



UNIVERSITY OF DALLAS

Facilities Department

HAZARD COMMUNICATIONS (HAZCOM) SYMBOLS

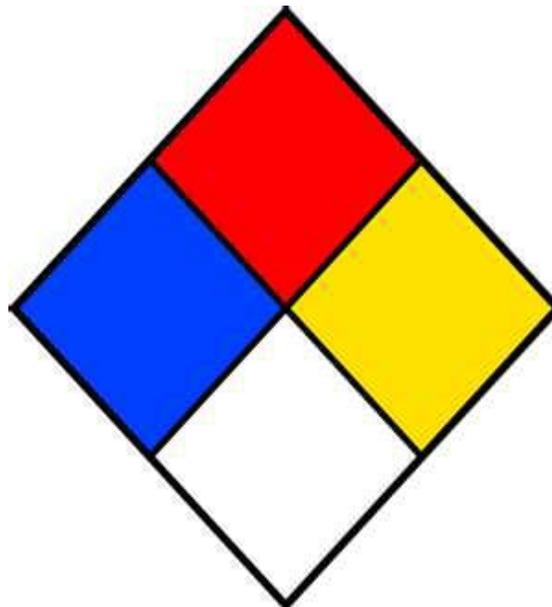
A training document written by: Steve Serna

The Occupational Safety and Health Administration (OSHA) has determined that workers have a, "right to know" what chemical hazards are present in their particular work areas, or what chemical hazards they might encounter on their work sites. This information is written in *29 CFR 1910.1200* of the US Code.

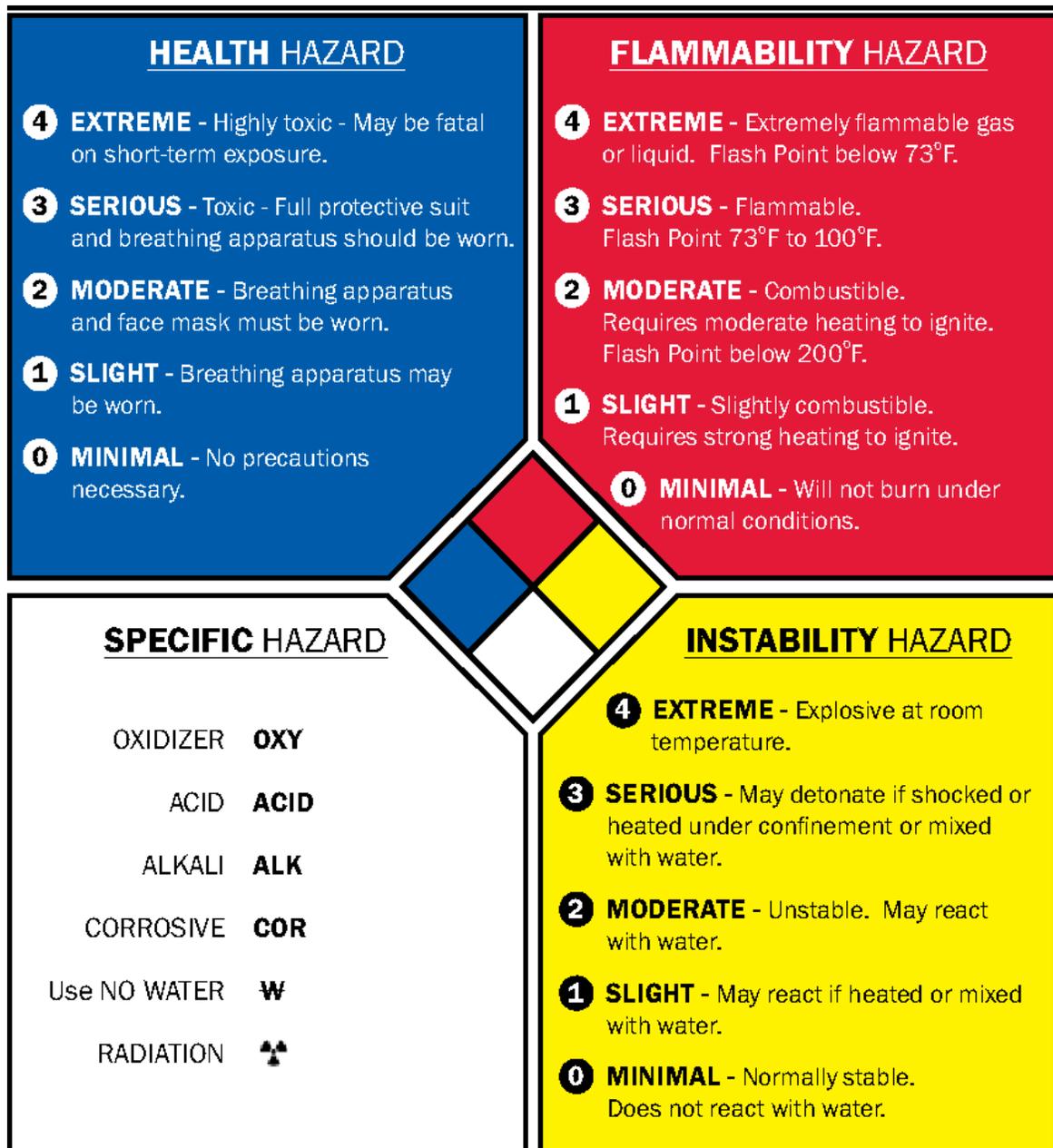
HAZCOM (Hazard Communications) relies on several written documents (*MSDS & written programs*) and various symbols or pictograms to inform the employee regarding chemical hazards or potential hazards. The law requires that all chemical containers/vessels have labels and adhere to a set standard; here is a quick explanation of some of the various symbols and pictograms...

NFPA

The **National Fire Prevention Association** is a private organization that catalogues and works to enact legislation for fire prevention in industrial and home settings. Most US Fire Departments rely on NFPA symbols to warn them of danger present in buildings. The NFPA Fire Diamond symbol is the common identifier along with a rating number (from 0-4) inside of a colored field to indicate a hazard rating.



NFPA FIRE DIAMOND



HAZARD RATINGS GUIDE

For example: Diesel Fuel has an NFPA hazard rating of 0-2-0. 0 for Health (blue), 2 for Flammability (red), and 0 for Instability/Reactivity (yellow).

HMIS (taken from WIKIPEDIA)

The Hazardous Materials Identification System (HMIS) is a numerical hazard rating that incorporates the use of labels with color-coded bars as well as training materials. It was developed by the American Paints & Coatings Association as a compliance aid for the [OSHA](#) Hazard Communication Standard.

The HMIS Color Bar is similar to the [fire diamond](#), created by the [National Fire Protection Association](#). Before 2002 the fire diamond and the color bar both had sections colored blue, red, white, and yellow. After April 2002, with the release of HMIS III, yellow in the color bar (which stood for reactivity) was replaced by orange, standing for physical hazard. The fire diamond is designed for emergencies when information about the effects of short, or acute, exposure is needed. The color bar is not for emergencies and is used to convey broader health warning information.

Symbols

The four bars are color coded, using the modern color bar symbols with blue indicating the level of [health hazard](#), red for [flammability](#), orange for a physical hazard, and white for Personal Protection. The number ratings range from 0-4.

Blue/Health

The Health section conveys the health hazards of the material. In the latest version of HMIS, the blue Health bar has two spaces, one for an asterisk and one for a numeric hazard rating. If present, the asterisk signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage. According to NPCA, the numeric hazard assessment procedure differs from that used by NFPA.

Red/Flammability

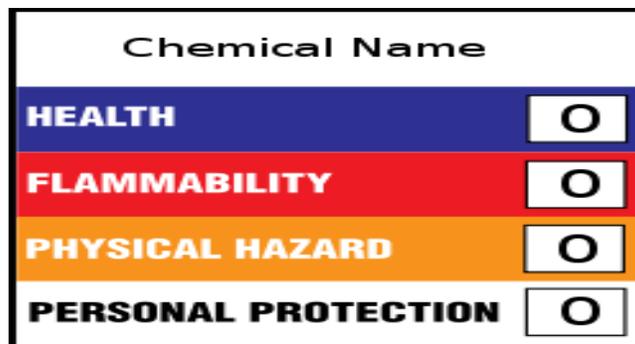
For HMIS I and II, the criteria used to assign numeric values (0 = low hazard to 4 = high hazard) are identical to those used by NFPA. In other words, in this category, the systems are identical. For HMIS III, the flammability criteria are defined according to OSHA standards.

Yellow/Physical Hazard

Reactivity hazard are assessed using the OSHA criterion of physical hazard. Seven such hazard classes are recognized: Water Reactives, Organic Peroxides, Explosives, Compressed gases, pyrophoric materials, Oxidizers, and Unstable Reactives.

White/Personal Protection

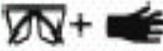
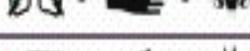
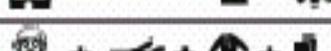
This is by far the largest area of difference between the NFPA and HMIS systems. In the NFPA system, the white area is used to convey special hazards whereas HMIS uses the white section to indicate what personal protective equipment (PPE) should be used when working with the material.



HMIS COLOR BAR

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

HMIS[®]

HAZARD INDEX		PERSONAL PROTECTION INDEX				
4 = SEVERE HAZARD	An asterisk (*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification	A				
3 = SERIOUS HAZARD		B				
2 = MODERATE HAZARD		C				
1 = SLIGHT HAZARD		D				
0 = MINIMAL HAZARD	Additional Information	E				
		F				
		G				
		H				
		I				
		J				
		K				
		X	Consult your supervisor or S.O.P. for "SPECIAL" handling directions			

PERSONAL PROTECTION EQUIPMENT			
A Safety Glasses 	n Splash Goggles 	o Face Shield & Eye Protection 	p Gloves 
q Boots 	r Synthetic Apron 	s Full Suit 	t Dust Respirator 
u Vapor Respirator 	w Dust & Vapor Respirator 	y Full Face Respirator 	z Airline Hood or Mask 

The MSDS on many chemicals has the HMIS ratings listed along with the NFPA ratings. Though they appear similar in nature, caution must be followed. They may not always be exactly the same as NFPA.

GHS

The Globally Harmonized System of Classification and Labeling of Chemicals or GHS is an internationally agreed upon system, created by the United Nations. It is designed to replace the various classification and labeling standards used in different countries. GHS uses symbol pictograms to denote physical hazards, health hazards, and environmental hazards. GHS symbols are based on the US Department of Transportation shipping symbols currently in use today. OSHA has adopted the use of GHS starting May 22, 2012. All chemical and product manufacturers labeling under the current HAZCOM standard must be fully adapted and compliant with the GHS standard by 2015. Under GHS, the MSDS is now called SDS (Safety Data Sheet). Basically all labeling must include several elements:

- The product (or chemical) name

- The product (or chemical) manufacturer and their address/contact number
- A signal word indicating the hazard severity of the product: **DANGER** for extremely hazardous, or **WARNING** for products highly hazardous. The signal word **CAUTION** is being phased out of use in GHS HAZCOM.
- A pictogram and number designation indicating the type of hazard and severity
- A product description and the physical state of the product: gas, liquid, solid, aerosol, etc...

<p>GHS 01 exploding bomb</p> 	<p>GHS 02 flame</p> 	<p>GHS 03 flame above circle</p> 
<p>GHS 04 gas flask</p> 	<p>GHS 05 caustic effect</p> 	<p>GHS 06 skull and crossbones</p> 
<p>GHS 07 exclamation mark</p> 	<p>GHS 08 health hazardous</p> 	<p>GHS 09 environment</p> 

GHS PICTOGRAM SYMBOLS

NFPA & HMIS have not determined as to whether or not they will adapt their hazard rating system to match GHS. The confusion is that for NFPA & HMIS the hazard ratings start at 0 (least hazardous) and increase to 4 (most hazardous). GHS ratings start at 4 (least hazardous) and decrease to 1 (most hazardous). In order to eliminate confusion the way to determine hazard severity may be thought of this way:

- Chemical/Product containers that are stored inside of structures where employees are present and may come into contact with chemicals shall follow the GHS ratings (to be fully implemented by chemical manufacturers in 2015).

- Placarding on the exteriors of buildings where chemical products are present (according to city code regulations) shall display the NFPA ratings system. This is for the safety of first responder emergency personnel.
- MSDS uses the HMIS in order to determine personal protective equipment needs.

BIO HAZARDS

Biological hazards must display the appropriate symbol and colors (red or burnt orange, and black) and use red plastic bags (for bio-contaminated waste) or yellow plastic bags (for bio-contaminated laundry) as a waste symbol. These symbols and colors are recognized globally.



BIOHAZARD SYMBOL

END