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The Global Harmonization Standard: An Overview

Keith D. Robinson, CSP, CHMM
Zero Incident Culture Program Manager
Ashland, Inc.
Dublin, Ohio

Introduction

Throughout the 20th Century, most industrialized nations recognized the economic and social costs of improperly handing hazardous materials. To address these costs, each country implemented their own hazardous chemical regulations. Unfortunately, these regulations differed from each other, many times in significant ways. As companies and markets got larger and more global in scope, these differences made it difficult to do business globally. Companies had to create new policies and programs, sometimes at enormous cost, just to compete.

The trend of globalization continued, and the costs got higher and higher, covering areas including transportation, labeling, and safety data sheets. In the United States, the hazard communication standards, regulated by the Occupational Safety and Health Administration, has one set of requirements. In Canada there is a program called the Workplace Hazardous Materials Information System. (WHMIS), which regulates hazard communication through a different set of standards. Throughout countries in Europe there are other sets of regulations for labels and Safety Data Sheets. Additionally, differences in languages and information make training on safe handling of the hazardous materials extremely difficult.

Then there are the social costs. Companies that improperly handle hazardous materials often face increased public scrutiny and criticism, which can often translate into loss of market share and reputation. And while losing customers is bad, losing face and reputation is worse, because many times it is much more difficult to recover.

Recognizing these issues, the United Nations Subcommittee for GHS, in 1992, proposed the Globally Harmonized System of Classification and Labeling of Chemicals. This system contains new rules for hazardous chemicals in transportation, workplaces, and consumer locations. Additionally, it contains requirements for classification of chemical physical and health hazards, new Safety Data Sheets (SDS) and labels, including new hazard symbols, designed for easy

understanding despite language barriers. The system, however, will not cover these issues for chemical wastes.

Why Countries are Adopting GHS

It is hoped that the 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, the system will be rationalized and more consistent between the different types of use.

What is the Timeline for GHS Implementation

GHS started as an "action program" in 1992 at the United Nations Conference on Environment and Development. It was initially hoped to be implemented world-wide by the year 2000. However, due to the potential impact of this standard across so many programs and countries, it took more time to develop the system. Workgroups established by the United Nations evaluated the existing programs around the world, and developed the standard as it is currently known. This standard was adopted by the UN in 2002. As of today, GHS has not been implemented everywhere. However, governments have made a commitment to the UN to introduce the standard by 2008.

Within the United States, multi-agency discussions have taken place, with OSHA taking the lead, and implementation staggered between 2007 and 2012. DOT/IMDG/ICAO have already adopted certain categories (3 and 6 for transport in 2007; plan to adopt 9 for aquatic toxicity in 2009). EPA is objecting to FIFRA-regulated product inclusion in GHS. CPSC is starting to investigate GHS implications for consumer products. OSHA published an ANPR (Advanced Notice of Proposed Rulemaking) in September of 2006, and is currently preparing the Notice of Proposed Rulemaking.

In Canada, Health Canada is taking the lead. Implementation of the standard could impact all sectors: transportation, industrial/workplace chemicals, consumer products, and pest control products. Health Canada has completed a number of technical consultations as of 2007. Draft regulations regarding GHS are expected in 2008, but could take as long as 2009 to be published.

In the European Union (EU), a proposal for a GHS regulation was adopted June 27, 2007. The EU will convert Annex I of the Dangerous Substance Directive to Annex VI -- but everything will have to be reviewed, so this will take some time. December 2010 is the proposed deadline for compliance with the Substance Reclassification requirement, while Mixtures Reclassification has been proposed to be implemented by June 2015.

Within South America, implementation is expected to begin sometime in 2009, with Brazil taking the lead. However, no specific details or plans have been published.

The remaining countries are all at different levels of compliance. However, the ones listed above are the “big players” in the chemical industry. If your company does business within any of the countries listed, it would be a good idea to check where that country stands with GHS, better positioning it to continue in commerce.

General Principals of GHS

The Global Harmonization Standard is not in itself a regulation, or even a model regulation. It is a framework from which competent authorities may select the appropriate elements, based on the modality (transportation vs. workplace use).

Competent authorities within each country will decide how to apply the various elements of the GHS within their systems based on their needs and the target audience. Also, not every element of GHS may be adopted in each country.

OSHA/MSHA will have to adopt the elements they want through conventional rulemaking procedures before including components in mandatory Hazard Communication standards. This means that proposed regulations will have to be submitted before Congress, passing through several committees before being brought before the House of Representatives and the Senate for a vote. Once it passes through Congress, it will need to be signed into law by the President. This is a complicated and time-consuming process that adds to the deadline, though it is not expected to receive significant resistance.

What is New in GHS?

GHS will establish a common system for chemicals to be classified. Chemicals will be classified based on both health and physical hazards, and this classification is “test-method neutral”. This means that entities will be able to use existing data to classify, without having to go to the time and expense of new testing. For mixtures, GHS allows a tiered approach that allows a material to be classified based on existing information first. If this is not available, then assumptions may be made based on the hazards of the ingredients in the mixture.

Additionally, GHS will establish a new labeling system requiring standardization of signal words and hazard statements, and introduces a series of pictograms, allowing for significantly easier understanding of the hazards presented by the material.

GHS also has revised the requirements for Material Safety Data Sheets, (MSDS), or Safety Data Sheets (SDS). This format is based on the 16-part format recommended by the American National Standards Institute (ANSI). The biggest difference between the GHS SDS and the ANSI MSDS is that the order of sections 2 and 3 has been switched. Section 2 in the GHS SDS is now Hazard Identification, and Section 3 is Composition Information.

How do Hazard Communication and GHS Compare?

To allow flexibility to meet the needs of both the user and the supplier of hazardous chemicals, OSHA currently does not mandate what format a MSDS is in. As long as the minimum required information is included, the MSDS is accepted. However, under GHS, all SDS's must be in the 16-section format. This means that companies whose MSDS format does not comply with the new GHS requirement would have to rewrite all of their MSDS's. OSHA may allow some flexibility in their new standard, however, allowing those companies who provide their materials only in the domestic market to keep their current format, since GHS is by definition a global standard.

Other differences between the two programs are listed below:

- HazCom currently includes laboratories, sealed containers and distributors while GHS does not include these specific issues.
- GHS addresses testing in the scope section, while HazCom addresses testing under hazard determination.
- Neither GHS nor HazCom require testing for health hazards.
- Physical hazards in the HazCom standard are not linked to specific test methods (as is the case in the GHS) and testing for physical hazards is not required.
- HazCom is performance-oriented; GHS is a specification oriented. OSHA/MSHA may choose to incorporate only selected building blocks from GHS.
  - HazCom may not implement all GHS hazard classes, e.g., hazardous for the environment.
  - HazCom may not regulate all hazard categories, e.g., acute toxicity.
  - Many hazard classes will require some type of change to the HazCom standards if OSHA/MSHA wishes to achieve global consistency.
- Substantive GHS implementation will require:
  - Changes to required label elements
  - Modification of required MSDS format
  - Criteria changes.

Sector-specific GHS Implementation Within the US

For transportation, application of GHS will be similar to application of current transport requirements. Containers of dangerous goods will be marked with pictograms that address acute toxicity, physical hazards, and environmental hazards. Workers in the transport sector will have to be trained. The elements of the GHS that address such elements as signal words and hazard statements are not expected to be adopted in US transport sector.

In the workplace, it is expected that all GHS elements will be adopted, including labels that have the harmonized information, and safety data sheets. This must be supplemented by employee training to ensure effective communication.

For the consumer sector, it is expected that labels will be the primary focus of GHS application. These labels will include the core elements of the GHS, subject to some sector-specific considerations in certain systems.

GHS Implementation Worldwide

Countries with no existing hazard classification and labeling systems will be required to adopt GHS in its entirety. Countries with existing systems must modify those regulations to adopt GHS

Final GHS documents are available at:

http://www.unece.org/trans/danger/publi/ghs/ghs_rev00/00files_e.html

GHS Training

As is currently the case, training users of hazard information is integral part of hazard communication. It is the primary way for employees to protect themselves. Systems should identify appropriate education and training for GHS target audiences who must interpret label and/or SDS information and take action in response to chemical hazards. The training should address: workers, emergency responders, and those involved with preparation of labels, SDS and HazCom strategies as part of risk management systems. Systems should also educate consumers in interpreting label information on products they use.

GHS Summary

GHS is a VOLUNTARY system – it does NOT impose binding treaty obligations on countries, but where countries adopt GHS into national regulatory requirements, it will be part of mandatory standards. The level of protection offered to workers, consumers, general public and environment should not be reduced by GHS. Involvement of concerned organizations of employers, workers, consumers and other relevant groups is essential to successful implementation of GHS. Validated data already generated for classification of chemicals under existing systems should be accepted when reclassifying the chemicals under GHS. The new harmonized system may require adaptation of existing methods for testing, in order to get better information.

The GHS is not intended to harmonize risk assessment procedures or risk management decisions (e.g., establishment of occupational exposure limits for employees).

Chemical inventory requirements in various countries are not related to the GHS. And finally, countries are free to determine which of the GHS "building blocks" will be applied in different parts of their systems.

Bibliography

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