



HAZCOM

Hazard Communication Standard “The Right-to-Know”

> Hazard communication standard

The hazard communication standard requires:

- The hazards of chemicals to be evaluated
- The hazard information is given to employers and employees
- Hazard communication programs
- Container labeling and other forms of warning
- Material Safety Data Sheets (MSDS)
- Training for employees

> HazCom: Responsibilities

It is the responsibility of chemical manufacturers and importers to determine the hazards of all chemicals imported into, produced, or used in U.S. workplaces.

In addition, hazard information and protective measures must be provided by:

- Chemical manufacturers
- Importers
- Distributors



> HazCom: Responsibilities

At a minimum, employers must:

- Identify and list hazardous chemicals in the workplace
- Obtain MSDSs and labels
- Develop and implement a written HazCom program
- Communicate hazard information to employees

> HazCom: Chemical hazards

The best rule of chemical safety is,
"Know what you are working with and
how to protect yourself and others."

There are 2 basic types of chemical hazards

- Physical Hazards
- Health Hazards



> HazCom: Physical hazards

Chemicals are classified as having physical hazards if they are:

- Explosive
- Compressed gas
- Combustible liquids
- Flammable
- Unstable
- Water reactive
- Oxidizers



> HazCom: Health hazards

Exposure to hazardous chemicals may cause or contribute to a wide range of health concerns including:

- Heart problems
- Kidney disease
- Lung disease
- Cancer
- Sterility
- Burns
- Rashes

> HazCom: Health hazards

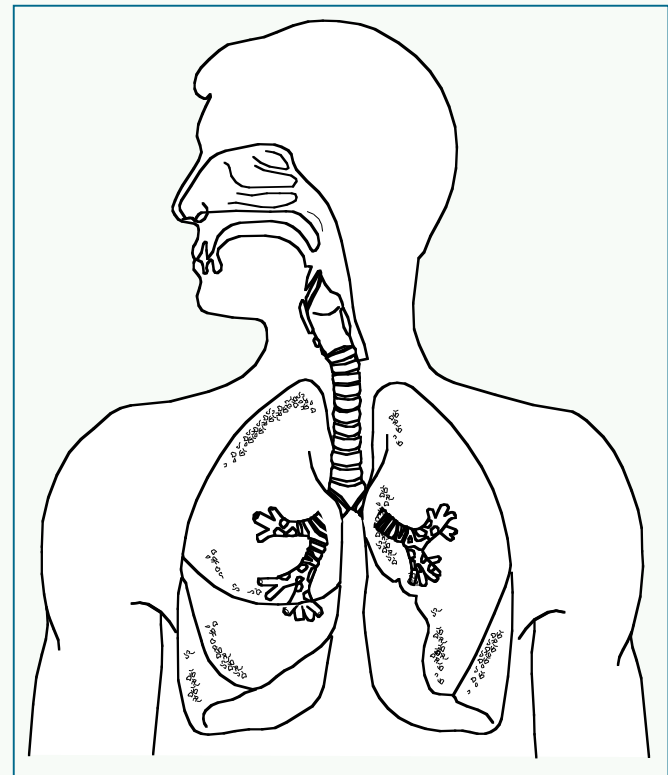
Chemicals are classified as being a health hazard if they:

- Can cause cancer
- Are poisonous (toxic)
- Cause harm to your skin, internal organs, or nervous system
- Are corrosive - such as acids
- Cause allergic reactions after repeated exposure

> HazCom: Health hazards

Chemicals can enter your body in many different ways. The primary routes of entry are:

- Inhalation
- Ingestion
- Absorption
- Injection



> HazCom: Health hazards

Exposure to hazardous chemicals may be either:

- Acute – brief exposure
- Chronic – repeated or prolonged

> HazCom: Written program

The written HazCom program must, at a minimum, include:

- A list of all hazardous chemicals known to be in the workplace
- A Material Safety Data Sheet (MSDS) and label for each hazardous chemical
- A training plan to communicate hazard information to employees



> HazCom: Written program

Also, the written HazCom program should:

- Indicate who is responsible for the program
- Provide chemical specific safety training methods
- Tell you where to find chemical safety information

> HazCom: Warning Labels

Warning labels can grab your attention with words like:

- “Danger”
- “Warning”
- “Caution”



> HazCom: Warning Labels

Containers of hazardous chemicals leaving the workplace must be labeled, tagged or marked with:

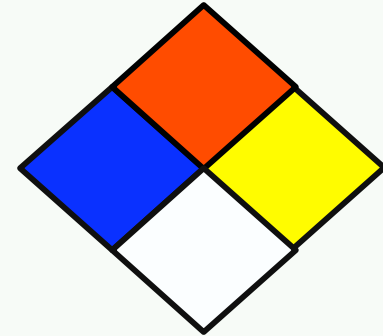
- The identity of the chemicals
- The appropriate hazard warnings
- The name and address of the manufacturer or other responsible party



> HazCom: Warning Labels

Other warning labels include:

- National Fire Protection Association (NFPA) diamond label
- Hazardous Material Information System (HMIS) label.
- Uniform Laboratory Hazard Signage



Chemical Name	
HEALTH	<input type="text"/>
FLAMMABILITY	<input type="text"/>
REACTIVITY	<input type="text"/>
SPECIAL	<input type="text"/>

> HazCom: Warning Labels

The color codes on both the NFPA and HMIS labels represents the following information:

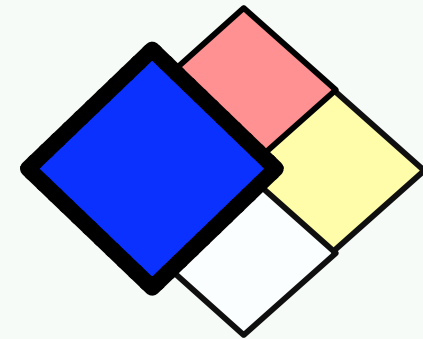
- Blue = Health
- Red = Flammability
- Yellow = Reactivity
- White = Special hazard information and special protective information



Chemical Name	
HEALTH	<input type="text"/>
FLAMMABILITY	<input type="text"/>
REACTIVITY	<input type="text"/>
SPECIAL	<input type="text"/>

> NFPA Health Hazard Codes

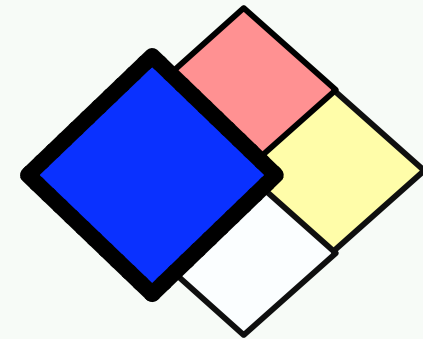
- 4** Materials that on very short exposure could cause death or major residual injury.
- 3** Materials that on short exposure could cause serious temporary or residual injury.



Health Hazard Codes

> NFPA Health Hazard Codes

2 Materials that on intense or continued, but not chronic, exposure could cause incapacitation or possible residual injury.

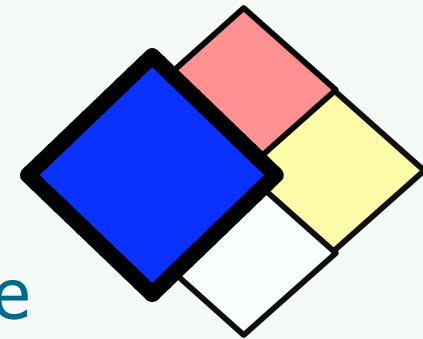


Health Hazard Codes

> NFPA Health Hazard Codes

- 1** Materials that on exposure would cause irritation but only minor residual injury.
- 0** Materials that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material.

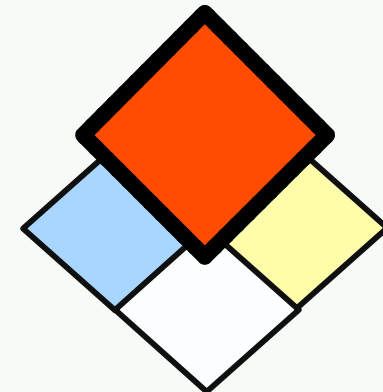
Health Hazard Codes



> NFPA Flammability Codes

- 4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily. Liquids with a flashpoint below 73°F and a boiling point below 100°F.

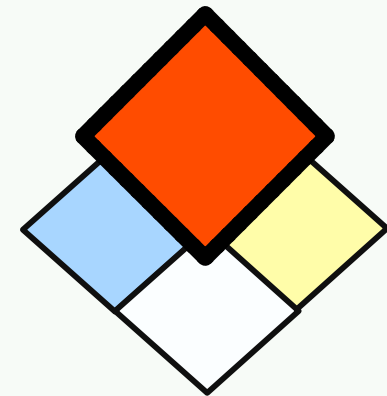
Flammability Hazard Codes



> NFPA Flammability Codes

3 Liquids and solids that can be ignited under almost all ambient temperature conditions. Liquids with a flashpoint below 73°F and a boiling point above 100°F or liquids with a flashpoint above 73°F but not exceeding 100°F and a boiling point below 100°F.

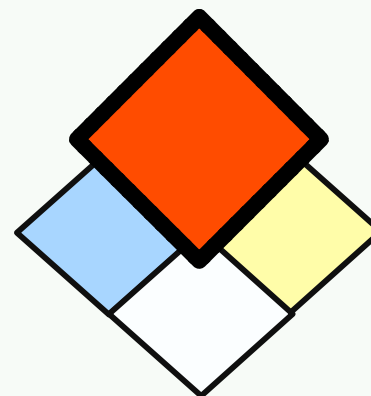
Flammability Hazard Codes



> NFPA Flammability Codes

2 Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Liquids with flashpoint above 100°F but not exceeding 200°F.

Flammability Hazard Codes

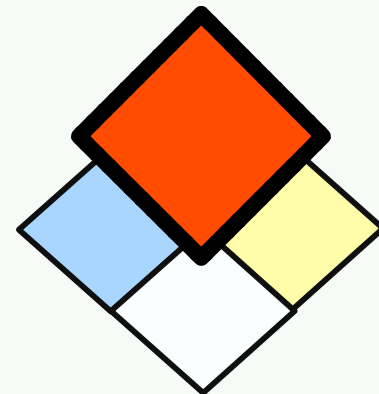


> NFPA Flammability Codes

1 Materials that must be preheated before ignition can occur. Liquids that have a flashpoint above 200°F.

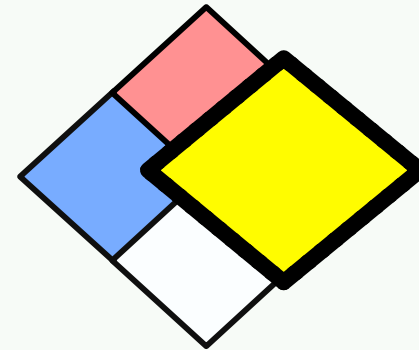
0 Materials that will not burn.

Flammability Hazard Codes



> NFPA Reactivity Hazard Codes

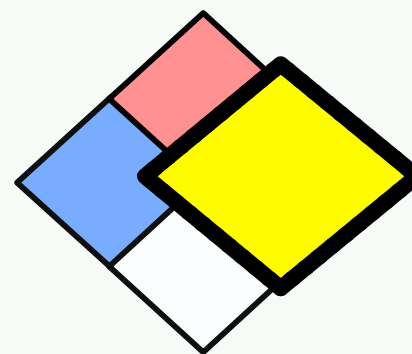
- 4 Materials that in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.



Reactivity Hazard Codes

> NFPA Reactivity Hazard Codes

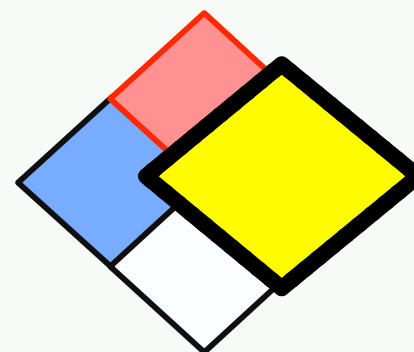
3 Materials that in themselves are capable of detonation or explosive decomposition or reaction but require a strong initiating source or which must be heated under confinement before initiation or which react explosively with water.



Reactivity Hazard Codes

> NFPA Reactivity Hazard Codes

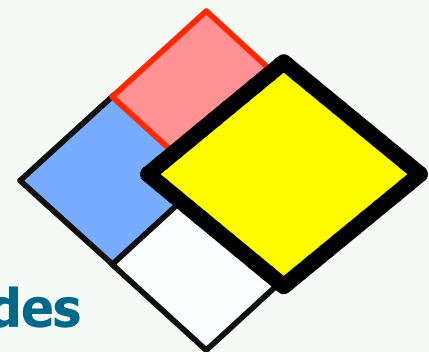
2 Materials that readily undergo violent chemical change at elevated temperatures and pressures or which react violently with water or which may form explosive mixtures with water.



Reactivity Hazard Codes

> NFPA Reactivity Codes

- 1** Materials that in themselves are normally stable, but which can become unstable at elevated temperatures and pressures.
- 0** Materials that in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.



Reactivity Hazard Codes

> NFPA Special Hazard Codes

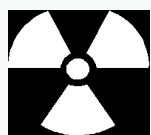
ACID = Acid Products

ALK = Alkali or Bases

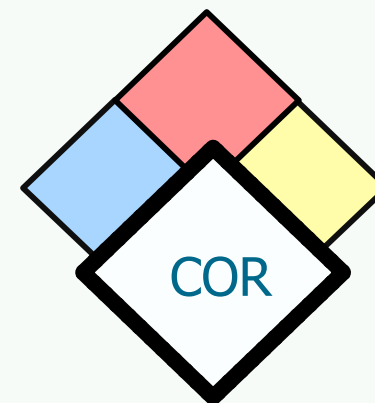
COR = Corrosive Products

OX = Oxidizer

W = Reacts with water



= Radioactive



Special Hazard Codes

> HazCom: Material Safety Data Sheets (MSDSs)

MSDSs are developed to provide:

1. Common name and chemical name of the material
2. Name, address and phone number of the manufacturer
3. Emergency phone numbers for immediate hazard information
4. Date the MSDS was written
5. Hazardous ingredients
6. Physical and health hazards of the chemicals
7. Identification of chemical and physical properties
8. First Aid/Emergency Information
9. Safe handling and use information

MATERIAL SAFETY DATA SHEET				
SECTION 1 - PRODUCT IDENTIFICATION AND USE				
PRODUCT IDENTIFIER ⇒ Sodium hydroxide, Caustic soda			PRODUCT IDENTIFICATION NUMBER (PIN) S-318	
PRODUCT USE ⇒				
MANUFACTURER'S NAME La Bell Industries		SUPPLIER'S NAME Omega Chemicals		
STREET ADDRESS 18 Rue LeJour		STREET ADDRESS P.O. Box 1989		
CITY Montreal	PROVINCE Quebec	CITY Sumware	PROVINCE Ont.	
POSTAL CODE H0N 0C0	EMERGENCY TELEPHONE NO. (522) 555-4433	POSTAL CODE C1H 201	EMERGENCY TELEPHONE NO. (416) 555-4321	
SECTION 2 - HAZARDOUS INGREDIENTS				
HAZARDOUS INGREDIENTS	%	CAS NUMBER	LD ₅₀ OF INGREDIENT (Specify species & route)	LD ₅₀ OF INGREDIENT (Specify species)
Sodium Hydroxide	96	1310-73-2		
Sodium Carbonate (Na ₂ CO ₃)	0.5-2.5			
Sodium Chloride (NaCl)	0.0-2.1			
Sodium Sulphate (Na ₂ CO ₃)	0.02-0.1			
Potassium, Calcium, and Magnesium	0.1			
Sodium Dioxide (SiO ₂)	0.03			
Other Metals (total)	0.01			
SECTION 3 - PHYSICAL DATA				
PHYSICAL STATE Other	ODOUR AND APPEARANCE White/off-white odourless, hygroscopic		ODOUR THRESHOLD (ppm) odourless	
VAPOUR PRESSURE (mm Hg) Not appl.	VAPOUR DENSITY (AIR=1) Not appl.	EVAPORATION RATE Non-volatile	BOILING POINT (°C) 1388°C	MELTING POINT (°C) 318°C
pH Not appl.	SPECIFIC GRAVITY 2.13	COEFF. WATER/OIL DIS Not appl.		
SECTION 4 - FIRE AND EXPLOSION DATA				
FLAMMABILITY YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, UNDER WHICH CONDITIONS?				
MEANS OF EXTINCTION Although it is non-combustible, it can be hazardous in a fire area. The following should be known for fire fighting: 1) it can melt and flow when heated (mp 318° 2) Hot or molten material can react violently with water (splattering). 3) Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.				
FLASHPOINT (°C) AND METHOD Not flammable	UPPER FLAMMABLE LIMIT (% BY VOLUME) Not flammable	LOWER FLAMMABLE LIMIT (% BY VOLUME) Not flammable		
AUTOIGNITION TEMPERATURE (°C) Not flammable	HAZARDOUS COMBUSTION PRODUCTS Not flammable			
EXPLOSION DATA ⇒ SENSITIVITY TO IMPACT Not appl. SENSITIVITY TO STATIC DISCHARGE Not appl.				
SECTION 5 - REACTIVITY DATA				
CHEMICAL STABILITY YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, UNDER WHICH CONDITIONS?				
INCOMPATIBILITY WITH OTHER SUBSTANCES Strong acids, many organic compounds, leather, wool, aluminum, zinc, and tin.				
REACTIVITY, AND UNDER WHAT CONDITIONS Slowly picks up moisture and CO ₂ from the air to form sodium carbonate				
HAZARDOUS DECOMPOSITION PRODUCTS None				

> HazCom: Employee training

Employers are required to provide training to all employees who might be exposed to hazardous chemicals. At a minimum, the training must include:

- Hazard communication standard
- Components of the hazard communication program
- Operations where hazardous chemicals are present
- Location of the written HazCom program
- Methods and observations that may be used to detect the presence of a hazardous chemical

> Summary

Working with chemicals can be done safely. In order to be StartSafe and StaySafe when working with chemicals, you should:

- Know the chemicals you are using
- Know where the MSDSs are located and how to read them
- Ask your supervisor if you have questions
- Be trained before using any chemicals
- Make sure you are using the appropriate PPE and that it is in good condition