



## CAMPUS FIRE SAFETY CODE TALK

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What is the difference between the NFPA 704 “diamond” and OSHA GHS labels?



You probably have seen the NFPA label or placard on buildings, 55 gallon drums, tanks, storage rooms or even on the door to your chemistry or science lab. The placards, which use a combination of color coding and numerical scales to describe a hazard’s severity, have been used since the 1950s to provide emergency responders with a simple, readily recognized system to determine the appropriate response to a fire, spill, or similar emergency. The combination of color coding and simplified hazard rating with numbers ranging from 0-4 allow emergency responders to have the information needed to make fast, safe decisions that are needed in emergency situations. “Should we use water to fight the fire for this material?” “Should we evacuate the area?” The NFPA 704 placard provides immediate answers to these types of questions when emergency responders arrive at the scene.

In 2012 OSHA announced that it was updating its Hazard Communication Standard to include the adoption of the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. The GHS of classification is part of an international effort that, like NFPA 704, provides a standardized approach to classification and labeling of hazardous chemicals, including detailed criteria for determining the dangers posed by chemicals and standardized label elements assigned by hazard class and category.



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The GHS system utilizes numbers from 1-4 to determine what information will be placed on a label.

The initial reaction to OSHA's adoption of GHS and its impact on NFPA 704 labels was one of concern. How could there be two types of systems related to chemical hazards, both of which use numbers? However, upon further examination, the answer was clear. The two systems are not only used for different purposes but even the **purpose** of the numbers within these systems is different. NFPA 704 would remain unchanged.

To reiterate-the purpose of NFPA 704, *Identification of the Hazards of Materials for Emergency Response*, is to assist those who are responding to an emergency such as a fire or spill. Three of the four quadrants of the NFPA "diamond" are color coded to indicate the flammability (red) health (blue) and instability (yellow) ratings of the material in an emergency situation. Numbers placed in those colored quadrants range from 0-4 with zero indicating the lowest hazard and 4 being the highest hazard. A fourth quadrant (white) is reserved for special hazards. The symbols W (water reactive), Ox (oxidizer) and SA (simple asphyxiant) are placed in this quadrant if applicable.

In contrast, OSHA's revised Standard, known as Hazard Communication 2012 or HC2012, is a workplace chemical information system whose purpose is to provide information and safe work practices for those working with chemicals under normal conditions of use. The GHS label does not require numbers but does require signal words, pictograms, hazard and precautionary statements. The required signal words, pictograms and statements are selected by correlating the GHS classification numbers now required in Section 2 of the new Safety Data Sheets (SDS) with the information located Appendix C of the Hazard Communication Standard. Unlike the NFPA 704 system, the GHS numbers themselves are not placed on the label. The Hazard Communication label is not meant to be an emergency response system nor is the



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NFPA 704 system meant to provide workers with all the information about working with and exposures to a particular chemical.

The confusion occurs because the HC2012 standard incorporates a numerical rating system that appears to be similar to NFPA 704 rating system, however the “severity” rating on the two standards are inverted. NFPA 704 uses a numerical of 0-4 with 4 indicating the most severe hazard. Hazard Communication 2012 uses a numerical system of 1-4 with 4 indicating the least hazardous chemical classification. The inverse numerical rating between the two systems is primarily what creates the concern. If someone who is creating the NFPA 704 label does not understand that the numbers provided in Section 2 on the SDS are NOT the NFPA 704 numbers then a critical mistake could occur if those numbers are transcribed on the NFPA 704 placards.

To address this concern, NFPA has been working with OSHA to promote awareness of the differences between the two systems. It should be noted that OSHA recognizes the difference between the two systems and does not necessarily see a conflict between HCS and NFPA 704. OSHA and NFPA worked together to develop a “Quick Card” showing the differences between the two systems. The card can be downloaded and laminated as a two sided document that can be laminated and used for easy field reference.

You may view the NFPA 704 standards free of charge by going to [www.nfpa.org/704](http://www.nfpa.org/704) and clicking on the “Current and Prior Editions” tab. You can download the Quick card at the bottom of the page under the “About” tab under Additional Information or you may go directly to the card at [http://www.nfpa.org/Assets/files/AboutTheCodes/704/NFPA704\\_HC2012\\_QCard.pdf](http://www.nfpa.org/Assets/files/AboutTheCodes/704/NFPA704_HC2012_QCard.pdf)

The NFPA Technical Committee on Classification responsible for NFPA 704 will continue to assess the impact of GHS incorporation into OSHA’s HC2012 standard. In the meantime, there is no immediate plan to change the existing NFPA 704 system. The Committee recognizes that the NFPA 704 consensus standard has been protecting



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emergency responders, employees, and the public for over 50 years and any changes would need to be carefully considered. The NFPA 704 document can be viewed free of charge at [www.nfpa.org/704](http://www.nfpa.org/704).

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