



# Health & Safety Newsletter

## Recognition, Evaluation & Control

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## Hazcom 2012 and Globally Harmonized System

In March 2012, OSHA published a revised Hazard Communications Standard (29 CR 1910.1200) which incorporates the United Nations Globally Harmonized System of Classification and Labeling of Chemicals also known as GHS. Employers should become familiar with these changes and begin the process of revising their Hazard Communications (Hazcom) Program to ensure they are in compliance with these changes.

In the past there were many different systems for classifying and labeling

chemicals. GHS is an international approach to hazard communications that grew out of the Rio Summit in 1992. It includes criteria for classifying health, physical and environmental hazards of chemicals as well as information to be included on labels and safety data sheets. In 2002 the United Nations accepted GHS and many countries agreed to implement the system by 2008. More than 60 countries have adopted GHS. OSHA has been working on incorporating GHS into the Hazard Communications Standard since 2005. The revised OSHA Standard also known as Hazcom 2012 requires employers to complete training regarding new labels and safety data sheet formats by December 1, 2013 and update written Hazard Communication Programs and train employees on any new hazards by June 1, 2016. Manufacturers of chemicals must use new labels and safety data sheets no later than June 1, 2015 and can only ship containers with GHS compliant labels after December 1, 2015.



GHS standardizes the three basic elements of hazard communication. These include defining the hazards, classifying hazards and communicating these hazards in the workplace. These changes provide benefits to governments and industry by reducing duplicative testing of chemicals and reducing costs of compliance for companies shipping chemicals to different countries. GHS also enhances protection of human health and the environment by harmonizing chemical safety and health information.

Hazcom 2012 resulted in three basic changes to the OSHA Hazcom standard. These include:

- Hazardous classification
- Label content
- Safety data sheets (SDS)

Some of the changes include terminology. "Right to Know" is now "Right to Understand" which indicates the importance of the training and knowledge component of chemical safety. Material Safety Data Sheet is now Safety Data Sheet. The greatest changes to the standard itself are in the appendices which are now mandatory and include the specific health and physical hazard criteria, label requirements, safety data sheet requirements and definitions of Trade Secrets. GHS also includes environmental hazard requirements but these are not mandatory under OSHA since other agencies such as EPA have authority over these areas of compliance and are not part of OSHA's regulatory authority.

## Hazard Classification

Hazcom 2012 includes detailed criteria for 16 physical hazard classes and 10 health hazard classes. These are included in Appendix A and Appendix B of the standard. Most of these hazards are then further divided into categories for the degree of these hazards. OSHA also included three additional hazard classes not in GHS. These are simple asphyxiants, pyrophoric gases and combustible dusts. Hazcom 2012 also includes the category "Hazards Not Otherwise Classified" (HNOC). HNOC is intended for hazards that don't fit the current GHS classification scheme that may be encountered. Information on HNOCs is to be included on the SDS but is not required on the label.

## Label Content

Hazcom 2012 requires chemical manufacturers and exporters to use harmonized signal words, pictograms and hazard statements on labels. These requirements are in Appendix C of the standard. In the past label content was left up to the individual preparer with little guidance on format. In addition to the product identifier, labels are required to provide one of two signal words. "Danger" is used for more severe hazards while "Warning" is used for less severe hazards. Labels also will include eight standardized pictograms with specific graphic elements, border, background and color to convey information about the hazards. GHS has an additional pictogram for environmental hazards but this is not required by OSHA. Labels will also include standardized precautionary hazard statements as specified in tables in Appendix C of the standard. Lastly, labels will have standardized precautionary statements from tables also in Appendix C.



Health Hazard Pictogram



Label Example

Hazcom 2012 compliant labels are required on shipped containers but the standard allows the employer to use other labeling systems like the HMIS (Hazard Management Information System) or NFPA (National Fire Protection Association) label systems for secondary containers filled and used by employees as long as employees are trained on the facilities labeling system. Care must be taken however if HMIS or NFPA labels are used since GHS Hazard Category 1 is the highest hazard while a hazard of 1 is the lowest hazard for HMIS and NFPA labels.

## Safety Data Sheet (SDS)

SDSs replace MSDs under Hazcom 2012. SDSs include these 16 mandatory sections.

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

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

Even though all 16 sections are required, OSHA will not enforce the content in sections 12 through 15 since they are outside the scope of the standard and OSHA's authority.

For mixtures, the chemical name and concentration or concentration ranges of all ingredients which are classified as health hazards are required. Where a trade secret is claimed, a statement that the specific chemical identity and/or percentage of composition that has been withheld as a trade secret is required.

## What should I do?

Employers are probably starting to receive new SDSs from manufacturers and suppliers. Distributors can ship products with old labels until Dec. 1, 2015 but employers are required to train workers on the new labels and SDSs by Dec. 1, 2013. Employers should read the OSHA Hazcom 2012 standard and become familiar with the new hazard classifications. Some materials that were hazardous may no longer be hazardous while other materials that were not hazardous may now be classified as hazardous. SDSs should be reviewed to identify these changes in hazards. Workplace controls such as PPE (personal protective equipment) should be evaluated in light of these new classifications and the list of hazardous chemicals should be revised. The written Hazcom Program should be revised as needed as well as in plant labeling systems.

## Ergonomics of Sitting vs. Standing

Employees have two basic work postures- sitting or standing. Each is applicable to certain operations and there are advantages and disadvantages based on the task, as well as ergonomic risk factors such as force, posture, and duration.



Operations involving high visual attention, small parts assembly for prolonged periods and computer entry are best suited for a seated posture. If moderate or forceful exertions are required or where mobility is important, a standing position is best. Standing allows more reach ability and maneuverability. Standing also minimizes disk pressure on the low back. In fact, compressive forces on the lumbar disks are 50% higher in a seated position. A back rest is critical when seated since it reduces the compressive forces on the lumbar disks by 15% as compared to being seated without any back support. Often chairs and stools in production and assembly operations do not have back supports or are in poor condition. In these cases, it is better to have employees stand than to use bad chairs. Standing on hard surfaces affects circulation in the legs. Always use anti-fatigue matting

for employees who stand for more than 90% of their work shift.

Often back pain is associated with sitting for prolonged periods. In these cases, employees may have less discomfort when standing. Static standing should be for no more than 2 hours at a time with no more than 4 hours total per day. If the employee is having medical treatment, obtain guidelines for sitting/standing from the medical provider.

### Chairs

Chairs are the most important ergonomic consideration in an office environment and in other seated applications. High quality chairs with ergonomic features provide comfort by allowing employees to adjust their seated position according to their needs. Chairs should include:

- Seat height adjustment
- Seat pan depth adjustment
- Backrest tilts backward and forward
- Backrest has tension control
- The backrest includes lumbar support
- Adjustable armrest height and lateral movement
- Rounded front pan edge
- Sufficient seat padding
- Five-leg base with wheeled casters

When choosing new chairs, contact vendors and get a number of samples. Have a group of employees test out the chairs for a couple of weeks and provide feedback on comfort, ease of adjustment and their overall experience with the chairs.

Always provide training on the features and specific adjustments of chairs. Often, employees don't know how to properly adjust their chairs. Proper seated position includes:

- Feet flat on the floor
- Thighs parallel to the floor
- Knees bent at 90°-110°
- Backrest adjusted for low back support
- Seat pan depth set so the chair does not contact the back of the legs
- Armrests adjusted so that shoulders are relaxed while arms are supported.

Stability balls are a recent fad being used as chairs in some offices. These devices are popular exercise equipment and some vendors are promoting them as chairs for office use. The theory involves increased abdominal muscle activity when using the balls with increased core stability and strength which are beneficial to the user. Recent studies have refuted these claims. The studies show no benefits from using the stability balls as compared to standard office chairs and there is more discomfort when sitting on the balls. The balls may actually increase the risk for developing low back discomfort and there is an increased risk for other injuries due to the instability of the balls.

## Hearing Conservation

Millions of workers are exposed to high levels of noise and noise induced hearing loss is one of the most common occupational injuries. When workers are exposed to noise it is critical that an effective Hearing Conservation Program be implemented to prevent hearing loss.

Noise induced hearing loss generally occurs from prolonged exposure to high noise levels. This gradual progression of hearing loss is often unnoticed and is not as dramatic as other types of occupational injuries. The most effective means of controlling exposure is engineering out the sources of noise. This is

often difficult and a combination of administrative controls and use of hearing protection within the framework of a Hearing Conservation Program provide the best means of control.



OSHA's Hearing Protection Standard (29 CFR 1910.95) details the required elements of a Hearing Conservation Program. MSHA has similar requirements for mine workers. The written program begins with exposure monitoring to assess the sources of noise and identify employees who may be at risk. A sound level meter can be used to identify high noise areas and then employees in these areas should be outfitted with noise dosimeters to measure actual employee exposures. Employees exposed to a noise level of 85 dBA (decibels) or greater on the A scale for an eight hour period which is equivalent to a 50% dose as a time weighted average, must be included in the program. Noise exposure monitoring should be conducted annually or whenever operations or equipment change.

Audiometric testing is an important part of the Hearing Conservation Program. Testing is designed to evaluate an employee's hearing acuity over time. Employees exposed to noise above 85 dBA or 50% dose as an eight-hour time weighted average must be tested at the time of hire or initial exposure to noise. This provides a baseline from

which future tests can be compared. Audiometric testing is conducted on an annual basis. Testing must be done by a qualified provider. A standard threshold shift (STS) is a measure of the loss of hearing ability. An STS is defined as an average shift in hearing ability in either ear of 10 dB (decibels) at 2,000, 3,000 and 4,000 hertz. It is important not to expose employees to high noise directly before audiometric testing since this may impact test results. It is a good idea to retest employees identified as having an STS to confirm the test results. A head cold or exposure to high noise before the audiogram may have impacted the test results.

The use of hearing protection is integral to the Hearing Conservation Program. According to the OSHA standard, employees must wear hearing protection if they experience an STS or if dosimetry testing shows that their exposure exceeds the noise permissible exposure limit (PEL) of 90 dBA as an eight-hour time weighted average or 100% dose. Hearing protective devices need to reduce noise exposure below 90 dBA (100% dose) and to 85 dBA (50% dose) for employees experiencing a standard threshold shift. Even though not required by OSHA, it is recommended that hearing protection also be worn whenever noise levels exceed 85 dBA or 50% dose since there is still a risk of noise induced hearing loss at these levels. Employers should provide a variety of hearing protectors so employees can find a size and style that is comfortable to wear.

Training is an important part of the Hearing Conservation Program. Workers need to understand the risks of hearing loss and why hearing protection is required. They need to have an understanding of the company's Hearing Conservation

Program as well as the purpose and procedures for audiometric testing. They need to be trained in the proper means of fitting and using the specific hearing protection devices available and how to select and care for these devices.

Records must be kept as required by OSHA. These include noise measurement records, audiometric test results and records of training. Records should be retained indefinitely.