

HAZCOM 2012: What Was OSHA's Intent?

Hazards are ever-present in the steel plant environment, and a heightened awareness and emphasis on safety is a necessary priority for our industry. This monthly column, coordinated by members of the AIST Safety & Health Technology Committee, focuses on procedures and practices to promote a safe working environment for everyone.

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Comments are welcome. If you have questions about this topic or other safety issues, please contact safetyfirst@aist.org. Please include your full name, company name, mailing address and email in all correspondence.

The U.S. Occupational Safety and Health Administration (OSHA) revised the hazard communication standard in 2012. This revision was done to align the United States with the United Nations' global chemical labeling system. This system is called the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS. This standard, OSHA has stated, "will prevent an estimated 43 deaths and result in an estimated \$475.2 million in enhanced productivity for U.S. businesses each year." In addition, it will "benefit workers by reducing confusion about chemical hazards in the workplace, facilitating safety training and improving understanding of hazards, especially for low-literacy workers. OSHA's standard will classify chemicals according to their health and physical hazards, and establish consistent labels and safety data sheets for all chemicals made in the United States and imported from abroad." The main differences in comparing this standard with the old standard will be seen in the hazard classification labeling, and safety data sheets (SDS) (formerly material safety data sheets) requirements.

Hazard Classification Requirements

The 1994 standard was a performance-based standard that required manufacturers to evaluate products with the available scientific hazardous and toxicological data. Under this standard, the manufacturer determined if the data met the hazard definitions and then included it in the data sheet and label. If a product met the hazard definitions, there were very few guidelines as to what

verbiage was needed to communicate the hazard. Under HAZCOM 2012, OSHA adopted most, but not all, of the GHS Revision 3, which defines specific criteria for each physical and toxicological hazard. For example, OSHA adopted only categories 1–4 for acute toxicity, but did not adopt category 5. In addition, OSHA has added pyrophoric gases, simple asphyxiants and combustible dust to the definition of "hazardous chemical." OSHA allows self-classification, which means evaluating available data for each chemical or component in a mixture and then comparing that data to the criteria adopted in each category. When a match is made with the available data to the criteria in the standard, that is the product's hazard classification. The hazard classification for each category has its hazard communication included. Once a hazard classification is determined, the signal word, hazard statement(s), pictogram(s), and precautionary statement(s) were "harmonized" and mandated in the standard. This shall be the verbiage provided on the label and SDS. For example, for a manufacturer that produces a chemical that has a hazard class of Flammable Liquid Category 1, the label and SDS will have the same signal word, hazard statement(s), pictogram(s) and precautionary statement(s) as all Flammable Liquid Category 1 products. The hazard classification determines the warnings and the majority of communications for the label and SDS. OSHA has also changed the relevant regulatory standards that contain or require specific hazard communication verbiage to align with the HAZCOM 2012 standard. Labeling requirements are the major change for the single-chemical OSHA standards, such

as benzene, lead, cadmium or asbestos. These changes can be found at the end of the HAZCOM 2012 standard final ruling.

Labeling

Under the 1994 hazard communication standard, OSHA required labels to have:

1. The identity of the hazardous chemical(s).
2. Appropriate hazard warnings.
3. Name and address of the chemical manufacturer, importer, or other responsible party.

However, the HAZCOM 2012 (the new standard) requires labels to have:

1. A product identifier.
2. Signal word.
3. Hazard statement(s).
4. Pictogram(s).
5. Precautionary statement(s).
6. Name, address and telephone number of the chemical manufacturer, importer or other responsible party.

These labeling requirements are mandated and provided in the HAZCOM 2012 standard. The requirements are defined and illustrated below:

Signal Word — OSHA allows only two signal words to appear: either “warning” or “danger,” with “danger” being the more hazardous of the two. Which word is to be used is determined by the hazard classification of the product.

Hazard Statement — OSHA defines a hazard statement as “a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.” These statements are standardized and are determined by the hazard classification of the product.

Pictograms — OSHA has adopted eight mandatory pictograms (one non-mandatory) that must be used based upon the hazard classification of the product (Figure 1).

Precautionary Statement — OSHA defines precautionary statement as: “a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.” As with the signal word, hazard statement and pictogram, these statements are based on the hazard classification of the product.

As can be seen in Figure 1, labeling of the chemical now starts with determining the hazard classification of the product, which is conducted by the manufacturer. OSHA has adopted standardized classifications based on toxicological data. Once evaluated, then the product can have a label developed. Four of the required elements on the label are based on the hazard classification.

Figure 1

| | | |
|---|---|---|
| <p>Health Hazard</p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity | <p>Flame</p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides | <p>Exclamation Mark</p>  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory) |
| <p>Gas Cylinder</p>  <ul style="list-style-type: none"> • Gases Under Pressure | <p>Corrosion</p>  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals | <p>Exploding Bomb</p>  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides |
| <p>Flame Over Circle</p>  <ul style="list-style-type: none"> • Oxidizers | <p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> • Aquatic Toxicity | <p>Skull and Crossbones</p>  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic) |

The U.S. Occupational Safety and Health Administration has adopted eight mandatory and one non-mandatory pictograms for hazard classification.

Safety Data Sheets

A material safety data sheet (MSDS) and a safety data sheet are essentially the same document, while the information required by both the old and new standard are fundamentally the same. The difference between the two can be observed in the format of the sheet. The 1994 standard does not have specific formatting requirements, order of presentation nor sections that must be included to communicate the hazards. The HAZCOM 2012 standard requires that the information on the SDS be presented using specific headings in a specified sequence.

Appendix D of HAZCOM 2012 provides the headings and information to be included under those headings for the SDS. This mandated format is the same format as the ANSI 16-part format that is widely recognized. The format of the 16-section SDS includes the following sections:

- Section 1. Identification.
- Section 2. Hazard(s) identification.
- Section 3. Composition/information on ingredients.
- Section 4. First-aid measures.
- Section 5. Fire-fighting measures.
- Section 6. Accidental release measures.
- Section 7. Handling and storage.
- Section 8. Exposure controls/personal protection.

Table 1

Effective Dates of the HAZCOM 2012 Standard

| Effective completion date | Requirement(s) | Who is responsible |
|---|--|---|
| 1 December 2013 | Train employees on the new label elements and safety data sheet format. | Employers |
| 1 June 2015 • 1 December 2015 | Compliance with all modified provisions of this final rule, except: • <i>The distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label.</i> | Chemical manufacturers, importers, distributors and employers |
| 1 June 2016 | Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards. | Employers |
| Transition period to the effective completion dates noted above | May comply with either 29 CFR 1910.1200 (the final standard), or the current standard or both. | Chemical manufacturers, importers, distributors and employers |

- Section 9. Physical and chemical properties.
- Section 10. Stability and reactivity.
- Section 11. Toxicological information.
- Section 12. Ecological information.
- Section 13. Disposal considerations.
- Section 14. Transport information.
- Section 15. Regulatory information.
- Section 16. Other information, including date of preparation or last revision.

Please note, Sections 12–15, although required to be present on the SDS, are not mandatory at this time. OSHA has stated its current position not to enforce the information contained in these sections, since the information in these sections is regulated by other governmental agencies.

In addition to the changes discussed above, the steel industry will face additional issues going forward with this implementation. In the EU, steel (semi-finished and finished) products do not require an SDS or label, where

they are defined as “articles.” However, in the HAZCOM 2012 preamble, OSHA reaffirms that steel (semi-finished and finished) products are mixtures, not articles, due to further processing by downstream users. This change for the steel industry may be problematic, since steel products could not be classified as non-hazardous. For example, any steel product containing above 0.1% nickel will be classified as a skin sensitizer and carcinogen. With OSHA specifically labeling steel as a mixture, the evaluation process following the GHS guidelines that were adopted by OSHA changes dramatically in comparison to the EU requirements for steel products.

As can be seen, although there are similarities between the hazard communication standard of 1994 and HAZCOM 2012, there are significant differences. Because of this, OSHA has required training of all employees on the differences by 1 December 2013. Table 1 provides the effective dates of the HAZCOM 2012 standard and who is required to comply with meeting these dates. ♦