

Hazard communication standards — Globally Harmonized System

This is a CEU article that grants one General Standards (CORE) CEU when submitted and approved.

By Stephen H. Futch

The United States, United Nations and 67 countries have adopted the Globally Harmonized System (GHS) of classification and labeling of all chemicals including pesticides. This new international system classifies chemicals by the type of hazard, specifies the type of information that should be included on labels of hazardous chemicals, and addresses the development of safety data sheets (SDS). SDS were formerly known as Material Safety Data Sheets (MSDS).



The rule requires chemical manufacturers, distributors or importers to identify each hazardous chemical to users based on potential hazards.

The intended outcome of the new system is improved worker understanding of the hazards associated with chemicals they may come into contact with in the workplace. The GHS will provide a common approach to classifying chemicals while reducing confusion, facilitating training, and helping

address literacy and language problems with the use of pictograms. The new labeling provides information about the hazard classes and categories in GHS. The requirements of the new rule will be phased in through June 1, 2016.

By December 1, 2013 employers should have trained their workers on the new elements of GHS as well as the new SDS format. The training is needed as the industry begins to transition to the new labels and SDS.

The system is based on health, physical and environmental hazards. For each hazard, specific information will be communicated to the user via pictograms.

Health hazards could include acute

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toxicity, skin corrosion/irritation, respiratory or skin sensitization, carcinogenicity and reproductive toxicity as representative examples.

Physical hazards could include explosives, flammable aerosols, oxidizing gases, flammable liquids, flammable solids, oxidizing liquids, oxidizing solids, corrosives to metals, and combustible dusts.

Environmental hazards could include acute and chronic toxicity to fish, crustacean, algae or other aquatic plants.

This new training requirement must include six topics. They are product identifier; signal word; pictogram;

hazard statement; precautionary statement; and name, address and phone number of the chemical manufacturer, distributor or importer.

PRODUCT IDENTIFIER

The product identifier will tell the employee how the hazardous chemical is identified. The chemical identifier may include information about the chemical name, code or batch number. The manufacturer, importer or distributor will determine the appropriate product identifier, which must be identified in the same manner on the SDS.

SIGNAL WORD

The signal word will indicate the

relative level of hazard severity and alert the reader of the potential hazard. The new signal words are being reduced from three (caution, warning and danger) to two (danger and warning) levels. Labels with the “danger” signal word will signify those products are more severe hazards whereas “warning” will be used for the less severe hazards. Regardless of the hazard, only one signal word will appear on each chemical label.

PICTOGRAM

The pictogram will be in the shape of a square with a corner pointing toward the top. The pictogram will be one of the nine identified hazards printed in black on a white background with a red frame. This design will aid in making the pictogram clearly visible on the label.

HAZARD STATEMENT

The hazard statement describes the nature of the hazard or hazards of the chemical. An example could include: “causes damage to the kidneys through prolonged or repeated exposure when absorbed through the skin.” All applicable hazards must appear on the label. The hazard statements are specific to the classification categories.

PRECAUTIONARY STATEMENT

The precautionary statement describes measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

SUPPLIER IDENTIFICATION

The name, address and phone number of the chemical manufacturer, distributor or importer will clearly be identified to improve communication between the user and manufacturer.

Employers should use the new labels to effectively communicate with their employees to explain how the information provided on the label can be used to ensure proper storage of hazardous chemicals. Information on the label should allow the employee to quickly locate information on emergency first aid or to contact emergency personnel.

When training is provided on the new SDS, the training must include information on the standardized 16-section format. The format is designed to be user-friendly and provide brief guidance to aid workers who handle hazardous chemicals.

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Sections 1 through 8 contain general information about the chemicals. Sections 9 through 11 and 16 contain other technical and scientific information. Sections 12 through 15 are included to be consistent with the GHS classification and labeling of chemicals.

THE 16 SECTIONS OF THE NEW SDS

1) Identification includes product identifier; manufacturer or distributor name, address and phone number; emergency phone number; recom-

mended use; restriction on use.

2) Hazard identification includes all hazards regarding the chemical and required label elements.

3) Composition/ingredients includes information on chemical ingredients and trade secret claims.

4) First-aid measures includes important symptoms/effects — acute and delayed — and required treatments.

5) Firefighting measures list suitable extinguishing techniques and equipment, and chemical hazards from fire.

6) Accidental release measures list emergency procedures, protective equipment, and proper methods of containment and cleanup.

7) Handling and storage lists precautions for safe handling and storage, including incompatibles.

8) Exposure control and personal protection lists the Occupational Safety and Health Administration's (OSHA) Permissible Exposure Limits, Threshold Limit Values, appropriate engineering controls and personal protective equipment.

9) Physical and chemical properties list the chemical's characteristics.

10) Stability and reactivity includes routes of exposure, related symptoms, acute and chronic effects, and numerical measures of toxicity.

11) Toxicological information

12) Ecological information

13) Disposal considerations

14) Transportation information

15) Regulatory information

16) Other information includes the date of preparation or last revision. Note that sections 12–15 are not regulated by OSHA.

The information contained in the SDS must be in English for products sold in the United States.

When chemicals have multiple hazards, different pictograms will be included on the label to properly identify each potential hazard or hazards.

The nine pictograms are: 1) health hazard, 2) flame, 3) exclamation mark, 4) gas cylinder, 5) corrosion, 6) exploding bomb, 7) flame over circle, 8) environment (non-mandatory), and 9) skull and crossbones.

The "health hazard" pictogram will indicate how these chemicals

pose a risk to your health if used improperly. The risk factors could include carcinogen, mutagenicity, reproductive toxicity, respiratory sensitizer, target organ toxicity or aspiration toxicity.

The "flame" pictogram indicates there is a fire risk. The user should be concerned about ignition sources and combustible materials. Risks could include flammables, pyrophorics (capable of igniting), self-heating, emits flammable gas, self-reactive or organic peroxides.

The "exclamation mark" pictogram is used in combination with the "health hazard" pictogram and is less severe than the "skull and crossbones" category. Risks could include irritants to skin and/or eye, skin sensitizer, acute toxicity, narcotic effects, respiratory tract irritant or hazardous to ozone layer.

The "gas cylinder" pictogram is used to indicate that physical hazards are inherent in the use and/or storage of compressed gas. The products are under pressure.

The "corrosion" pictogram is used to show that the user needs to be especially aware of personal protective equipment



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and storage requirements. With improper use, skin corrosion/burns are possible along with eye damage, or the products are corrosive to metals.

The “exploding bomb” pictogram is used to indicate that a significant physical risk exists and should be treated with extreme caution. Risks include explosives, self-reactives or organic peroxides.



The “flame over circle” pictogram can indicate that the chemical can create an increased fire risk in your work or storage environment. These products could be oxidizers and have a high fire potential.



The “environment” pictogram is a non-mandatory category and is used for safety training because it is regulated by other agencies. These products could pose an aquatic toxicity issue for fish or other aquatic life.



The “skull and crossbones” pictogram is usually displayed in combination with “health hazard” to signify the chemical is particularly hazardous. These products could pose acute toxicity and be fatal or toxic.



See OSHA’s Hazard Communication website at <http://www.osha.gov/dsg/hazcom/index.html> for more information on GHS and SDS.

Sources of information: OSHA fact sheets and publications

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‘Hazard communication standards...’ test

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- | | | |
|---|---|---|
| 1. Globally Harmonized System (GHS) of classification of chemicals is a program that is only used in the United States. | T | F |
| 2. The safety data sheet (SDS) was formerly known as the material safety data sheet (MSDS). | T | F |
| 3. The intended outcome of the Globally Harmonized System is to improve worker understanding of the hazards associated with chemicals they may come in contact with in the workplace. | T | F |
| 4. The requirements of the new GHS rule will be phased in over the next year. | T | F |
| 5. The GHS bases the hazard only to health and the environment. | T | F |
| 6. In the GHS, the product identifier tells the employee how the hazardous chemical is identified. | T | F |
| 7. Under the GHS, the three signal words (caution, warning and danger) on the label remain the same as they currently are being used on the label. | T | F |
| 8. The pictogram on the label will be in the shape of a square with a corner pointing toward the top. | T | F |
| 9. The pictogram will consist of eight mandatory hazards printed in black on a white background with a red frame. | T | F |
| 10. Employers should use the new labels to effectively communicate with their employees to explain how the information provided on the label can be used to ensure proper storage of hazardous chemicals. | T | F |
| 11. When conducting training on the SDS, the training must include information on the standardized 16-section format. | T | F |
| 12. The design of the SDS is to be user-friendly and provide brief guidance to aid the worker who handles hazardous chemicals. | T | F |
| 13. All 16 sections on the SDS are regulated by OSHA. | T | F |
| 14. Chemicals will have only one pictogram on a specific label that identifies the hazard. | T | F |
| 15. The “health hazard” pictogram indicates how the chemical poses a risk to your health if used improperly. | T | F |
| 16. The “flame” pictogram indicates that the chemical’s risk is only flammable. | T | F |
| 17. The “corrosion” pictogram is used to show that users need to be especially aware of the personal protection equipment needed to properly protect themselves when they come in contact with the product. | T | F |
| 18. The risk associated with the “exploding bomb” pictogram indicates a chemical could be explosive, self-reactive or organic peroxides. | T | F |
| 19. A “flame over circle” pictogram indicates that the chemical has a low fire potential. | T | F |
| 20. For more information on GHS and SDS, visit OSHA’s Hazard Communication website at http://www.osha.gov/dsg/hazcom/index.html | T | F |

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