

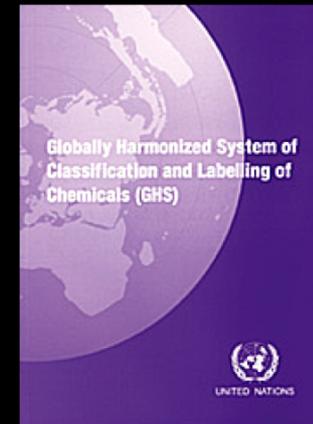
# HAZARD COMMUNICATION STANDARD

OSHA 29 CFR 1910.1200



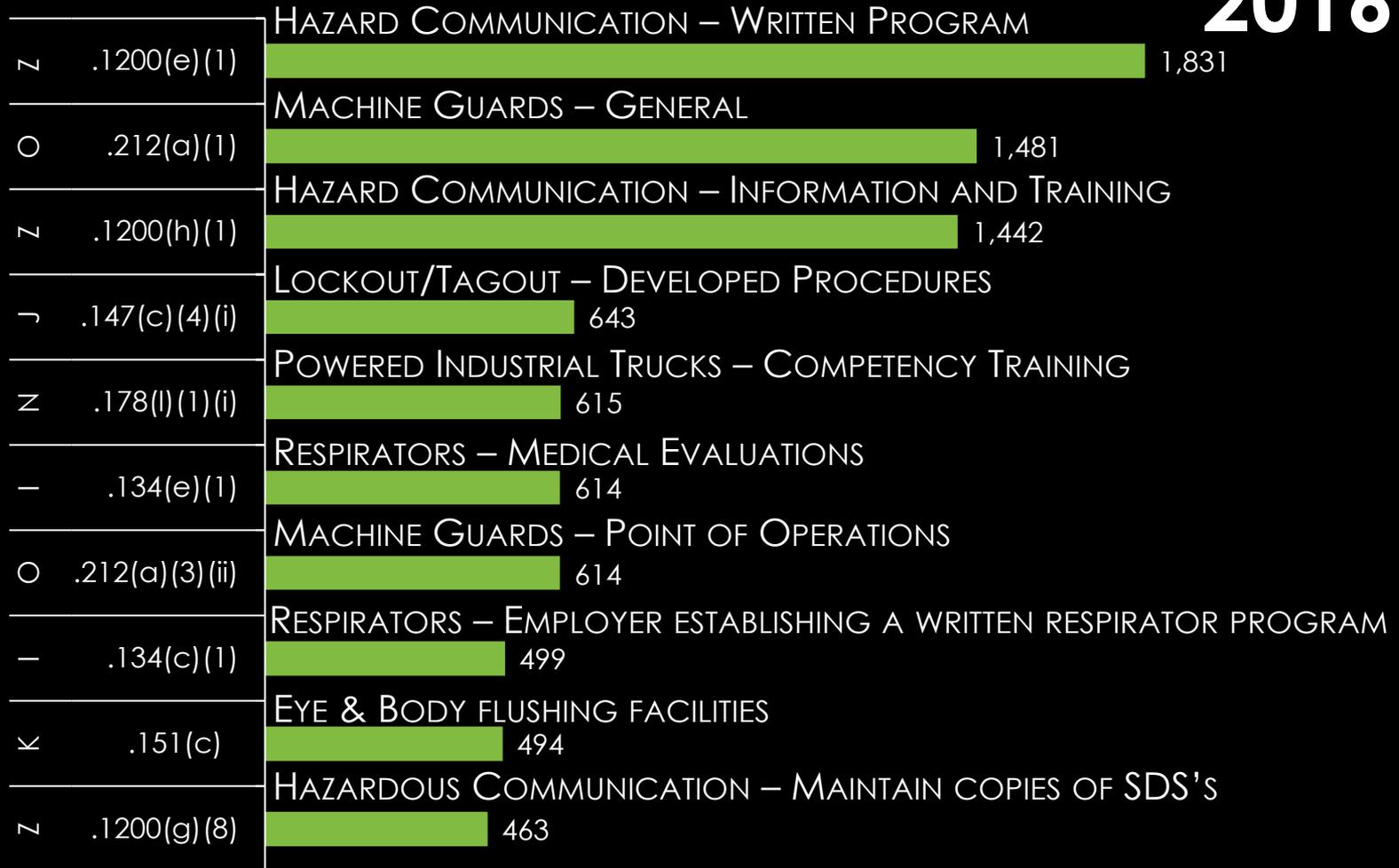
# HAZARD COMMUNICATION STANDARD

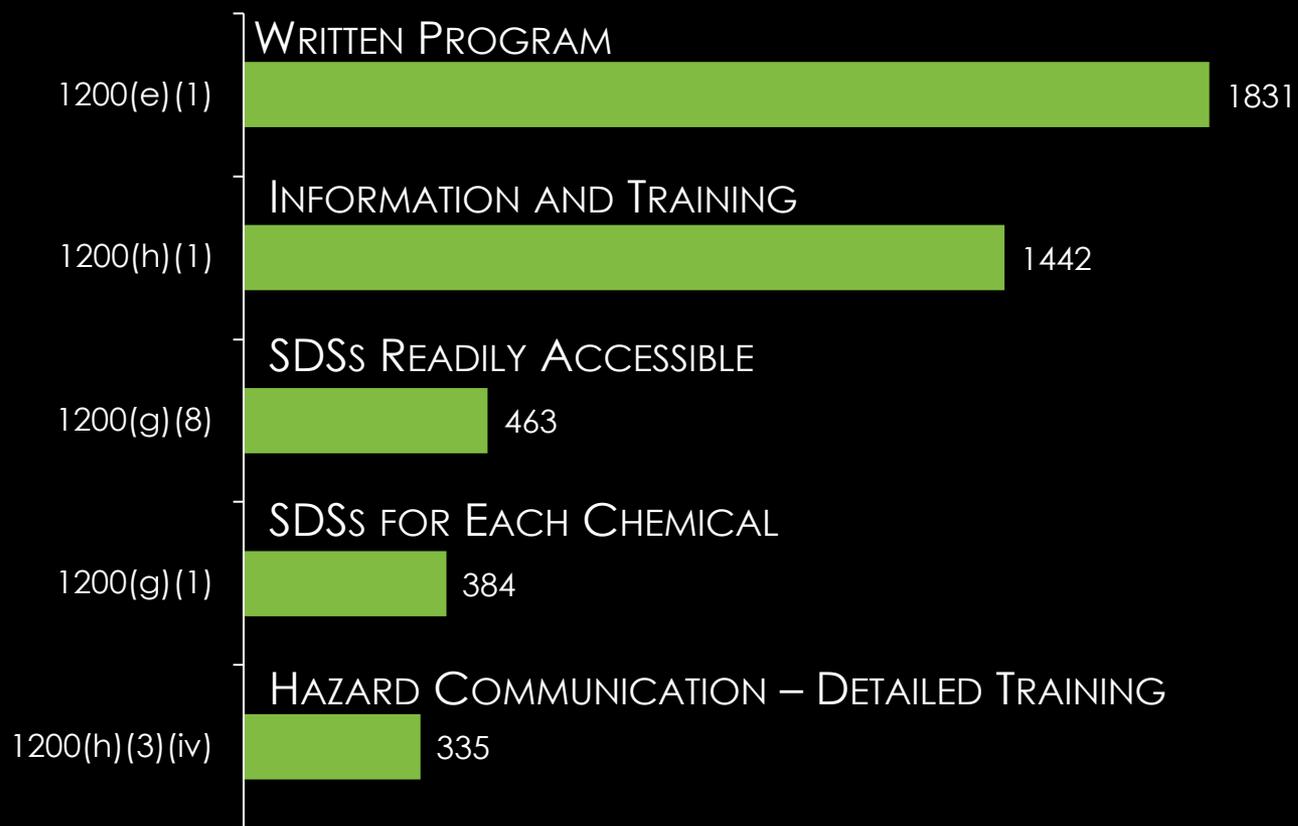
- First adopted in 1983. Its purpose is to ensure chemical safety in the workplace. In order to do so, information about the identities and hazards of the chemical must be available and understandable to workers.
- The HazCom standard (29 CFR 1910.1200) was last revised in March 2012 to improve the quality and consistency of hazard information. **It's now aligned with the United Nation's Globally Harmonized System of Classification and Labeling of Chemicals (GHS).**



# MOST FREQUENTLY CITED SERIOUS VIOLATIONS IN GENERAL INDUSTRY 2016

29 CFR 1910 SUBPARTS





# OSHA's GHS Approach

(Globally Harmonized System)

- Terminology better defined
  - Hazard classification (reversed)
- Consistent SDS format
- Labels have more specific requirements
  - 3 required elements when being shipped or received
  - Use of signal words
    - **DANGER** (more severe hazards)
    - **WARNING** (less severe hazards, caution still required)

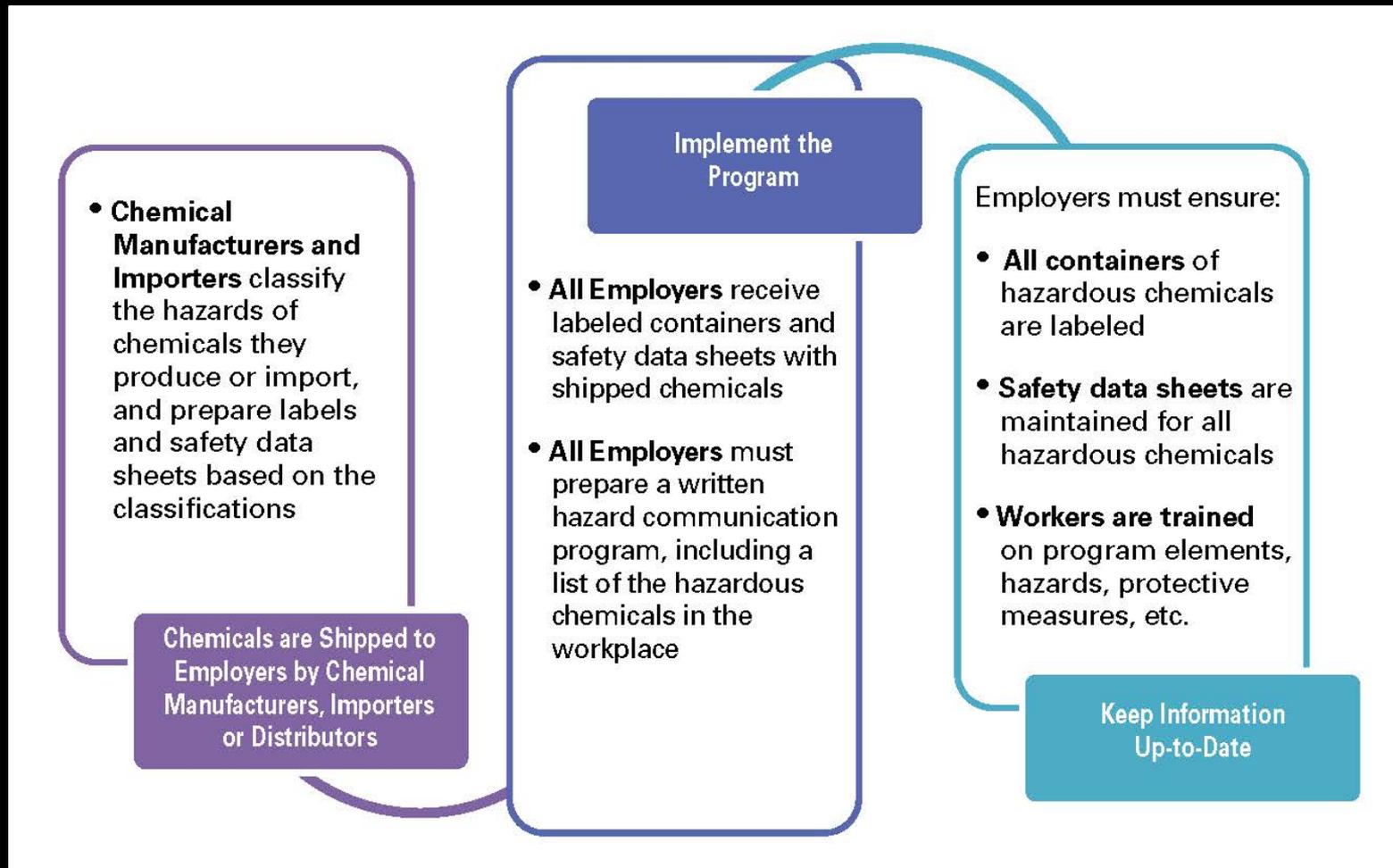
Think of a tree, any kind?



# Seven major elements in the GHS-aligned



# Employer Responsibility:



# WRITTEN PROGRAM REQUIREMENTS:

- Develop, implement and maintain
- Lists of chemicals present
- Availability of SDSs
- Labeling of containers
- Training, training, training (not required annually)

# HAZARD COMMUNICATION STANDARD

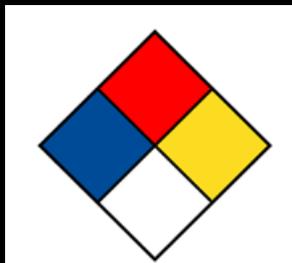
The Hazard Communication Standard covers both **physical** hazards (such as flammability or the potential for explosions) and **health** hazards (including both acute and chronic effects). By making information available to employers and employees about these hazards and recommended precautions for safe chemical use, illnesses and injuries caused by chemicals can be reduced.



# Understanding the Numbers... for Flammability

## NFPA

4 = Severe  
3 = Serious  
2 = Moderate  
1 = Slight  
0 = Minimal



## OSHA

## GHS Nomenclature

Cat 1 = Severe Hazard  
Cat 2 = Serious Hazard  
Cat 3 = Moderate Hazard  
Cat 4 = Slight Hazard

Flammability Criteria	GHS Category	NFPA Rating
FP <73F, BP <100F	1 or 2	4
FP <73, BP >100F FP >73, BP <100F	2 or 3	3
FP >100F, <200F	3 or 4	2
FP >200F	None	1



OSHA now considers flammable to be at a flashpoint at or below 199.4°F

# PHYSICAL HAZARDS

**Physical hazard** means there is scientifically valid evidence that the chemical has the potential for one of the following hazardous effects:

- Explosion
- Flammability
- Corrosive to metal
- Gas under pressure
- Organic peroxide
- Oxidizer
- Pyrophoric
- Unstable (self-reactive)
- Water-reactive



# HEALTH HAZARDS

**A chemical is a health hazard if exposure can cause illness or other health problems.** The following is a brief description of the major types of health hazards.

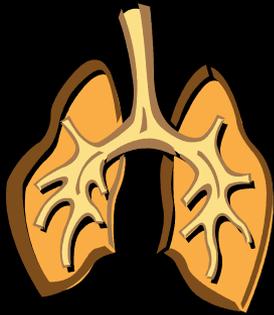
- **Corrosives** - cause tissue damage and burns on contact with the skin and eyes.
- **Irritants** - cause intense redness or swelling of the skin or eyes on contact, but with no permanent tissue damage.
- **Sensitizers** - cause an allergic skin or respiratory reaction.
- **Acutely Toxic Materials** - cause an adverse effect, even at very low doses.
- **Carcinogens** - may cause cancer.
- **Teratogens** - may cause birth defects.
- **Organ Specific Hazards** - may cause damage to specific organ systems, such as the blood, liver, lungs, or reproductive system.



# ROUTES OF EXPOSURE

To become harmful, a chemical must first enter or come in contact with your body (called "exposure"). For example, depending on the chemical and the manner in which it is handled, it may enter through different routes:

- your lungs if you breath in fumes, mists or dust (inhalation)
- your skin if liquid or dust touches or spills on you (dermal)
- your mouth if you eat after handling chemicals, or if you accidentally swallow a chemical (ingestion)



# EXAMPLE-DHMO

- Death due to accidental inhalation, even in small quantities
- Major component of acid rain
- Leads to corrosion and oxidation of many metals
- Can contaminate electrical systems
- When mixed with a number of hazardous chemicals it can give off poisonous compounds

# CHEMICAL LABELING

Your first line of defense in protecting yourself against hazardous chemicals is knowledge of the chemical itself. All chemical containers in your workplace must have a proper label, which identifies the chemical and gives some information about its hazards.



# TYPES OF LABELS:

- GHS shipping labels
- HCS workplace labels
- NFPA 704 labels
- HMIS labels
- DOT shipping labels, placarding, and markings



# WHAT'S ON A LABEL?

All chemical manufacturers are required to label their products properly. Labels on all chemical containers leaving the workplace must supply the following information:

- **Product identifier:** Must match SDS
- **Signal word:** Danger or Warning
- **Hazard Statement:** describes the nature of the hazard of a chemical. For example, 'may produce an allergic reaction' or 'may form explosive peroxides'.
- **Precautionary Statement:** describes the recommended measures that should be taken to minimize or prevent harmful effect resulting from exposure to the chemical or improper storage or handling.
- **Pictogram:** graphic symbols that convey the health, physical and environmental hazard of the chemical.
- **Contact Information:** name, address and telephone number of the chemical manufacturer, importer or other responsible party.

# CHEMICAL LABELING

The pictograms consist of a red square frame set at a point with a black hazard symbol on a white background. Each pictogram represents the health, physical or environmental hazard of the chemical. It's very common to see more than one pictogram for a chemical.

<p><b>Health Hazard</b></p> 	<p><b>Flame</b></p> 	<p><b>Exclamation Mark</b></p> 
<ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non Mandatory)</li> </ul>
<p><b>Gas Cylinder</b></p> 	<p><b>Corrosion</b></p> 	<p><b>Exploding Bomb</b></p> 
<ul style="list-style-type: none"> <li>• Gases under Pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Skin Corrosion/ burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p><b>Flame over Circle</b></p> 	<p><b>Environment (Non Mandatory)</b></p> 	<p><b>Skull and Crossbones</b></p> 
<ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

# CONTAINER LABELING IN THE WORKPLACE

Within the workplace, the hazard warning on chemical labels can be any type of message, picture or symbol that provides information on the hazards of the chemical(s) and the target organs affected. However, they must not conflict with the hazard warnings or pictograms provided under the OSHA HazCom standard.

Labels must be:

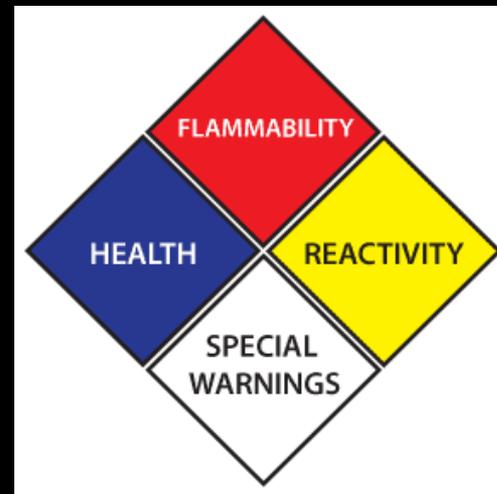
- ✓ legible
- ✓ in the local language(s)
- ✓ prominently displayed



# CONTAINER LABELING IN THE WORKPLACE

## National Fire Protection Association (NFPA)

- Health (Blue)
- Flammability (Red)
- Reactivity (Yellow)
- Special Hazards (White)



Each hazard class uses a different color and a rating scale from 0 - 4. The higher the number on the rating scale, the more dangerous the substance.

***NOTE: the NFPA numbering scheme is opposite of what is used to classify hazards in the OSHA HazCom standard.***

# CONTAINER LABELING IN THE WORKPLACE

**HMIS** which stands for **Hazardous Materials Identification System**. Originally developed by the National Paint & Coatings Association (NPCA), now known as the American Coatings Association

In addition to the hazard warnings, **personal protective equipment information** is supplied to give employees information needed to protect themselves from hazardous materials they might encounter on the job.

HMIS and NFPA are similar, but not identical.

**HMIS attempts to convey health warning information to employees, while NFPA is meant primarily for fire fighters and other emergency responders.**

Manufacturer: ABC CHEMICAL      MSDS REF: 12354

PRODUCT IDENTIFIER  
**TOLUENE**

HEALTH \* **2**

FLAMMABILITY **3**

REACTIVITY **0**

PERSONAL PROTECTION **J**

PERSONAL PROTECTIVE EQUIPMENT

<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Boots	<input checked="" type="checkbox"/> Synthetic Apron
<input type="checkbox"/> Full Protective Suit	<input type="checkbox"/> Vapor Resistant Respirator	<input checked="" type="checkbox"/> Gloves	<input checked="" type="checkbox"/> Splash Goggles
<input checked="" type="checkbox"/> Dust and Vapor Respirator	<input type="checkbox"/> Vapor Resistant Respirator	<input type="checkbox"/> Dust Resistant Respirator	<input type="checkbox"/> Airline Hood or Mask

**DO NOT HANDLE THIS CHEMICAL WITHOUT PROPER TRAINING**

REFER TO SAFETY DATA SHEET TG-TT01HM01

# ONE LABELING EXCEPTION

- Portable containers are exempt from the labeling requirements of HAZCOM when:
  - Portable container for immediate use and the container is completely emptied as a result of the transfer



# SAFETY DATA SHEETS (SDS)

## Information Found On SDSs

Safety Data Sheets provide detailed information about a specific hazardous material. It contains a 16-section format.



# 16 SECTION SDS

<b>If you need to know</b>	<b>Look in</b>	
What is it?	Section 1	Product & Company Identification
What do the pictograms mean?	Section 2	Hazards Identification
What's in it?	Section 3	Composition/Ingredients
What if I get it on me?	Section 4	First Aid Measures
What if it catches on fire?	Section 5	Fire Fighting Measures
What if I spill it?	Section 6	Accidental Release Measures
How do I store it?	Section 7	Handling & Storage
How do I protect myself?	Section 8	Exposure Controls & PPE

# 16 SECTION SDS

<b>If you need to know</b>	<b>Look in</b>	
What are the properties?	Section 9	Physical & Chemical Properties
What can it react with?	Section 10	Stability & Reactivity
What can it do to me?	Section 11	Toxicological Information
Environmental effects?	Section 12	Ecological Information
How do I get rid of it?	Section 13	Disposal Considerations
How should it be placarded?	Section 14	Transport Information
What is the RQ?	Section 15	Regulatory Information
NFPA and HMIS codes	Section 16	Other Information

# DETECTING HAZARDOUS CHEMICALS

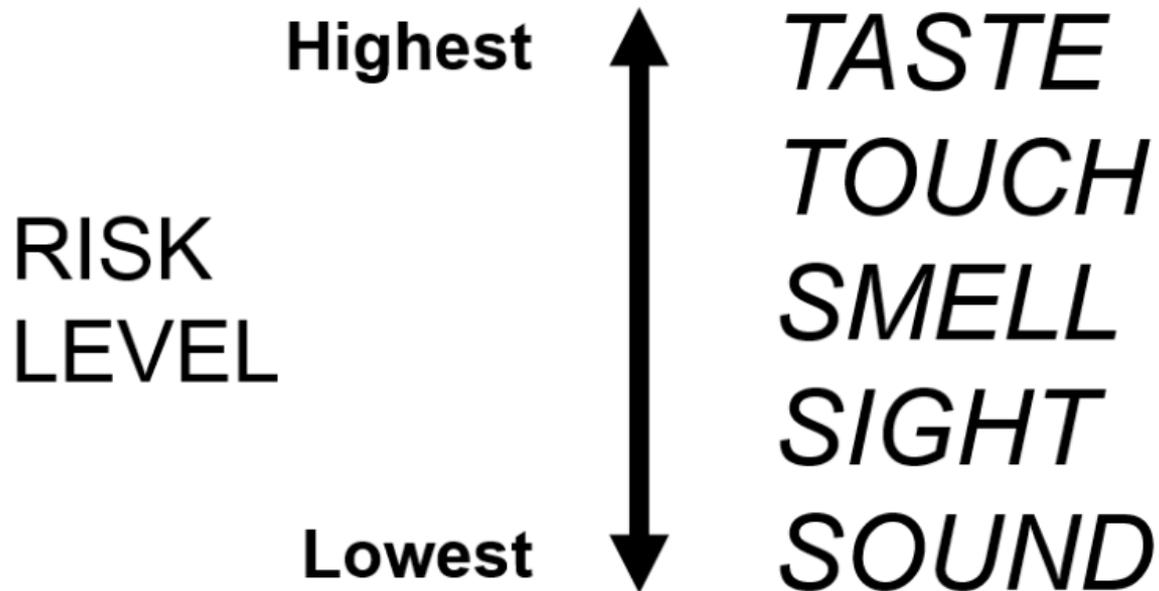
There are three major ways to detect the presence or release of a hazardous chemical in the workplace:

1. Observing (primarily using your sense of sight or smell);
2. Using monitoring devices; and
3. Recognizing signs or symptoms of overexposure.

Many chemicals can be detected by their appearance - liquid, powder or solid and their color. Chemical odor can also be very distinctive (such as chlorine) and may provide early warning of a release.



## Detecting the Presence of Chemicals – Senses



# DETECTING HAZARDOUS CHEMICALS

Chemical monitoring instruments are the safest and most reliable way of detecting a hazard chemical in the workplace. The type of instruments used varies with the chemical and the situation.

- Area monitoring systems with local alarms (H<sub>2</sub>S example)
- Portable instruments (gas monitors O<sub>2</sub>, LEL, CO)
- Use of gas detector tubes is another way to get a quick measurement in a specific area



# PERSONAL PROTECTIVE EQUIPMENT

**Personal Protective Equipment (PPE)** may be needed to protect yourself from chemical hazards. Refer to the label or the SDS to determine the appropriate type of PPE to wear.

Examples of PPE include:

- **Gloves**
- **Goggles**
- **Face shields**
- **Splash aprons**
- **Respirators**



**Wearing the appropriate PPE can prevent injury.**

# SAFE WORK PRACTICES

**Safe work practices** ensure that chemicals are used correctly and safely. Some basic safe work practices are:

- Keep the work area clean and orderly.
- Follow standard operating procedures to the letter. Taking short cuts can greatly increase your risk.
- Use the necessary safety equipment, including the PPE documented on the SDS.
- Carefully label every container with the identity of its contents and appropriate hazard warnings. **WHAT LABELS DO YOU REQUIRE AT YOUR FACILITY?**
- Proper chemical storage and ventilation can reduce hazard potential.

# COMPANY RESPONSIBILITY

Knowing how to train employees to work safely with chemicals that pose a hazard is an important activity.

- Make sure that all chemical containers are properly labeled and employees understand the hazard warnings.
- Current Safety Data Sheets for the chemicals in your work area easily available.

**Your employees have a right to know, but everyone has a responsibility to use their knowledge and skills to work safely.**

Journey to Zero: Zero Error | Zero Harm

