Chemical safety: Preparing for a globally harmonized system

By DAVID SZCZEPANIK and BARBARA FOSTER

Our world today is filled with products based on the chemical industry. Look around and you'll find everything from floor laminates to toys, computer screens to poly grocery bags, all manufactured from chemicals. Chemicals can contribute to safer, cleaner and more entertaining lifestyles, however the flip side is the inherent danger posed by their use, transportation and final disposal.

In the U.S., warnings of these hazards are addressed by OSHA (Occupational Safety and Health Administration), EPA (Environmental Protection Agency), DOT (Department of Transportation) and CPSC (Consumer Product Safety Commission). However, in the rest of the world, hazard communication is set by different agencies and may take many different formats.

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In Canada, Health Canada's WHMIS (Workplace Hazardous Materials Information System) regulations have a unique set of hazard communication requirements for workplace chemicals. The European Union has its own separate rules. Many Pacific Rim, Latin American and African countries have their own standards. Trying to classify and label a product for sale in these different markets is enough to give an exporter nightmares!

Figure 1. GHS hazard pictograms

On top of that, different sectors (workplace versus consumer use versus transportation) may treat materials very differently. The costs of these differences, in personnel time, shipment delays, and even possible fines, are enormous, and a significant cost factor for chemical exporters. However, there will soon be a better way — a globally harmonized system.

GHS: A brief chronology

This problem prompted the United Nations to form a Subcommittee for a Globally Harmonized System (GHS) in 1992. Its goal was to establish new rules for hazardous chemicals during transportation, workplace and consumer use, and special rules for pesticides. Further, it attempted to harmonize the separate systems among countries as a means to improve safety, reduce costs and make international commerce easier.

In 2002, the UN formally adopted the GHS. This was published as "The Purple Book" or Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The first revised edition of the GHS was adopted in December 2004. In 2005, amendments to the first revised edition were established, and on July 2, 2007, the second edition of "The Purple Book" was published.

While individual countries are not required to adopt the GHS, there was general agreement that a target date of 2008 would be set for most countries and organizations to at least start the implementation procedure.

The main goal of GHS is to enhance public health and environmental protection while reducing barriers to international trade, using a framework of standardized elements. This allows a "building blocks" approach in which individual countries can adopt all or selected parts of GHS to best suit their needs. Hazard statements, symbols (pictograms) and signal words will be selected as appropriate to the application (workplace, consumer transportation or environmental).

GHS classification

The new classification scheme is intended to rationalize hazard recognition while reflecting that different sectors, such as workplace use or transportation, may need to classify chemicals to a greater or lesser degree than other sectors. It will primarily depend on specified tests of products, such as flash points to determine if a liquid is flammable. No overall list of chemical classifications has been established, although some countries, such as Japan, have done work on creating lists of recommended classifications.

For mixtures, chemical classification under the GHS uses a "tiered" approach.

A first option allows classification based on available data on the actual mixture. The second allows for "bridging" principles to estimate the hazard based upon individual ingredient's data.

Labeling changes

The core components of the GHS labeling system are standardized pictograms, signal words and hazard statements. These are complemented by the product identifier, ingredient disclosure, supplier identification and precautionary information.

For transport, hazard pictograms will retain the designs/color schemes currently used based on the UN Recommendations for the Transport of Dangerous Goods Model Regulations.

For other than transport, pictograms will consist of symbols indicating the hazard, inside a red border (Figure 1). Some of these symbols are similar to those already used in the transportation system; others are unique to GHS. For domestic use, the red borders may be replaced by black ones.

Under the GHS, material safety data sheets (MSDS) will be known simply as safety data sheets (SDS). Moreover, all SDSs will contain 16 headings, in a form similar to the versions created by the International Labor Organization and ANSI. This more standardized format will include topics such as hazard identification, safe handling procedures and regulatory data.

Act now

Although there is still some uncertainty regarding exactly how and when GHS will be implemented in North America, it will eventually revolutionize our current hazard communication systems. There are several proactive initiatives you can take to prepare for GHS right now:

▶ Check out the Web sites for the various government agencies involved.

▶ Read the *Purple Book*, as well as ICC's *GHS Awareness Handbook*.

▶ Learn more about GHS through training classes and webinars.

▶ Develop a system for upgrading your labels and MSDSs to GHS standards.

▶ Prepare to train your employees to be able to use the new system.

Make no mistake. It's only a matter of time before the GHS is upon us. Countries such as Japan, New Zealand and Australia are already GHS-compliant. It makes good business sense to get started now.

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GHS Awareness Handbook, *The Purple Book*, GHS training/webinar registration, and SDS authoring/reviews are available by calling ICC at (888) 442-9628.

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