



On Your Mark is a monthly column written by Geoffrey Peckham, President of Clarion Safety Systems and chair of both the ANSI Z535 Committee and the U.S. Technical Advisory Group to ISO Technical Committee 145- Graphical Symbols. Over the past two decades he has played a pivotal role in the harmonization of U.S. and international standards dealing with safety signs, colors, formats and symbols.

## GHS and Global Consistency

BY GEOFFREY PECKHAM

Today's international marketplace demands consistency of labeling and symbols. In this article, we'll explain how the OSHA Globally Harmonized System (GHS) of Classification and Labeling of Chemicals initiative provides a *global* system of chemical hazard warning symbols.

Currently, it can be difficult to decipher how to comply with domestic and global regulations regarding symbols. As an example, Figure 1 illustrates different ways flammability has been indicated over the years and in different parts of the world.

According to estimates from some multinational companies,

there are over 100 diverse hazard communication regulations in existence for their products around the world. The United Nations (UN) recognized that this is an inhibiting barrier to international trade, which led to the international mandate at the Earth Summit in 1992 calling for "a globally harmonized hazard classification and compatible labeling system"<sup>1</sup>. They concluded that the

only way to transport chemicals safely across international borders is by applying universal consistency in labeling, including the graphical symbols used to indicate various chemical hazards.

Chemical products come into the U.S. workplace from all parts of the world. They may be manufactured in a foreign country, transported



Figure 1: From left to right, the GHS, Canadian, German and ISO warning symbols indicating flammable hazards.

	Carcinogen Mutagenicity Reproductive Toxicity Respiratory Sensitizer Target Organ Toxicity Aspiration Toxicity
	Flammables Pyrophorics Self-Heating Emits Flammable Gas Self-Reactives Organic Peroxides
	Irritant Skin Sensitizer Acute Toxicity Narcotic Effects Respiratory Tract Irritant Hazardous to Ozone Layer
	Skin Corrosion/Burns Eye Damage Corrosive to Metals
	Explosives Self-Reactives Organic Peroxides
	Gases under Pressure
	Acute Toxicity
	Oxidizers
	Aquatic Toxicity

Figure 2: The nine GHS pictograms, from top to bottom: “Health Hazard,” “Flame,” “Exclamation Point,” “Corrosion,” “Exploding Bomb,” “Gas Cylinder,” “Skull and Crossbones,” “Flame over Circle” and “Environment.”

to their docks, shipped overseas, transported to various distribution warehouses, and finally delivered to the door of your facility. What good are the labels that appear on those chemical products if they were written to comply with the country of origin’s local standards but don’t comply with U.S. regulations? Without standardization on a global basis, there is no hope for accurate, uniform, easy-to-understand information regarding hazardous chemicals. Thus, GHS was born.

GHS is short for “Globally Harmonized System for Classification and Labeling of Chemicals”. Nation-by-nation and market-by-market this system of chemical labeling is taking the world by storm. Undertaken by the UN, this global effort to develop and implement a standard way of communicating chemical hazard information serves an incredibly noble cause: the prevention of accidental exposure to chemical hazards that could injure people or the environment. With better, more uniform and standardized communication tools (i.e. labels and safety data sheets (SDS), or the procedures for safely working with a specific substance), people can more responsibly use, handle, store and dispose of hazardous chemicals.

In the field of hazard communication, there are many standardized symbols available, but it is often difficult to decide which graphic is applicable for use on your particular safety sign or label. GHS establishes nine specific pictograms to indicate a wide range of chemical hazards and names these symbols according to their pictorial elements rather than the actual hazards they refer to. Presumably the titling of the symbols was done

this way because several of the symbols stand for multiple hazards, as Figure 2 illustrates. The purpose of establishing this set of global pictorial standards is instant recognition and understanding – even when a product is shipped from one country to another.

This is not a “performance-based” standard that you can meet any way you want. Companies that manufacture chemicals and chemical substances must label their products exactly according to the GHS categories with the appropriate associated signal word, symbol and text. Further, they must provide accompanying SDS that describe the exact information for that category of chemical according to GHS.

There are two primary benefits associated with GHS. The first is that the chemical manufacturers no longer have to struggle with multiple national labeling schemes and don’t have to write their labels and SDS from scratch. They simply implement GHS. The second benefit is that the end user now has a single uniform information system which is more easily read and understood, and provides the ability to compare chemical labels and SDS. Overall, the information is more intelligently and reliably utilized.

Before GHS was adapted by OSHA, Clarion recommended that its clients use warning symbols that had been standardized by ISO for chemical hazards. But now things have changed. In our view, global regulations trump voluntary standards. With that in mind, we now recommend that our clients utilize the GHS symbols to indicate chemical hazards for safety labels on their

products or for safety signs in their facilities. Moreover, Clarion serves as a resource in safety communication by manufacturing a centralized OSHA/GHS hazardous chemical communication training center to aid employers in training workers in the new system by December 2013, according to the new OSHA regulation (see Figure 3).

The ultimate goal is global consistency for all types of hazard communication, not just for communication of information about chemical hazards. Consistency of symbol use should lead to greater recognition and understanding, less confusion, and fewer accidents as the goal. Figure 4 shows how a GHS symbol can replace a non-GHS symbol in a safety label that might be used on equipment where exposure to a chemical hazard might exist. Though this label is not meant to be a design for a GHS label going on a chemical product or a GHS sign intended to be used for the transport of a chemical, the illustration shows how the new GHS symbols will likely replace all other symbols when the intended safety message pertains to chemical hazards. OSHA/GHS represents a great example of how a new global language for safety is being established here and now. In

the next column, I look forward to explaining another area in which global symbol standardization is taking place to help reduce risk and improve safety. ■

*For more information about safety signs and symbols, visit [www.clarionsafety.com](http://www.clarionsafety.com).*

### NOTE

1. <http://www.osha.gov/dsg/hazcom/ghs.html>



Figure 3: OSHA/GHS hazardous chemical communication training center installed in a facility.



Figure 4: Old (left) and new (right) equipment safety labels pertaining to a potential corrosive chemical hazard, courtesy of Clarion Safety Systems © 2012.