Hazard Communication Standard (HCS) Update

Directorate of Standards and Guidance

OSHA

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What is GHS?

- GHS (Globally Harmonized System of Classification and Labeling of Chemicals)
- Internationally negotiated approach to hazard communication. It provides:
  - Harmonized definitions of hazards
  - Specific criteria for labels
  - Harmonized format for safety data sheets
- 3 basic areas of focus:
  - Classification of physical hazards
  - Classification of health and environmental hazards
  - Hazard communication
- Living document; Updated every biennium (currently working on revision 9)

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OSHA's HCS

- Updated HCS in 2012 to align with Revision 3 of the GHS
- Provided changes to:
  - Hazard Classification
  - Labels
  - Safety Data Sheets
  - Information and Training

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Principles & Assumptions

- As with HCS 2012, the basic framework of the HCS will remain 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 required to have a hazard communication program, and provide information to employees about their hazards and associated protective measures
- OSHA will maintain or enhance the overall current level of protection of the HCS

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Purpose of HCS Rulemaking

- Proposed HCS will improve and enhance worker protection through:
  - Providing additional clarification of existing regulatory requirements
  - Incorporating new hazard classes and categories
  - Improving and streamlining precautionary statements
  - Facilitating international trade through increased alignment

Purpose of HCS Rulemaking

I. Maintain alignment with GHS (revision 7)

II. Address issues identified during implementation of HCS 2012

III. Identify issues of concern for those complying with WHMIS 2015

IV. Improve alignment with other U.S. agencies

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Additional Information/Concepts within the HCS Rulemaking

- Hazard communication should be “evergreen”
- Occupational behavior science and education are key components to hazard communication
- Aggregate exposures are important factors in identifying and communicating hazards
  - Leads to better risk assessment and management

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Additional Information/Concepts within the HCS Rulemaking

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I. Maintaining Alignment with GHS

- Align with GHS Revision 7
  - Appendix A (health hazards): mostly editorial
    - Revised health hazard definitions
    - Updated Skin corrosion/irritation and Serious eye damage/eye irritation chapters
    - General updates to hazard classes
  - Appendix B (physical hazards):
    - Flammable gases – expanding hazard categories
    - Desensitized explosives
    - Aerosols – including additional hazard category
  - Appendix C (label elements)
    - New or updated hazards, updated guidance, and precautionary statements
  - Appendix D (SDS)
    - Updates to SDS Sections 9, 11

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Appendix A – Health Hazards

- Revised health hazard definitions
  - e.g. update definition for germ cell mutagenicity
- Update to Skin corrosion/irritation, Serious eye damage/eye irritation
  - Clarification on classification scheme
- General updates to hazard classes
  - e.g., acute toxicity – clarification on use of data from human experience

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Appendix B – Physical Hazards

- Pyrophoric gases and unstable gases
- Flammable gases
- Desensitized explosives
- Aerosols

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Pyrophoric Gases and Unstable Gases

- Under this proposal these gas categories have been placed under flammable gases
  - Pyrophoric – under Category 1A
  - Unstable gases – under Category 1A

Flammable Gases

- It was noted that the flammable gases category 1 was extremely broad and captured essentially all flammable gases
  - In some circumstances this leads to over warning
  - Or worse – leads employers to choose a chemical with a higher risk

- The updated Hazard class added a new subcategory:
  - Updated the Criteria to include a new subcategory 1b for flammable liquids which have a low burning velocity or high flammability limit
  - Updated the Labeling information
  - Streamlined the classification process

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New Flammable Gases Criteria

Table 2.2.1: Criteria for categorisation of flammable gases

Category		Criteria	
1A	Flammable gas	Gases, which at 20 °C and a standard pressure of 101.3 kPa: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammability limit. unless data shows them to meet the criteria of category 1B	
	Pyrophoric gas	Flammable gases that ignite spontaneously in air at a temperature of 54 °C or below	
	Chemically Unstable gas	A	Flammable gases which are chemically unstable at 20°C and a standard pressure of 101.3 kPa
		B	Flammable gases which are chemically unstable at a temperature greater than 20°C and/or a pressure greater than 101.3 kPa
1B	Flammable gas	Gases which meet the flammability criteria for Category 1A, but which are not pyrophoric, nor chemically unstable, and which have at least either: a) A lower flammability limit of more than 6% by volume in air; or b) A fundamental burning velocity of less than 10 cm/s;	
2	Flammable gas	Gases, other than those of Category 1A or 1B, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air.	

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Hazard Communication Elements for Flammable Gases

Label Element	Category 1A	Category 1B	Category 2
Hazard statement	Extremely Flammable Gas	Flammable Gas	Flammable Gas
Signal word	Danger	Danger	Warning
Pictogram			No Pictogram

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Desensitized Explosives

- The revised HCS will include a new Chapter in Appendix B, Chapter B.17 will be known as Desensitized Explosives
- These are explosives that must be wetted with water or alcohols, diluted with other substances or dissolved or suspended in water or other liquid substances to suppress or reduce their explosive properties

New Desensitized Explosives Criteria

Category	Table 2.17.1: Criteria for desensitized explosives Criteria
1	Desensitized explosives with a corrected burning rate (A_C) equal to or greater than 300 kg/min but not more than 1200 kg/min
2	Desensitized explosives with a corrected burning rate (A_C) equal to or greater than 140 kg/min but less than 300 kg/min
3	Desensitized explosives with a corrected burning rate (A_C) equal to or greater than 60 kg/min but less than 140 kg/min
4	Desensitized explosives with a corrected burning rate (A_C) less than 60 kg/min

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Hazard Communication for Desensitized Explosives

Label Element	Category 1	Category 2	Category 3	Category 4
Hazard Statement	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced.	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced.	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced.	Fire hazard; increased risk of explosion if desensitizing agent is reduced.
Signal Word	Danger	Danger	Warning	Warning
Pictogram				

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Aerosols

- Proposed change provides better differentiation between aerosols and gases under pressure
  - No gas cylinder pictogram
  - Updated hazard statements
- Under this proposal
  - Aerosols will be classified in three categories depending on their flammable properties and heat of combustion.
  - Aerosols with a flammable component will be classified in Categories 1 or 2
  - Aerosols with no flammable components will be Category 3

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Hazard Communication for Aerosols

Label elements	Category 1	Category 2	Category 3
Hazard Statement	Extremely flammable aerosol. Pressurized container: may burst if heated.	Flammable aerosol. Pressurized container: may burst if heated.	Pressurized container: may burst if heated
Signal Word	Danger	Warning	Warning
Pictogram			No Pictogram

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Appendix C – label elements

- New or updated hazards
  - Updated from changes to Appendix A and B
- Updated guidance
  - Clarification to desensitized explosives, aerosols, flammable gases
- Precautionary statements
  - Clarification to desensitized explosives, aerosols, flammable gases
  - Combined statements (e.g. fire response and first aid measures)

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Appendix D - SDS

- Key Updates to SDS
  - Section 9 – physical and chemical properties
    - e.g. inclusion of particle size
  - Section 11
    - e.g. inclusion of interactive effects and use of SAR/QSAR/read across

II. Implementation Issues

- Release for Shipment
- Small Packages Labelling
- Safety Data Sheet

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Release for Shipment

- Update chemicals released for shipment – based on Letters of Interpretation (LOIs) issued since 2012
  - Purpose is to account for products with long distribution cycles
  - Timing is changed for updating the label when new information becomes available
  - Intended to reduce employee exposure by limiting handling of materials that have already been packaged

Small packages

- Abbreviated labelling requirements on immediate container when full label is infeasible for containers
  - Based on LOIs
- Full label would still be required on outer package

Improve SDS preparation

- Based on Letters of Interpretation (LOIs)
  - Section 2 – clarification of how chemical hazard information is presented
    - e.g. hazard associated with change in chemical's physical form under normal conditions of use
  - Section 3- trade secrets information
  - Section 8 – clarification on inclusion of PEL, TLV, or other exposure limits for individual ingredients or constituents in mixtures

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III. Identify issues of concern for those complying with WHMIS 2015

- Concentration ranges for CBI
  - Potential to align with WHMIS
  - Would allow for claiming prescriptive concentration ranges for materials claimed as trade secret
    - Proposing prescriptive concentration ranges is mandatory if claiming CBI for range
    - OSHA currently does not allow for CBI claims on concentration ranges
- Small packages
- HNOC and PNOC

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IV. Improve alignment with other U.S. agencies

- Department of Transportation
  - Bulk packaging
  - GHS pictogram

- EPA
  - Release for shipment

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Preliminary Economic Analysis

- The proposed rule would result in an estimated net cost savings of $26.8 million per year at a seven percent discount rate or $27.5 million per year at a three percent discount rate:
  - Net cost savings of $26.8 million (at a seven percent discount rate) consist of $31.1 million cost savings and $4.3 million costs:
    - $29.8 million savings: released for shipment
      - Six industries affected (four manufacturing and two wholesale) –
    - $1.3 million savings: very small labels
      - Affected manufacturers fall in only a few NAICS industries: Other Basic Chemical Manufacturing, Inorganic and Organic (NAICS 325180 and 325199, respectively) and Pharmaceutical and Medical Manufacturing (NAICS 3254—encompassing 6-digit NAICS 325411, 325412, 325413, and 325414).
    - $3.5 million costs: revising SDS/labels

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Preliminary Economic Analysis

- The proposal would affect 115,758 firms, 152,427 establishments, and 1,510,780 employees.
- The proposed updates to the standard would result in modest, non-quantifiable improvements in worker health and safety above those already achieved under the current HCS.
- The agency has preliminarily determined that this rulemaking is not "economically significant" within the meaning of section 3(f)(1) of Executive Order 12866 because it is not likely to have an effect on the economy of $100 million or more in any one year.
- OSHA has also made a preliminary determination that this proposed action is deregulatory.

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Preliminary Economic Analysis

- The rule would not have significant impact on a substantial number of small entities
- For every affected industry, the proposed rule would provide either cost savings or the costs would be less than one percent of revenues or ten percent of profits;
- The proposed rule would not impose costs in excess of one percent of annual revenues or five percent of annual profits for small entities or very small entities in any industry.

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