on shipped containers:

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

***Standardized**

What's Changed? - Labels

○ Product identifier

- The name or number used for a hazardous chemical on a label and in the SDS
 - Provides a unique means by which a user can identify the chemical
 - Permits cross-referencing between the list of hazardous chemicals, label and SDS

○ Supplier identifier

What's Changed? - Labels

○ Signal word

- A word used to indicate a potential hazard and the relative level of severity of hazard
 - “Danger” = more severe hazards
 - “Warning” = less severe

➤ *Note – “Caution” is not a GHS signal word.*

What's Changed? - Labels

○ Pictogram

- 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 of the nine GHS pictograms adopted by OSHA
- Red border, black symbol, white background
- Blank red diamonds NOT permitted on containers

SAMPLE LABEL

CODE _____
Product Name _____

Product Identifier

Company Name _____
Street Address _____
City _____ State _____
Postal Code _____ Country _____
Emergency Phone Number _____

Supplier Identification

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measures against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO₂) fire extinguisher to extinguish.

First Aid

If exposed call Poison Center.
If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

Precautionary Statements

Hazard Pictograms



Signal Word Danger

Highly flammable liquid and vapor.
May cause liver and kidney damage.

Hazard Statements

Supplemental Information

Directions for Use

Fill weight: _____ Lot Number: _____
Gross weight: _____ Fill Date: _____
Expiration Date: _____

What's Changed? - Labels



**Explosive
Bomb**

Explosive (Unstable, Divisions 1.1, 1.2, 1.3 and 1.4), Self Reactive (Type A and B), Organic Peroxide (Type A and B)

What's Changed? - Labels



Flame

Flammable (Solids Categories 1 and 2, Liquids Categories 1, 2 and 3, Gases Category 1, Flammable Aerosols Categories 1 and 2), Self Reactive (Type B, C, D, E and F), Pyrophoric, Self-heating, Emits Flammable Gas, Organic Peroxide (Type B, C, D, and F)

What's Changed? - Labels



**Flame over
Circle**

Oxidizer

Includes oxidizing gases,
liquids and solids

What's Changed? - Labels



Gas Cylinder

Gas under pressure

Compressed gas

Liquefied gas

Refrigerated liquefied gas

Dissolved gas

What's Changed? - Labels



Corrosive

Corrosive (Skin Corrosion Categories 1A, 1B and 1C, Eye Corrosion Category 1),
Corrosive to metals.

What's Changed? - Labels



Skull

Acute toxicity (Categories 1, 2, and 3)

What's Changed? - Labels



**Exclamation
Mark**

Irritant (Skin Irritation Category 2 and Eye Irritation Category 2A), Dermal Sensitizer (Category 1), Acute Toxicity (Category 4, harmful), Target Organ Toxicity/STOT Category 3 = narcotic effects, respiratory irritation

What's Changed? - Labels



**Chronic Health
Hazard**

Carcinogen (Categories 1A, 1B, and 2), Respiratory Sensitizer (Category 1), Reproductive Toxicity (Categories 1A, 1B, and 2), Target Organ Toxicity/STOT (Categories 1 and 2), Mutagenicity (Categories 1A, 1B and 2), Aspiration Toxicity (Categories 1 and 2)

What's Changed? - Labels



Environmental Hazard

Acute Aquatic Toxicity (Category 1),
Chronic Aquatic Toxicity (Categories 1 and 2)

*NOT included in Haz Com 2012
(not in OSHA's jurisdiction; EPA to adopt?)*

What's Changed? - Labels


Hazard and precautionary statements

- Hazard statement for each level of hazard (category) within each hazard class.
- Example: Flammable liquids
 - Category 1: Extremely flammable liquid and vapor
 - Category 2: Highly flammable liquid and vapor
 - Category 3: Flammable liquid and vapor
 - Category 4: Combustible liquid
- Precautionary statements are selected from tables in Appendix C based on hazard classification.

What's Changed? - Labels

Hazard and precautionary statements

Label Elements Flammable Liquids

Hazard Category	Signal Word	Hazard Statement	Pictogram
1	Danger	Extremely flammable liquid and vapor	
2	Danger	Highly flammable liquid and vapor	
3	Warning	Flammable liquid and vapor	

Prevention	Response	Storage	Disposal
<p>Keep away from heat/ sparks/open flames/ hot surfaces. – No smoking</p> <p>Keep containers tightly closed.</p> <p>Ground/Bond container and receiving equipment.</p> <p>Use explosion-proof electrical/ ventilating / lighting/equipment.</p> <p>Use only non-sparking tools.</p> <p>Take precautionary measures against static discharge.</p> <p>Wear protective gloves/ eye protection/ face protection</p>	<p>If on skin (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>In case of fire: Use ... for extinction.</p>	<p>Store in a well-ventilated place.</p> <p>Keep cool</p>	<p>Dispose of contents/container to...</p> <p>... in accordance with local/ regional/ national/ international regulations (to be specified)</p>

What's Changed? - Labels

Hazard and precautionary statements

Label Elements Carcinogenicity

Hazard Category
1A and 1B
2

Signal Word
Danger
Warning

Hazard Statement
May cause cancer
Suspected of causing cancer

Pictogram



Prevention	Response	Storage	Disposal
Obtain special instructions before use Do not handle until all safety precautions have been read and understood Use personal protective equipment as required.	If exposed or concerned: Get medical advice/attention	Store locked up	Dispose of contents/container to... <i>... in accordance with local/ regional/ national/ international regulations (to be specified)</i>

What's Changed? - SDSs

- Incorporates a standardized 16 section format
- Same as ANSI Z400.1 - *“Hazardous Workplace Chemicals - Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation”*
- Classification detailed in Section 2.
- Labeling appears in Section 2.

What's Changed? - SDSs

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
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

What's Changed? - SDSs

1. Identification

- Unique identifier
- Supplier's information (name, address, contact information)
- Recommended use
- Emergency contact

What's Changed? - SDSs

2. Hazard identification

- Classification (hazard class/category)
- Labeling
 - Signal word, symbol (pictogram), hazard statement(s), precautionary statement(s)
 - Symbol name can be used instead of pictogram
 - Hazards not otherwise classified (HNOC) information
 - Unknown acute toxicity statement

What's Changed? - SDSs

3. Composition/information on ingredients
 - Substances (chemical identity / synonyms, CAS#, impurities or stabilizing agents)
 - Mixtures – name and exact percent or concentration range of all ingredients classified as health hazards
 - Trade secrets must be specified (but not percent)
4. First aid measures – immediate/special treatment requirements
5. Firefighting measures – suitable extinguishing media, special hazards

What's Changed? - SDSs

6. Accidental release measures
 - Personal precautions and methods for containment/clean-up
7. Handling and storage including incompatibility
8. Exposure controls/PPE
 - Including PELs, TLVs, and all other OELs recommended by manufacturer/importer

What's Changed? - SDSs

9. Physical and chemical properties

- Specific data elements specified

10. Stability and reactivity

11. Toxicological information

- Description of health effects by likely route of exposure
- Symptoms (immediate or delayed)
- Numerical measures of toxicity (LD_{50} , LC_{50})
- Carcinogen designation by NTP, IARC or OSHA

What's Changed? - SDSs

- 12. Ecological information*
- 13. Disposal considerations*
- 14. Transportation information*
- 15. Regulatory information*
- 16. Other information
 - Date of SDS preparation or last revision

* These sections will not be enforced by OSHA because they do not have jurisdiction (e.g. EPA, DOT, CPSC, FDA).

What's Next?

Review your secondary labeling

- Consider using pictograms/signal words for secondary labeling instead of NFPA/HMIS to avoid confusion during the transition period.

HAZARD	
<u>Category Hazard</u>	
1	highest
2	high
3	medium
4	low

HMIS/NFPA	
<u>Index</u>	<u>Hazard</u>
1	slight
2	moderate
3	serious
4	severe

What's Next?

Update your employee information and training

- New labels (supplier and in-house)
- SDSs
- Hazards
 - Some hazard classes may not be familiar (e.g. germ cell mutagenicity...)

What's Next?

Effective completion date	Requirement(s)	Who
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

Links

- Link to the 'Purple Book', 4th edition
http://www.unece.org/trans/danger/publi/ghs/ghs_rev04/04files_e.html
- Final HCS Standard (Hazcom 2012)
<http://www.osha.gov/dsg/hazcom/ghs-final-rule.html>
- Side by Side Comparison: Current Standard – New Standard (as proposed)
<http://www.osha.gov/dsg/hazcom/side-by-side.html>
- OSHA GHS Information
<http://www.osha.gov/dsg/hazcom/global.html>
- U.N. Economic Commission for Europe (GHS Resources)
http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html

Thank You!

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