GHS WITHIN OSHA

GENERAL AWARENESS

Globally Harmonized System | Occupational Safety and Health Administration

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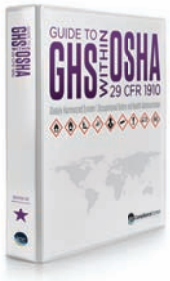
GHS WITHIN OSHA

Guide to GHS within OSHA 29 CFR 1910 General Industry Regulation (BOOK 1)



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Code	Description	Binding	Language	Amended
BK-GHS01US	Book, 8.5" x 11"	soft cover	English	Annually

GHS Within OSHA Compliance Procedure Manual (BOOK 2)

This book is a **MUST HAVE** for anyone working in the new GHS System

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This volume outlines the legislation and procedures for compliance with the regulations and implementing GHS in the workplace. This is the only resource you will need to comply with GHS within OSHA. Included are the new hazard communication requirements.

Topics Include:
- Overview of GHS - How does GHS work?
- GHS Employee Training
- GHS Classification
- GHS Safety Data Sheets (SDS)
- SDS Management requirements
- GHS Supplier Labels requirements
- GHS Workplace Labels, GHMIS® HMI-ES® HMIS®
- Employer & Supplier Responsibilities
- Checklists

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BK-GHS03	Book, 10" x 11.5"	3-ring binder	English	Annually

GHS WITHIN OSHA

GENERAL AWARENESS

Globally Harmonized System | Occupational Safety and Health Administration

GHS Awareness for the United States

This is a 4th edition guide to GHS—Globally Harmonized System of Classification and Labeling of Chemicals—in the United States.

The goals of this guide are to:

- Increase awareness of the new OSHA/GHS Hazcom 2012 Final rule
- Summarize some of the important changes OSHA has made to accommodate the GHS
- Alert you to the impacts GHS will have on US regulations for hazardous materials

For specific information on the GHS, please refer to the current edition of the UN's "Purple Book".

What is GHS?

During the twentieth century, many countries became aware of the high economic and social costs of improper handling of hazardous materials.

To reduce these costs, these countries have established regulations promoting the safe handling of hazardous chemicals by providing information on labels and Safety Data Sheets (SDSs). However, these regulations often deal with the problems of safe handling in different ways. For example, in the United States, hazard communication under OSHA (Occupational Health and Safety Act) has one set of requirements.

In Canada, the Workplace Hazardous Materials Information System (WHMIS) has a different set of requirements. The European Union has yet another set of regulations for labels and SDSs. The incompatibility of these systems has become a major headache for companies trying to sell products in the global marketplace. Fortunately, a solution has appeared on the horizon—the Globally Harmonized System for identifying and providing information on hazardous materials.

The Globally Harmonized System (GHS) is an international system proposed by experts under the guidance of the United Nations Subcommittee for GHS. It will establish new rules for hazardous chemicals in transportation, workplace use and consumer use, as well as special rules for pesticides. GHS also includes new Safety Data Sheet (SDS), requirements and new hazard symbols.

It comprises standards for:

- Classifying Chemicals
- Symbols for Hazards
- Labeling Requirements
- Safety Data Sheet Requirements

GHS will cover most hazardous chemicals (excluding wastes) in an overall system that looks at physical hazards (such as flammability and corrosivity), health hazards (including both immediate and long-term health effects) and environmental hazards.

Why Was GHS Created?

As we've seen, many countries and regions have incompatible regulations for hazard communication. In addition, within any given country, the regulations for hazard communication can be different for different "types" of chemical products—for example, there may be a considerable difference in labeling for consumer products versus workplace chemicals.

The following is an example of the English signal words and risk phrases for Toluene using US workplace regulations (OSHA) vs. US consumer regulations (CPSC).
The current systems in the US require the use of the signal word 'DANGER' on the consumer product, but not on the workplace product.

Examples of differences between workplace labeling and consumer product labeling in the United States

WARNING! Flammable liquid and vapor. Vapors may cause flash fires. Harmful or fatal if swallowed. Can enter the lungs and cause damage. May be harmful if inhaled. May cause respiratory tract irritation. Possible adverse effects on the central nervous system, liver, and kidneys. May cause skin irritation. Developmental hazard – Contains material which may adversely affect the developing fetus, based on animal data.

US Workplace (OSHA)

DANGER
FLAMMABLE LIQUID AND VAPOR. HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. IRRITANT.

US Consumer (CPSC)

GHS began as a result of the recognition by the United Nations (UN) for the need to harmonize these separate systems between countries, and even within individual countries. It is meant to "harmonize" existing systems by establishing a unique system for identifying hazardous materials and giving warnings to users. This new system is intended to eventually replace the current patchwork of regulations covering different countries and different uses of the same chemical.

It is hoped that GHS will improve safety, decrease supplier costs, and generally make international shipment and sales of chemical products easier, as well as to ensure that people worldwide receive the same basic standard of protection when using these products.

While materials will not necessarily be classified exactly the same way for all regulations under this new system (for example, a consumer product that might fall into the hands of small children will be held to a higher toxicity standard than goods transported under the control of trained workers), the system will be rationalized and more consistent between the different types of use.

What is the Timeline for GHS?

GHS began as an "action program" in 1992 at the United Nations Conference on Environment and Development (UNCED). The initial goal at that conference was to produce the new harmonized system by the year 2000. Workgroups were then established to analyze current systems and develop a new one. The new GHS System that the workgroups proposed was adopted by the UN in December of 2002. This is now commonly called the "Purple Book".

GHS is in various stages of implementation around the world. As of the end of March 2012, some countries that have at least partially implemented GHS system include: New Zealand, Australia, Japan, Korea, Taiwan, China, Brazil, the European Union, and most recently the United States. Countries that have GHS amendments about to be implemented include: Malaysia, Philippines and Singapore. There are still many more countries that are actively working on their own GHS proposals.

How Does GHS Work?

GHS is a framework based on standardized elements. Appropriate elements can be selected, depending on what exact modality is being dealt with (for example, transportation versus workplace use). Hazard statements, symbols, and signal words for labeling have been standardized. Standardization of precautionary statements may occur in the future (note: The European Union, in their new GHS Regulation, has standardized precautionary statements).

These elements are seen as "building blocks." Individual countries determine which building blocks will be applied to which system.

When a system, such as consumer use, covers something considered hazardous by GHS, and that system chooses to implement GHS, coverage must be consistent. For example, if OSHA in the United States chooses to adopt GHS and its signal words, OSHA cannot then say it wants the signal words but not the standardized hazard statements.

What's New in GHS?

Classification

First, GHS will establish a common system of chemical classification. This new scheme is "test method neutral" and allows for the use of data already available.

Chemical classification under GHS has a "tiered" approach for the classification of mixtures.

The first choice is to classify based on data available for the actual mixture. The second choice, if data for the mixture are not available, is to apply so-called "bridging" principles to estimate the hazard based on ingredient information.

The final choice, if data for the mixture is not available and "bridging principles" cannot be applied, is to apply additivity or summation formulas using known ingredient information. GHS classifies materials based on both physical and health hazards. Criteria for physical hazards include criteria for the following:

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

GHS criteria for health hazards include criteria for the following items:

- Acute toxicity (LD50's and LC50's)
- Skin corrosion/irritation
- Serious eye damage/eye irritation
- Respiratory and skin sensitization
- Germ cell mutagenicity
- Reproductive toxicity
- Carcinogenicity
- Specific target organ toxicity (STOT) - single exposure
- Specific target organ toxicity (STOT) - repeated exposure
- Aspiration hazard

There are also GHS criteria for environmental hazards.

Labeling

The system will also **establish new labeling provisions**, including standardized pictograms, signal words and hazard statements.

Under GHS, the label elements are:

- Product identifier/ingredient disclosure
- Supplier identification
- Symbols/hazard pictograms*
- Signal words*
- Hazard statements*
- Precautionary information

** Harmonized elements*

For sectors other than transport, hazard pictograms will have a black symbol on a white background with a red diamond frame. Some competent authorities may allow the use of a black frame for shipments within one country.

For transport, hazard pictograms will have the background and color currently used:

Some controversy exists concerning the symbols, which will be displayed in a diamond-shaped border. Some feel the new shape of hazard pictograms for sectors other than transport, may be confused with the transport labels, which will be the same ones in use today. However, others believe that these issues can be resolved by proper training.

Figure 1
GHS "Toxic" symbol

Figure 2
49 CFR/TDG
"Toxic" symbol

Classification and Labeling Examples:

Example 1 – GHS establishes a new classification scheme for flammability of aerosols. The standardized GHS label elements will appear for flammable aerosols thus:

Flammable Aerosol Label Elements		
	Category 1	Category 2
Symbol		
Signal Word	Danger	Warning
Hazard Statement	Extremely flammable aerosol	Flammable aerosol

Example 2 – GHS also establishes new classification scheme for eye irritation and corrosion. The following depiction shows how the standardized GHS label elements will appear for eye irritants or corrosives:

Eye Irritation/Corrosion Label Elements			
	Category 1	Category 2	Category 2B
Symbol			No Symbol
Signal Word	Danger	Warning	Warning
Hazard Statement	Causes serious eye damage	Causes serious eye irritation	Causes eye irritation

Example 3 – GHS establishes a new classification scheme for aspiration hazards. The following depiction shows how the standardized GHS label elements will appear for aspiration hazards:

Aspiration Hazard Label Elements		
	Category 1	Category 2
Symbol		
Signal Word	Danger	Warning
Hazard Statement	May be fatal if swallowed and enters airways	May be harmful if swallowed and enters airways

Safety Data Sheets (SDS)

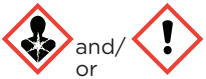
GHS system has revised Safety Data Sheet (SDS), or MSDS, requirements. The format is based on the 16-heading format established by the International Labour Organization (ILO), and used as the basis for the American National Standards Institute (ANSI) MSDS standard.

GHS 16-Section format for the SDS is as follows:

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 controls/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

The biggest change from the old ILO SDS format to the new GHS format is the switch in order of sections 2 and 3. Section 2 Hazard(s) Identification was formerly Section 3.

GHS recommends that an SDS be provided according to the following cut-off values/concentration limits:

Hazard Class	Symbol	Cut-off value/ concentration
Acute toxicity		≥ 1.0%
Skin corrosion/ irritation		≥ 1.0%
Serious eye damage/ eye irritation		≥ 1.0%
Respiratoy/ skin sensitization		≥ 0.1%
Germ cell mutagenicity (Category 1)		≥ 0.1%
Germ cell mutagenicity (Category 2)		≥ 1.0%
Carcinogenicity		≥ 0.1%
Reproductive toxicity		≥ 0.1%
Specific target organ toxicity (Single exposure)		≥ 1.0%
Specific target organ toxicity (Repeated exposure)		≥ 1.0%

(Table continued on the following page)

Aspiration hazard (Category 1)		≥ 10% of Category 1 ingredient(s) and kinematic viscosity ≤ 20.5 mm ^{2}/s at 40°C
Aspiration hazard (Category 2)		≥ 10% of Category 2 ingredient(s) and kinematic viscosity ≤ 14 mm ^{2}/s at 40°C
Hazardous to the aquatic environment		≥ 1.0%

How Will GHS Affect Current Systems in the United States?

The Occupational Safety and Health Administration (OSHA) represents the US in the UN Subcommittee of Experts discussions on GHS. Within the United States, key federal agencies with responsibility for regulatory and international affairs have formed an interagency committee coordinated by the Department of State. Besides OSHA, this committee includes:

- Department of Transportation's Pipeline and Hazardous Materials Safety Administration
- Consumer Product Safety Commission (CPSC)
- Department of Commerce
- Food and Drug Administration (FDA)
- Environmental Protection Agency (EPA)
- Office of the U.S. Trade Representative
- Department of Agriculture
- National Institute of Environmental Health Sciences

When GHS is adopted, many facets of US regulations regarding hazardous materials will change. For example, OSHA currently stresses flexibility to meet the needs of both suppliers and users. Therefore, OSHA currently allows suppliers to prepare Material Safety Data Sheets (MSDSs) in various formats, as long as the minimum required content appears in the MSDS. OSHA does have an optional MSDS format (OSHA Form 174) with eight sections, but again, that format is non-mandatory.

An alternative to the OSHA optional MSDS format is the American National Standards Institute (ANSI) MSDS standard. Suppliers can use this format, based on the 16-heading ILO format, again, as long as the minimum content required by OSHA appears in the MSDS.

Under GHS, all SDSs must be based on the **new 16-heading format.** This means that US suppliers who currently have their MSDSs (now SDSs) in a different format would have to rewrite their MSDSs completely. Note that the most current ANSI MSDS Standard (ANSI Z400.1-2004) has already been modified to reflect the GHS general format. Therefore, US suppliers currently using the latest ANSI MSDS standard would not have to change the general format. However, the content in each section would still have to be rewritten because of the new GHS Hazard criteria.

Under OSHA, labels in the United States may also use various formats. In the current Hazcom Standard, the following items are mandatory items on an OSHA container label:

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

It is common practice, however, in the United States, to use the ANSI Standard for Precautionary Labeling (ANSI Z129.1-2006), for container labels. This standard is much more detailed than basic OSHA requirements. Some of the recommended items for an ANSI supplier label include:

a. Identification of the chemical product
b. Signal word
c. Statements of hazard(s)
d. Precautionary measures
e. First-aid instructions
f. Instructions in case of fire
g. Instructions in case of a leak or spill
h. Special handling and storage information
i. References
j. Name, address, and telephone number of party responsible
k. Identification of hazardous component(s)
l. Antidotes and notes to physician

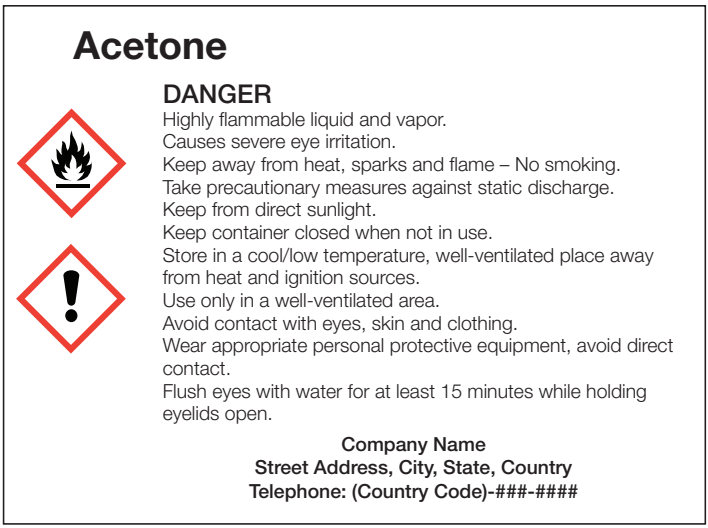
Container labels under GHS system would have standardized signal words, hazard symbols and risk phrases. US suppliers will have to re-evaluate the hazards of their products and redo all of their labels, regardless of what format they are in.

Below is an example of what an acetone label, using the current ANSI labeling standard, might look like:

ACETONE
CAS # 67-64-1
DANGER!
EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPORS MAY CAUSE FLASH FIRE. CAUSES EYE IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. MAY CAUSE HEADACHE, NAUSEA, DIZZINESS OR OTHER CENTRAL NERVOUS SYSTEM EFFECTS. PROLONGED OR REPEATED SKIN CONTACT MAY DRY SKIN AND CAUSE IRRITATION.
Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Keep container tightly closed. Use only with adequate ventilation. Wash thoroughly after handling. Keep out of reach of children.
FIRST AID:
SKIN: In case of contact, immediately flush skin with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation persists. Wash clothing before reuse.
EYES: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
INGESTION: If swallowed, do not induce vomiting. Obtain medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.
HANDLING AND STORAGE: Keep away from heat, sparks and flame. Ground all equipment during all handling procedures. Store in a cool, dry, well-ventilated area away from incompatibles. Do not store in direct sunlight.
Before using, read Material Safety Data Sheet (MSDS) for this product.
COMPANY NAME
STREET ADDRESS
CITY, STATE, COUNTRY
ZIP CODE PHONE: ###-###-####

Current ANSI Labeling Standard

Below is an example of what the same acetone label might look like under the new GHS system:



New GHS label example

Where Are We Now?

History of OSHA GHS Progress in the United States

The US government considers GHS a very valuable tool for enabling global trade and has put much effort into helping its development. The US Government is implementing the various "building blocks", where appropriate. In areas where the US feels GHS is not suitable, it may be replaced by specific American legislation.

The **Occupational Safety and Health Administration** (OSHA) has completed a comparison document to look at the detailed requirements of GHS system vs. the current Hazard Communication Standard (HCS).

In 2005, OSHA began work on the modifications to the current HCS that would be necessary to adopt GHS. The work resulted in the completion of the first step in US rulemaking - publication in late 2006 of an Advanced Notice of Proposed Rulemaking (ANPR). The ANPR provided a full history of GHS, information about how GHS would affect the current HCS, and asked a series of questions that OSHA would need answers on in order to complete further steps in the rulemaking process.

OSHA then completed their proposed modifications to the current HCS, based on the responses to the 2006 ANPR. In September of 2009, OSHA published their completed Notice of Proposed Rulemaking (NPR) to incorporate the GHS into the current HCS.

Key Points From the 2009 NPR

- Confirmation that OSHA will adopt all GHS physical and health hazard criteria, with the exception of Acute Toxicity Category 5's (oral, dermal, inhalation), Skin Corrosion/Irritation Category 3's (mild skin irritants), and Aspiration Hazard Category 2's.
- A new definition for 'unclassified hazards', which will include hazards not presently addressed in GHS but which are addressed in the current HCS, and any new hazards that will be added to the UN's GHS Standard.
- New special coverage for 'simple asphyxiants'.
- Confirmation that the "Floor of chemicals rule" has been removed.
- The requirement to update labels within 3 months of receiving new and significant information on the product, has been re-introduced. This requirement was under an administrative stay in the current HCS.
- OSHA exposure limits will be required to appear on a Safety Data Sheet, in addition to any other limits recommended by the Manufacturer or Importer.
- The term 'Combustible liquid' has been removed from the HCS and any applicable substance specific standards, in order to be consistent with the language used in the UN's GHS Purple Book.
- The Flammable Liquids Safety Standard has been revised with new classification criteria.
- Retraining will be required within 2 years, after publication of the final rule.
- Full compliance with the new HCS, including GHS, required within 3 years, after publication of the final rule.

Additionally, there were a few outstanding issues remaining, for which OSHA had requested input in the 2009 NPR, including:

- Should the black frame on hazard symbols be allowed for packages that will not be exported out of the United States?
- Should precautionary statements used on a label be those specified in the GHS, or should label preparers be allowed to develop their own language for labeling precautions?
- Should referencing applicable substance specific standards be mandatory in Section 15 of the SDS, thereby making Section 15 mandatory?
- Should a database of chemicals classified according to the GHS be developed to assist manufacturers and importers with their own GHS classifications?
- Should implementation of the NPR be mandatory, voluntary, or should OSHA adopt only certain parts of the new GHS (e.g. standardized label elements) but leave the remaining parts of the new HCS voluntary?

The 2009 NPR allowed for a 90-day comment period, which ended on December 29, 2009. Public Hearings were then held in early 2010, and OSHA then began the process of finalizing the Final Rule to adopt the GHS into its current HCS. The Final Rule was expected to be published by August of 2011.

Current Status of OSHA GHS Progress in the United States

The Final Rule, which OSHA has termed 'Hazcom 2012", has now been officially published in the Federal Register as of March 26, 2012. It becomes effective on May 25, 2012.

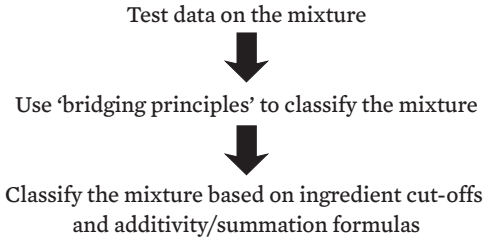
Hazcom 2012 has been implemented by OSHA as a mandatory standard. This answers the 2009 NPR question of "Should implementation of the NPR be mandatory, voluntary, or should OSHA adopt only certain parts of the new GHS and leave the remaining parts of the new HCS voluntary".

Some of the key, general, features of OSHA's Hazcom 2012 Standard, include:

- OSHA's Hazcom 2012 Standard is based on the UN's GHS Purple Book, revision 3. Any updates to the UN's GHS system (e.g. the newly released UN GHS Purple Book, revision 4), will be adopted into the standard through OSHA's normal rulemaking process.
- Terminology and definitions have been updated. For example, the term 'material safety data sheet' has been amended to read just 'safety data sheet'. Also, 'hazard classification' is now used rather than 'hazard determination'.
- Hazcom 2012 not only requires manufacturers, importers, or employers to evaluate chemicals for physical and health hazards, but it also requires manufacturers, importers, or employers to determine the severity of those effects. A chemical must now be classified into a 'hazard class' and a 'hazard category'.
- Physical hazard definitions are removed from the

definitions list in 29 CFR Part 1910.1200(c), and have been placed in a new Appendix B. The new Appendix B utilizes the new GHS physical hazard criteria which were proposed in the 2009 NPR.

- The term 'unclassified hazards' from the 2009 NPR has been changed to 'Hazards not otherwise classified'. The 'Hazards not otherwise classified' category includes pyrophoric gases, simple asphyxiants, and combustible dusts. All of which are hazards not currently addressed by the UN's GHS system.
- Health hazard criteria are found in Appendix A and include all hazard classes in the GHS, with the exception of Acute toxicity, Category 5; Corrosion/Irritation, Category 3; and Aspiration toxicity, Category 2.
- The UN's GHS tiered approach below to the classification of mixtures has been incorporated into Hazcom 2012:



- The requirements for a written hazcom program are unchanged in Hazcom 2012. Employers only need to ensure their list of hazardous chemicals is complete. With implementation of Hazcom 2012 and the new health and physical hazard criteria, some chemicals may become classified as 'hazardous' whereas previously, they were not classified.

- The process for claiming a 'Trade Secret' is essentially the same in Hazcom 2012. However, suppliers and manufacturers need to keep in mind the new requirements on SDSs for disclosing ingredients. The percentage of an ingredient in a mixture is considered a type of trade secret and would be subject to OSHA 'Trade Secret' provisions
- Provisions in OSHA's substance-specific and safety standards have been modified to be consistent with the classification criteria, and label and SDS requirements of Hazcom 2012.

Specific OSHA Hazcom 2012 Hazard Classification Points

Acute toxicity classification criteria has been substantially modified from the current Hazcom standard. The current standard utilizes only two categories for an acutely toxic health hazard: 'Highly toxic' chemicals and 'Toxic' chemicals. Hazcom 2012 utilizes four categories for acutely toxic health hazards. Manufacturers, importers, or employers will need to reassess all chemicals for acute toxicity, even those that were previously thought of as not acutely toxic.

Additionally, the carcinogenicity criteria in the 2009 NPR mostly remains as proposed in the final rule. OSHA's Hazcom 2012 has included references to carcinogen lists established by other National and International bodies as a basis for classifying a chemical as a carcinogen. Hazcom 2012, Appendix F provides the following guidance table to relate carcinogenicity classifications from the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) to a GHS Carcinogen classification:

Approximate Equivalences Among Carcinogen Classification Schemes		
IARC	GHS	NTP RoC
Group 1	Category 1A	Known
Group 2A	Category 1B	Reasonably Anticipated (See Note 1)
Group 2B	Category 2	

Note 1:

Limited evidence of carcinogenicity from studies in humans (corresponding to IARC 2A / GHS 1B); sufficient evidence of carcinogenicity from studies in experimental animals (again, essentially corresponding to IARC 2A / GHS 1B); less than sufficient evidence of carcinogenicity in humans or laboratory animals; however: The agent, substance, or mixture belongs to a well-defined, structurally-related class of substances whose members are listed in a previous RoC as either "Known" or "Reasonably Anticipated" to be a human carcinogen, or there is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans.

Lastly, another important Hazcom 2012 classification point to consider, is that manufacturers, importers, or employers need to apply new ingredient concentration cutoffs when classifying a mixture in accordance with Hazcom 2012. Under the current Hazcom standard, there were two ingredient concentration cutoffs to consider in classifying a mixture: 1% or more for ingredients that themselves are health hazards; and for ingredients presenting a carcinogenic hazard, they must be considered at 0.1% or more. Hazcom 2012 requires new ingredient hazards to be considered at only 0.1% or more, in addition to carcinogenic ingredients. The following provides a list of ingredient concentrations to consider in classifying a mixture when the ingredients themselves are health hazards:

Hazard class of ingredient	Cut-off value/ Concentration
Acute toxicity	≥ 1.0%
Skin corrosion/irritation	≥ 1.0%
Serious eye damage/eye irritation	≥ 1.0%
Respiratory/skin sensitization	≥ 0.1%
Germ cell mutagenicity (Category 1)	≥ 0.1%
Germ cell mutagenicity (Category 2)	≥ 1.0%
Carcinogenicity	≥ 0.1%
Reproductive toxicity	≥ 0.1%
Specific target organ toxicity (Single exposure)	≥ 1.0%
Specific target organ toxicity (Repeated exposure)	≥ 1.0%
Specific target organ toxicity (Category 3)	> 20%
Aspiration hazard (Category 1)	≥ 10% of Category 1 ingredient(s) and kinematic viscosity ≤ 20.5 mm^2/s at 40°C

Specific OSHA Hazcom 2012 Labeling Points

OSHA's Hazcom 2012 standard will now require containers of hazardous chemicals to be labeled with a product identifier; signal word; hazard statement(s); pictograms; precautionary statements; and information on the party responsible for the product. OSHA has chosen not to require the chemical names of ingredients to be listed on the label as long as the associated SDS lists the appropriate chemical names.

Pictograms, specifically, must be those designated in the standard and must always have a red border. This requirement answers the 2009 NPR question, "Should the black frame on hazard symbols be allowed for packages that will not be exported out of the United States?"

Additionally, OSHA adopted all of the precautionary statements found in the UN's GHS Purple Book. Hazcom 2012 requires all appropriate GHS precautionary statements to appear on labels. There are two provisions given to allow some flexibility in assigning precautionary statements (consolidate/combine statements to save label space; or, omit statements if they are inappropriate to the hazards and properties of a chemical), however, if these provisions are utilized, a manufacturer, importer, or employer must provide sound reasons for changing the mandated precautionary statements.

Lastly, the 2009 NPR OSHA had proposed requiring labels to be updated within three months of receiving new and significant information about the hazards of a chemical. Hazcom 2012, provides a slightly different label update requirement, as compared to the proposal. Containers shipped six months after new and significant information about the hazards of a chemical is available, require appropriate re-labeling.

Specific OSHA Hazcom 2012 Safety Data Sheet Points

OSHA's Hazcom 2012 standard requires a 16-section SDS. Specific headings, order of information and what information must be provided under each of the headings, is specified in the new standard. As was confirmed in the 2009 NPR, OSHA will not enforce the content in sections 12 through 15 that require information outside of OSHA's jurisdiction.

Specific items within SDS sections required by OSHA's Hazcom 2012 include requiring ACGIH TLV's to be included on an SDS, requiring IARC and NTP carcinogenicity classification information be included on an SDS, and requiring 18 different physical data properties be listed in section 9 of an SDS.

An additional significant difference between OSHA's Hazcom 2012 and the current Hazcom standard is requiring ingredient concentrations to be listed on the SDS for a mixture. The previous hazcom standard did not require concentrations to be listed. An exact concentration must be specified on a Hazcom 2012 SDS, with concentration ranges only permissible in specific circumstances.

Effective Dates of the OSHA Hazcom 2012 Standard

OSHA's Hazcom 2012 has incorporated a phase- in period for the new requirements in the standard. The new label and SDS requirements will be phased in over several years.

Employees must be able to understand the new Hazcom 2012 label and SDS information and how that information will be conveyed, especially considering that workers are already beginning to see GHS labels and SDSs on imported products. As such, training on the new system is the first compliance date in Hazcom 2012, while the written hazard communication program is the last.

The following table presents the various effective dates for the new requirements of the OSHA Hazcom 2012 Standard:

Effective date	Requirement(s)	Applicability
December 1, 2013	Complete training of employees on Hazcom 2012 label elements and SDS format	Employers
June 1, 2015	Comply with all modified provisions of Hazcom 2012 (ie. re-classify chemicals, create Hazcom 2012 labels, create Hazcom 2012 SDS)	Chemical manufacturers, importers, distributors and employers
December 1, 2015	Distributors may continue to ship products labeled by manufacturers under the old hazcom standard until December 1, 2015. This will allow additional time to use up stock already labeled under the old hazcom standard.	Chemical distributors
June 1, 2016	Update alternative workplace labeling and hazard communication programs; and provide additional employee training for newly identified physical or health hazards	Employers
Transition Note	Until the June 1, 2015 compliance date, either the current standard, or the new Hazcom 2012 standard may be utilized	Chemical manufacturers, importers, distributors and employers

Status of GHS Progress in the United States – Other Agencies

The **United States Department of Transport** (DOT), already committed to following the UN Recommendations on the Transport of Dangerous Goods and has officially committed to implementing the new GHS system as it affects transportation. The DOT has adopted several elements of GHS in its rulemaking number HM-215I. The elements included aspects of GHS that directly affect the transport sector, such as changes to the hazard classification criteria for toxic materials and flammable liquids.

The changes were effective January 1, 2007, with mandatory compliance by January 1, 2008. An additional rulemaking will be necessary to bring in changes to the DOT for environmental hazards, once the US EPA has considered GHS criteria.

The **United States Environmental Protection Agency** (EPA) has also committed to picking up the new GHS system. In August of 2004, the EPA produced a white paper asking for public comments on their ideas for an approach to include GHS. In 2006, the EPA also held public meetings on GHS, which included examining the issues industry brought forward in comments received on their White Paper. Note that under the new OSHA Hazcom 2012 standard pesticides are covered just as they were in the current standard (exempted from labeling when labeled under FIFRA, but covered for SDSs and training).

Pesticide industry stakeholders have requested exemptions from the OSHA Hazcom 2012 rule based on possible conflicts between OSHA requirements and FIFRA . The EPA has stated it will be providing guidance for the pesticide industry regarding the preparation of SDSs that will not conflict with FIFRA requirements.

Summary

The United Nations and countries around the world recognize that regulatory systems for hazardous materials differ between the government agencies within individual countries, as well as between countries. This results in extra costs, variable protection for end users, and excessive costs for suppliers.

Companies must apply multiple classifications to one product for various end uses within one country (for example, industrial sales versus consumer market), and for shipment to other countries (for example, US products going to Canada, Europe and Pacific markets). GHS will help combat those problems by harmonizing standards between them.

Further information on GHS can be obtained from the following Government websites:

OSHA
www.osha.gov/dsg/hazcom/index.html

US EPA
www.epa.gov/oppfead1/international/globalharmon.htm

US DOT
hazmat.dot.gov/regs/intl/globharm.htm

US CPSC
www.cpsc.gov/phth/GHSpolicy.html

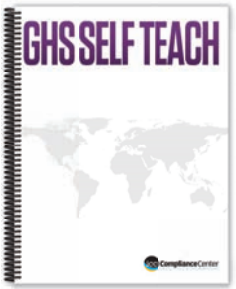
Notes

About the Author

Toni-Ann McLean
Registered Regulatory Specialist,
SDS and Label Authoring #206738

Toni-Ann specializes in regulatory services. She has over 12 years experience with WHMIS regulations and health and safety. She is also knowledgeable in US and Canadian consumer regulations, European, and US Right to Know legislation. She regularly participates at the Society for Chemical Hazard Communication (SCHC) learning about upcoming changes to the regulations, and was awarded a certificate for more than 80 hours of professional development. Recent courses attended included topics such as an update on the EU changes for GHS, and global GHS implementation covering multiple countries including Australia and Japan. Toni-Ann is actively involved in developing ICC's standardized GHS templates.

GHS Self-Teach Book



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Our Self-Teach booklet introduces the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The intention of this system is to replace the multitude of regulations currently in use worldwide for identifying hazards in the workplace. Our GHS Self-Teach book is ideal for first time students or for refresher training. Students can move through the material at their own pace.

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