

Hazardous Materials Identification System

HMIS

Chemical Name	
MSDS NO.	
HEALTH	
FLAMMABILITY	
REACTIVITY	
Personal Protection	
HAZARD SEVERITY	
0	1
2	3
4	
MINIMAL	SLIGHT
MODERATE	SERIOUS
SEVERE	

The Hazardous Materials Identification System was developed by The National Paint and Coatings Association. The HMIS label consists of a five part rectangle:

- 1) Chemical Identification
- 2) Chronic Health Hazard Indicator and Acute Health Hazard Rating
- 3) Flammability Rating
- 4) Reactivity Rating
- 5) Personal Protective Equipment (PPE) Designation as well as other information such as target organs.

These labels may be modified according to the site. The order of hazards may also be different. However, the meaning of the colors and the numbers should remain the same.

HAZARD SEVERITY

0	1	2	3	4
Minimal	Slight	Moderate	Serious	Severe

Hazard Rating

A “0” – “4” numerical rating system is used with “4” representing a severe hazard and “0” representing a minimal hazard for health hazards and no hazard for flammability and reactivity.

Health: (Blue section)

The rating for health is a relative index of toxicity and does not normally take into account how a chemical is being used or handled.

Flammability: (Red section)

The fire rating of a product is determined by evaluating the potential for harm and relative flammability of the material or mixture of materials by using the criteria set forth in NFPA 704.

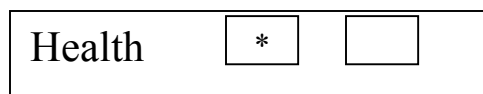
Reactivity: (Yellow section)

The reactivity hazard rating of a material is determined by evaluating the potential harm and relative reactivity of the material or mixture of materials using the criteria set forth in NFPA 704.

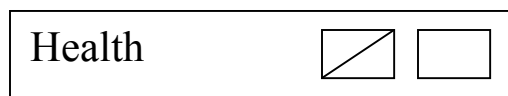
Health Hazards

A toxic substance is one that has the potential to endanger life, produce short or long term disease or injury, or cause other health problems. The health hazard rating of a material is determined by evaluating the potential for harm and relative toxicity. The Health Hazard Rating considers the toxicological properties of ingredients such as carcinogen status and permissible exposure limits. Human experience has been considered when available, but the ratings are most often based on animal data.

There are two other ways this part of the HMIS label may look. For chemicals that may cause chronic health-effects, the label may have an “*” next to the hazard rating or look like this with an “*” in the first box:



If the chemical does not cause chronic health problems and the label is set up in this format, a slash mark will be found in the first box such as this:



Severe Health Hazard (“4”):

These are chemicals that may cause life-threatening, permanent, or major injury from a single exposure or repeated exposures. Irreversible injury may result from brief contact. This includes carcinogens, reproductive toxins, and chemicals that are respiratory sensitizers.

Severe Health Hazard (“3”):

These are chemicals that are likely to cause major injury unless prompt action is taken and/or medical treatment is given. This includes “suspect” or “potential” carcinogens, chemicals that are severely irritating and/or corrosive to the skin, and chemicals that are corrosive to the eye or cause irreversible eye damage.

Moderate Health Hazard (“2”):

These are chemicals that upon prolonged or continuous exposure could cause temporary incapacitation or possible injury unless action is taken and/or medical treatment is given. Prolonged exposure may affect the CNS and lead to apparent intoxication, nausea, headache, dizziness, weakness, or fatigue. This category includes chemicals that are skin irritants or sensitizers, and chemicals that are moderately irritating to the eyes or could cause reversible eye injury persisting more than seven days.

Slight Health Hazards (“1”):

These are chemicals that on exposure could cause irritation or minor reversible injury. These chemicals may irritate the stomach if swallowed; may defat the skin and worsen any existing dermatitis. This category includes chemicals that are slightly irritating to the skin, and chemicals that are slightly irritating to the eyes but damage is reversible in less than seven days.

Minimal Health Hazard (“0”):

These are chemicals that cause little or no significant health risk. This category includes chemicals that are basically nonirritating to the skin and eyes.

Flammability

Severe Flammability Hazard (“4”):

These are chemicals that will rapidly or completely vaporize at atmospheric pressure and normal temperatures and burn readily. These chemicals include flammable gases, liquid or gaseous chemicals that are liquid while under pressure and having a flashpoint below 73 degrees F and a boiling point below 100 degrees F (Class 1A flammable liquids); chemicals that, on account of their physical characteristics, can form explosive mixtures spontaneously (such as dusts of combustible solids and mists of flammable or combustible liquid droplets); and cryogenic materials.

Serious Flammability Hazard (“3”):

These are liquid and solid chemicals that can be ignited under almost all ambient temperatures. These chemicals include liquids having a flashpoint below 73 degrees F and a boiling point at or above 100 degrees F (Class 1B flammable liquids); liquids having a flashpoint at or above 73 degrees F and a boiling point below 100 degrees F (Class 1C flammable liquids); solid chemicals in the form of coarse dusts or fibers that may burn rapidly but that are not explosive with air, and materials that burn rapidly because of self-contained oxygen (such as dry nitrocellulose and many organic peroxides).

Moderate Flammability Hazard (“2”):

These chemicals must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Chemicals in this category would not, under normal conditions, form hazardous atmospheres with air; but under high ambient temperatures or under moderate heating, may release vapor in sufficient quantities to produce hazardous atmospheres with air. These chemicals include liquids having a flashpoint above 100 degrees F But not exceeding 200 degrees F and solids and semi-solids that easily give off flammable vapors.

Slight Flammability Hazard (“1”):

These chemicals require considerable pre-heating under all ambient temperature conditions before ignition and combustion can occur. These chemicals include materials that will burn in air when exposed to a temperature of 1500 degrees F for a period of 5 minutes or less; and liquids, solids, or semi-solids having a flashpoint at or above 200 degrees F.

Minimal Flammability Hazard (“0”):

These chemicals will not burn when exposed to a temperature of 1500 degrees F for a period of five minutes

Reactivity

The chemicals in this category may be self-reactive or reactive with other materials commonly encountered in the workplace. The reactivity in this category often involves the rapid release of energy in the form of heat and pressure and/or the release of highly hazardous products.

Severe Reactivity Hazard (“4”):

These are chemicals that are capable of easily detonating or exploding at normal temperatures and pressures. This includes chemicals that are sensitive to mechanical or localized shock at normal temperatures and pressures.

Serious Reactivity Hazard (“3”):

These are chemicals that are capable of detonation or of exploding, but that require a strong initiating source or that must be heated under confinement before initiation. This category includes chemicals that are sensitive to thermal or mechanical shock at elevated temperatures and pressures, and chemicals that react explosively with water without requiring heat or confinement.

Moderate Reactivity Hazard (“2”):

These chemicals are normally unstable and readily undergo violent chemical change but do not detonate. This category includes chemicals that can undergo chemical change with rapid release of energy at normal temperatures and pressures or that can undergo violent chemical change at elevated temperatures and pressures, and chemicals that may react violently with water or form potentially explosive mixtures with water.

Slight Reactivity Hazard (“1”):

These are chemicals that are normally stable but that can become unstable at elevated temperatures and pressures or may react with water with some release of energy - but not violently.

Minimal Reactivity Hazard (“0”):

These are chemicals that are normally stable even under fire exposure conditions and that are not reactive with water.







































































Personal Protection

Personal Protective Equipment Index

The HMIS PPE Index uses codes A-K and X for assigning PPE for certain hazards. Each letter in this code represents a piece or combination of pieces of PPE needed when working with a particular hazardous material. To interpret this code a worker must have access to this code (for example, wallet card, wall poster, etc.). Small case letters a, n, o, p, q, r, s, t, u, w, y, & z can be used alone or with these combinations to designate PPE needed.

Remember that PPE has many limitations and should only be used when engineering controls are not feasible or in emergencies. Also, this label is very generic when it comes to PPE. Further research is needed for all PPE regarding specific types of PPE needed and how long that PPE is effective.

The codes used are as follows:

Hazardous Materials Identification System																
HAZARD INDEX																
4 Severe Hazard	0 Minimal Hazard															
3 Serious Hazard	An asterisk (*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification															
2 Moderate Hazard																
1 Slight Hazard																
PERSONAL PROTECTION INDEX																
A 	G  +  + 															
B  + 	H  +  +  + 															
C  +  + 	I  +  + 															
D  +  + 	J  +  +  + 															
E  +  + 	K  +  +  + 															
F  +  +  + 	X Consult your supervisor or SOP for special handling directions															
	<table border="0"> <tr> <td>a  Safety Glasses</td> <td>n  Splash goggles</td> <td>o  Face shield and eye protection</td> <td>p  Gloves</td> <td>q  Boots</td> </tr> <tr> <td>r  Synthetic Apron</td> <td>s  Full Suit</td> <td>t  Dust Respirator</td> <td>u  Vapor Respirator</td> <td>w  Dust & Vapor Respirator</td> </tr> <tr> <td>y  Full face Respirator</td> <td>z  Altimet hood or mask</td> <td colspan="3"></td> </tr> </table>	a  Safety Glasses	n  Splash goggles	o  Face shield and 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  Altimet hood or mask			
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Other Label Wording

This category is also used for listing target organ effects or special hazards. Wording seen in this section include:

Physical hazards:

- Pyroforic
- Water reactive
- Corrosive
- Peroxide
- Oxidizer
- Explosive
- Flammable Solid

Target organs/effects

Carcinogen or suspected carcinogen

Liver

Reproductive

Irritant (This is used for mild or moderate irritation only. For severe irritation, the target organ alone is used. Examples would be “Skin”, “Eye”, and “Resp”)

Kidney

Bone

Blood

Neurotoxin

Skin (This includes any chemical with a skin notation in the ACGIH TLV Booklet and any chemical that discolors the skin. This notation is also used if the chemical is a severe skin irritant.)

Eye (This notation is used for chemicals that cause severe irritation or damage to the eye.)

Resp (This is used when the target organ is the upper respiratory tract or for a chemical that causes severe irritation of the upper respiratory tract.)

Severe Resp (For corrosives that are volatile, “Severe Resp” is used.)

Lung This is used when the target organ is the lung (for example, silica, asbestos etc.)

Central Nervous System (CNS)

Heart

Brain

Sensitizer/Skin

Sensitizer/Resp

Sensitizer/Skin & Resp