



The Globally Harmonized System of Classification and Labeling Chemicals (GHS)

aka

The New and Improved US Hazard Communication Standard

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Changes to the US Hazard Communications Standard

- In April 2012, the US Occupational Safety and Health Administration adopted the GHS and incorporated it into the Hazard Communication Standard 29 CFR 1910.1200
- What has changed?
 - How Labels Look
 - How MSDS's Look (now called SDS's)
 - How chemical hazards are classified

What's New: GHS Uses

- Pictograms
- Signal Words
 - Danger
 - Warning
- Hazard Statements
 - S/A harmful if swallowed or unstable explosive
- Precautionary Statements
 - S/A evacuate area or keep out of reach of children

**Employers have until
December 1, 2013 to
train employees on the
new label elements and
SDS**

What Hasn't Changed?

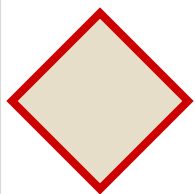
- The definition of a pesticide per the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- The labeling requirements under FIFRA 29 CFR 1940.1200 (b)(5)(i)

Labels- Per FIFRA (partial listing)

- ▶ Name and address of the producer, registrant, or person for whom produced
- ▶ Restricted Use Statement (if required)
- ▶ Product Name, Brand or Trademark
- ▶ Ingredient Statement
- ▶ Signal Word
- ▶ Pictogram
- ▶ “Keep Out Of Reach Of Children” (KOOROC)
- ▶ Precautionary Statements, including Hazards to Humans and Domestic Animals
- ▶ EPA Registration Number and EPA Establishment Number
- ▶ Storage and Disposal Statements
- ▶ Referral Statement to Directions for Use in booklet, if any
- ▶ Net weight or measure of contents

GHS Labels

Chemical Name



Hazard
Pictogram(s)

Signal Word (Danger or Warning)

Precautionary Statements

Supplier Information: Name,
Address, Phone number

Product Identifier-UN

Shipping name, CAS

Employers are free to add other systems (NFPA, HMIS) on in-house labels but they may not conflict with or obscure the GHS labels

Physical Hazard Pictograms



Exploding Bomb



Gas Cylinder



Flame



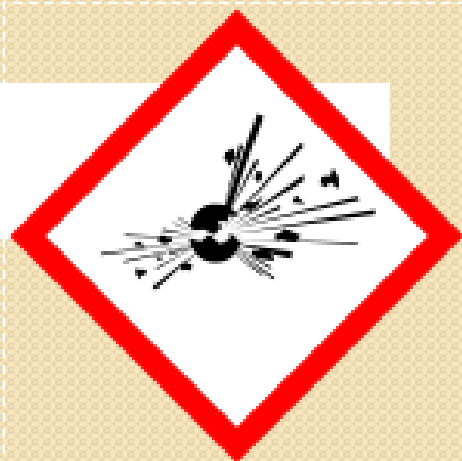
Corrosive (also
used for health
Hazards)



“O” over flame
(oxidizer)

Physical Hazard Pictograms and Classifications,

Exploding Bomb



Gas Cylinder



- Explosive (unstable, divisions 1.1-1.4), Self Reactive (Types A&B), Organic Peroxides (type A and B)

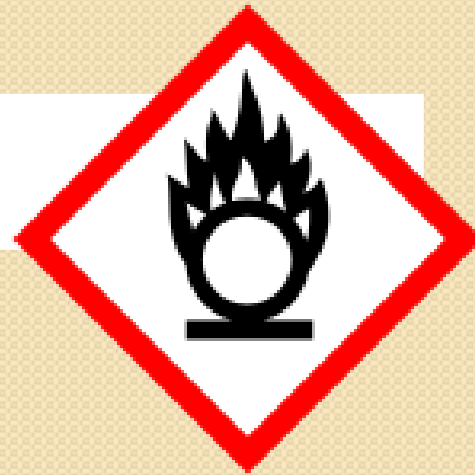
- Gas under pressure

Physical Hazard Pictograms and Classifications₂

Flame



Flame over circle



- Changes the definition of flammable to having a flash point $<200^{\circ}\text{F}$
- However- this symbol is only found on materials with $\text{FP} < 140^{\circ}\text{F}$
- This is consistent with the DOT definition

- Oxidizer

Physical –Health Hazard Pictograms and Classifications₃

Corrosive



- Corrosive to skin/burns
- Corrosive to metals

Health Hazard Pictograms



Corrosive



Skull and
Crossbones



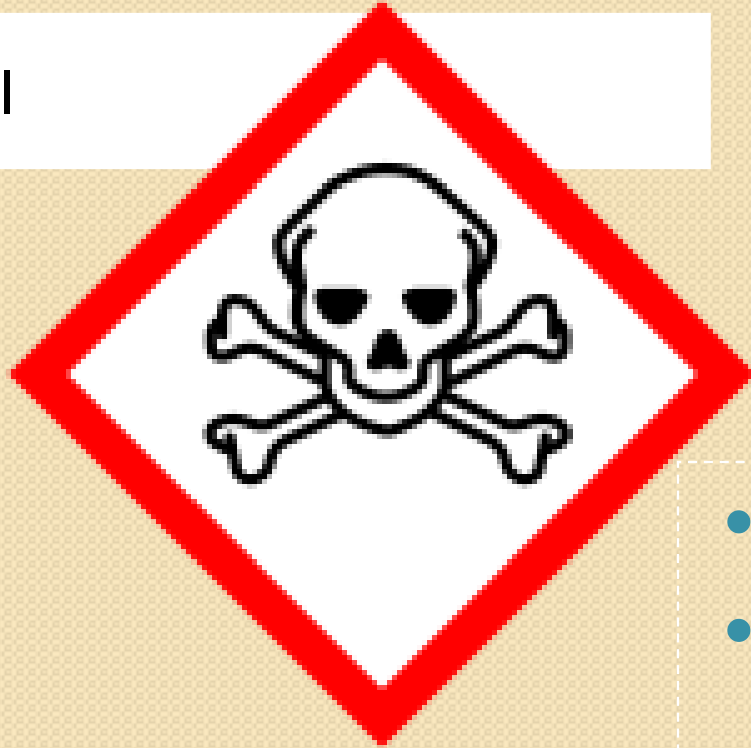
Health Hazard



Exclamation
Point

Health Hazard Pictograms and Classifications- Acute

Skull



- Acute Toxicity (cat. 1-3)
- Potentially Fatal





Health Hazard Pictograms and Classifications- Acute

Exclamation point



- Irritant
 - Skin and eye
 - Skin sensitizer
 - Respiratory tract irritant
 - Hazardous to ozone layer (non-mandatory)
 - Acutely toxic (harmful)

Summary of Acute Toxicity Categories and Pictograms

					
Route of Exposure	Cat I	Cat2	Cat3	Cat4	Cat5
Oral (mg/Kg)	5	50	300	2000	>2000
Dermal (mg/kg)	50	200	1000	2000	>2000
Gases PPM	100	500	2500	20,000	>20,000
Vapors mg/L	0.5	2.0	10	20	>20
Dusts and Mists (mg/L)	0.05 (5 mg/m ³)	0.5 (50 mg/m ³)	1.0 (1000 mg/m ³)	5 (5000 mg/m ³)	>5 (>5000 mg/m ³)

Health Hazard Pictograms and Classifications- Chronic/Latent

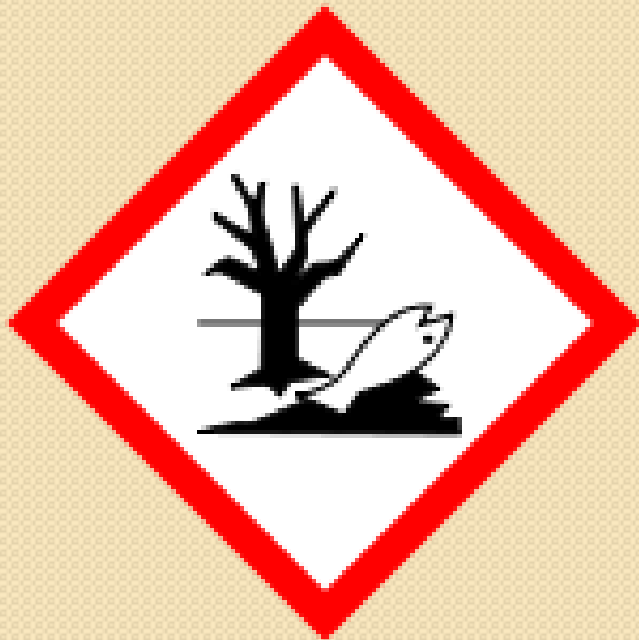
Health Hazard



- Carcinogen (Known, suspected, or presumed human)
- Germ Cell Mutagen (heritable)
- Reproductive effects (fertility & birth defects)
- Respiratory Sensitizer
- Target Organ damage (from acute or chronic exposure- not necessarily fatal)
- Aspiration Toxicity (pneumonia, lung injury or death)

Ecological Hazard Pictogram

Environmental Hazard



- (non-mandatory)
- Already appearing on SDSs and labels anyway
- Acute Aquatic toxicity (cat 1)
Chronic aquatic toxicity (cats. 1&2)

MSDS :Old vs New Format

Old- ANSI

- Section 1- Product and Manufacturer Identification
- Section 2- Chemical and common names of hazardous ingredients

New= GHS

- 1. Identification
 - Name of substance
 - Name of supplier and contact info
- 2. Hazard(s) identification-
 - Pictograms,
 - Hazard Statement
Precautionary Statement
 - Ingredients

Old vs. New Format₂

Old

- 3- Physical and Chemical Properties
- 4. Physical Hazards (fire & explosion)
- 5. Toxicity Data
- 6. Health Hazards
- 7. Storage and Handling Procedures

New

- 3. Composition information on ingredients
- 4. **First Aid Measures**
- 5. Fire Fighting Measures
- 6. Accidental Release Measure
- 7 Handling and Storage

Old vs. New Format₃

Old

- 8. Emergency First Aid Procedures
- 9. Physical and Chemical Properties
- 10. Stability and Reactivity
- 11. Toxicological Information
- 12. Reactivity Data

New

- 8. Exposure Control/ Personal Protection
- 9 Physical and Chemical Properties
- 10. Stability and Reactivity
- 11. Toxicological Information
- 12. Ecological Information

Resources

- www.osha.gov/dsg/hazcom/HCSFinalRegText.html
- www.epa.gov/oppeadl/international/ghs/elements.htm

Old vs. New Format₄

Old

I 3. Ecological Data

I 4. Disposal
Information

I 5. Regulatory
Information

I 6. Miscellaneous
Information

New

I 3 Disposal
Considerations

I 4. Transport Information

I 5. Regulatory
Information

I 6 Other Information