

Evaluating Hazardous Materials for NFPA 704 Diamond Ratings

The NFPA 704 Diamond is a means of disseminating hazard information for a material. The diamond is divided into four sections. Each of the first three colored sections has a number in it associated with a particular hazard. The higher the number is, the more hazardous a material is for that characteristic. The fourth section includes special hazard information. Combine the ratings found in each section for all chemicals in your inventory and list the highest rating on your sign. Information on flashpoint, LC50, and LD50 can be located on the Material Safety Data Sheet .

Health Hazard (blue)

4-Lethal

Gases, liquids, vapors:

LC50 ≤ 1000 ppm

Dusts & Mists:

LC50 ≤ 0.5 mg/L

Materials:

Dermal LD50 ≤ 40 mg/kg

Oral LD50 ≤ 5 mg/kg

3-Serious or Permanent Injury

Gases, liquids, vapors:

LC50 >1000 ppm and ≤ 3000 ppm

Dusts & Mists:

LC50 >0.5 mg/L and ≤ 2 mg/L

Materials:

Dermal LD50 >40 mg/kg and ≤ 200 mg/kg

Oral LD50 >5 mg/kg and ≤ 50 mg/kg

Corrosive to skin, eyes, respiratory tract

2-Temporary Incapacitation/Residual Injury

Gases, liquids, vapors:

LC50 >3000 ppm and ≤ 5000 ppm

Dusts & Mists:

LC50 >2 mg/L and ≤ 10 mg/L

Materials:

Dermal LD50 >200 mg/kg and ≤ 1000 mg/kg

Oral LD50 >50 mg/kg and ≤ 500 mg/kg

Skin, eye, or respiratory tract irritants

1-Significant Irritation

Gases, liquids, vapors:

LC50 >5000 ppm and ≤ 10,000 ppm

Dusts & Mists:

LC50 >10 mg/L and ≤ 200 mg/L

Materials:

Dermal LD50 >1000 mg/kg and ≤ 2000 mg/kg

Oral LD50 >500 mg/kg and ≤ 2000 mg/kg

Mild skin, eye, or respiratory tract irritants

0-No Health Hazards

Gases, liquids, vapors:

LC50 >10,000 ppm

Dusts & Mists:

LC50 >200 mg/L

Materials:

Dermal LD50 >2000

Oral LD50 >2000 mg/kg

Nonirritating to skin, eye, or respiratory tract



Instability Hazard (yellow)

4-May detonate

Unstable at normal temperature and pressure

3-Shock and heat may detonate

Requires initiation source;

Sensitive to thermal or mechanical shock;

Reacts explosively with water without heat or confinement.

2-Violent chemical change

Reacts violently with water or forms potentially explosive mixtures with water;

Undergoes violent chemical change at elevated temperature and pressure.

1-Unstable if heated

Reacts vigorously with water;

Changes or decomposes on exposure to light, air, or moisture;

Unstable at elevated temperatures and pressure.

0-Stable

Stable under fire conditions;

Does not react with water

Fire Hazard (red)

4-Class IA

Flashpoint ≤ 22.8C (73 F)

3-Class IB/IC

Flashpoint > 22.8C (73F) and ≤ 37.8C(100F)

2-Class II/IIIA

Flashpoint >37.8C(100 F) and ≤ 93C (200F)

1-Class IIIB

Flashpoint >93C (200F)

0-Will not burn

Specific Hazards (white)

Include symbols when the following hazards are present:

OX oxidizer

W water reactive



HAZARD RATING

Example: If these are the chemicals in your laboratory,

	H	F	I	Spec
Acetone	1	3	0	
Chromic Acid	3	0	1	OX
Calcium	3	1	2	W
Ethanol	0	3	0	
Hydrochloric Acid	3	0	0	
Nitric Acid	3	0	0	OX

your 704 signage should look like this.