GHS Is Coming…
What You Need to Know

You may have heard about something called GHS. You may have heard that it will make significant changes in the way hazardous substances are labeled. And you may have heard that it will be costly to implement and require new training procedures at your facility. What are the facts about GHS? Hopefully, the following article can answer some of your questions.

First of All, What Is GHS?
GHS stands for the “Globally Harmonized System of Classification and Labelling of Chemicals.” GHS is a system that defines and classifies the hazards of chemical products, and communicates health and safety information on labels and material safety data sheets (called Safety Data Sheets, or SDSs, in GHS). The goal is that the same set of rules for classifying hazards, and the same format and content for labels and safety data sheets (SDS) will be adopted and used around the world. An international team of hazard communication experts developed GHS.

Why Is GHS Needed?
Currently many different countries have different systems for classification and labelling of chemical products. In addition, several different systems can exist even within the same country. This situation has been expensive for governments to regulate and enforce, costly for companies who have to comply with many different systems, and confusing for workers who need to understand the hazards of a chemical in order to work safely. GHS is expected to have a number of benefits, including:

- promoting regulatory efficiency
- facilitating trade
- easing compliance
- reducing costs
- providing improved, consistent hazard information
- encouraging the safe transport, handling, and use of chemicals
- promoting better emergency response to chemical incidents, and
- reducing the need for animal testing

What Will GHS Cover?
The GHS system covers all hazardous chemicals and may be adopted to cover chemicals in the workplace, transport, consumer products, pesticides, and pharmaceuticals. The target audiences for GHS include workers, transport workers, emergency responders, and consumers. OSHA estimates that GHS will affect 40 million U.S. workers in more than 5 million workplaces.

What Are the Two Major Elements in GHS?
The two major elements of GHS are:

1. Classification of the hazards of chemicals according to the GHS rules:
   GHS provides guidance on classifying pure chemicals and mixtures according to its criteria or rules.
2. Communication of the hazards and precautionary information using Safety Data Sheets and labels:
   - Labels—With the GHS system, certain information will appear on the label. For example, the chemical identity may be required. Standardized hazard statements, signal words, and symbols will appear on the label according to the classification of that chemical or mixture. Precautionary statements may also be required. Note that a major difference in many current labeling formats is that a “1” rating means the least hazardous with a “4” rating being the most hazardous. GHS is just the opposite—a “1” classification is the most hazardous with a “5” being the least hazardous.
   - Safety Data Sheets (SDS)—The GHS SDS has 16 sections in a set order, and information requirements are prescribed.

What Are Some Key Terms in the GHS Vocabulary?

- SDS—Safety Data Sheet. SDS is the term used by GHS for Material Safety Data Sheet (MSDS).
- Hazard group—While not given a formal definition, GHS divides hazards into three major groups—health, physical, and environmental.
- Class—Class is the term used to describe the different hazards. For example, “Gases under Pressure” is an example of a class in the physical hazards group.
- Category—Category is the name used to describe the sub-sections of classes. For example, Self-Reactive Chemicals have seven categories. Each category has rules or criteria to determine what chemicals are assigned to that category.
- Hazard Statement—For each category of a class, a standardized statement is used to describe the hazard. For example, the hazard statement for chemicals which meet...
the criteria for the class Self-heating substances and mixtures, Category 1 is “Self-heating; may catch fire”. This hazard statement would appear both on the label and on the SDS.

» Signal word—There are two signal words in the GHS system—Danger and Warning. These signal words are used to communicate the level of hazard on both the label and the SDS. The appropriate signal word to use is set out by the classification system. For example, the signal word for Self-heating substances and mixtures, Category 1 is “Danger” while “Warning” is used for the less serious Category 2. There are categories where no signal word is used.

» Pictogram—Pictogram refers to the GHS symbol on the label and SDS. Not all categories have a symbol associated with them.

What Is Meant by the GHS Hazard Groupings and “Building Block” Concept?

Within the GHS classification system, there are three major hazard groups:

» Physical hazards
» Health hazards
» Environmental hazards

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Within each of these hazard groups there are “classes” and “categories.” Each of these parts is called a “building block.” Each country can determine which building blocks of the GHS system it will use in their different sectors (workplace, transportation, consumers). Once the building blocks are chosen, the corresponding GHS rules for classification and labels must be used.

What Are the Classes within the Health Hazard Group?
Criteria for classifying chemicals have been developed for the following health hazard classes:

- acute toxicity
- skin corrosion/irritation
- serious eye damage/eye irritation
- respiratory or skin sensitization
- germ cell mutagenicity
- carcinogenicity
- reproductive toxicity
- specific target organ toxicity—single exposure
- specific target organ toxicity—repeated exposure
- aspiration hazard

In addition, there are specific classification rules for chemical mixtures for each health hazard class.

What Are the Classes Within the Physical Hazard Group?
Criteria for classifying chemicals have been developed for the following physical hazard classes:

- explosives
- flammable gases
- flammable aerosols
- oxidizing gases
- gases under pressure
- flammable liquids
- flammable solids
- self-reactive substances and mixtures
- pyrophoric liquids
- pyrophoric solids
- self-heating substances and mixtures
- substances and mixtures which, in contact with water, emit flammable gases
- oxidizing liquids
- oxidizing solids
- organic peroxides
- corrosive to metals

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What Are the Classes Within the Environmental Hazard Group?

Criteria for classifying chemicals have been developed for the following environmental hazard class:

- hazardous to the aquatic environment (acute and chronic)
- hazardous to the ozone layer

In addition, there are specific classification rules for chemical mixtures for each environmental hazard class.

What Is the Target Date for Implementation of GHS?

Each country may implement GHS on its own schedule. GHS has already been adopted in 67 countries, including China, Korea, and Japan, as well as the EU, meaning that companies that do business in those countries must be GHS compliant. In the U.S., OSHA is expected to issue its final rule to align its current Hazard Communication Standard (HCS) with GHS this August. After adoption of the rule, there will be a two-year training window, with full compliance with GHS expected by the end of 2014.

How Will All This Affect My Organization?

Adoption of GHS will affect industry in several ways. First, material safety data sheets (MSDS) will become safety data sheets (SDS). This means that current MSDS must be updated to the standardized SDS format and distributed to employees. You will have to work with your chemical product vendors to be sure that these new SDSs are produced in a timely manner. Container labeling will also be affected. The GHS standards will replace the labeling system you are currently using, and you will be responsible for ensuring that all containers are properly labeled per the new standards. Be aware that OSHA may not require chemical manufacturers to produce SDSs for discontinued products; this may end up being your responsibility. Finally, your employees will need to be trained on the new content and format for SDSs as well as on labeling; your written training materials will also need to be updated to reflect these changes.

What Should I Be Doing Now?

If you haven’t done so already, develop a GHS implementation plan. Get in touch with your chemical suppliers and work together to coordinate their transition plan with yours. Next, stay up-to-date with GHS developments; you need to know all you can about how GHS will affect your workplace. You will also need to have an accurate inventory of all the chemicals at your facility. It may be worthwhile to consider hiring a vendor who has specialized chemical inventory software which can generate SDSs and labels. This will also be helpful in assuring compliance with OSHA’s 30-year recordkeeping requirement.

Where Can I Get More Information?

Perhaps the best place to begin is with OSHA’s very comprehensive GHS webpage: www.osha.gov/dsg/hazcom/ghs.html; you may also want to subscribe to OSHA’s free, twice-monthly newsletter, OSHA QuickTakes. A Google search for “GHS compliance” will identify many vendors who provide specialized services with respect to GHS compliance.

(Sources: OSHA and the Canadian Centre for Occupational Health and Safety)