

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATING SYSTEM

The purpose of the NFPA rating is to advise emergency response personnel via the hazard diamond sticker of hazards they may encounter when entering the room in response to fire or other situations.

Chemical substances are rated for degree of HEALTH RISK (blue diamond), FLAMMABILITY (red diamond), REACTIVITY (yellow diamond), on a scale of 0 to 4. The white diamond is used to indicate the presence of large quantities of chemicals possessing unusual water reactivity (W) or oxidative capability (oxy).

Health Risk

- ◆ Level 4 – Materials that can affect health or cause serious injury, during periods of very short exposure, even though prompt medical treatment is given.
- ◆ Level 3 – Materials that can affect health or cause serious injury, during periods of short exposure, even though prompt medical treatment is given.
- ◆ Level 2 – Materials that can cause incapacitation or residual injury, during intense or continued exposure, unless prompt medical treatment is provided.
- ◆ Level 1 – Materials that cause irritation upon exposure, but only minor injury is sustained even if no medical treatment is provided.
- ◆ Level 0 – Materials that offer no unusual hazards upon exposure to fire conditions.

A chemical hazard rating at the highest level should be given to a room, unless chemicals are present in very small amounts or are present very infrequently.

Flammability

- ◆ Level 4 – Materials that completely vaporize at normal pressure and temperature and burn readily.
- ◆ Level 3 – Liquids and solids that can be ignited under the most ambient conditions.
- ◆ Level 2 – Materials that must be moderately heated before ignition can occur.
- ◆ Level 1 – Materials that must be strongly heated before ignition will occur.
- ◆ Level 0 – Materials that will not burn.

A chemical hazard rating at the highest level should be given to a room, if chemicals are present in five (5) gallons or more.

Reactivity

- ◆ Level 4 – Materials that are easily capable of explosive decomposition at normal temperatures and pressure.
- ◆ Level 3 – Materials that are easily capable of explosive decomposition, but require an ignition source or will react explosively with water.

- ◆ Level 2 – Materials that easily undergo a violent reaction, but do not explosively decompose.
- ◆ Level 1 – Materials that are normally stable, but become explosive at elevated temperatures and pressure.
- ◆ Level 0 – Materials that are stable even under exposure to fire.

A chemical hazard rating at the highest level should be given to a room if chemicals are present in quantities of five (5) gallons or more.

Water Reactivity

Environmental Health Services (EHS) will assist with this determination. **Please address your questions to:** Ken Quintana at 491-6121.

NFPA Chemical Hazard Labels

NFPA Rating (optional) – The National Fire Protection Association (NFPA) has developed a system for indicating the health, flammability and reactivity hazards of chemicals. In addition, a special precaution symbol may be used where necessary.

NFPA LABELING SYSTEM

NFPA is recognized throughout the world as the leading authoritative source of technical background, data, and consumer advice on the fire problem and fire protection and prevention. Formerly known by the entire name – National Fire Protection Association – the NFPA has changed its name to use the acronym only. The organization has grown and provides much more than fire protection. The purpose of the change is to be recognized for all of their services, not just fire protection.

The mission of NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by developing and advocating scientifically based consensus codes and standards, research, training, and education.

The NFPA has a hazard identification marking system that it developed in 1961. The system was intended to provide basic information to emergency personnel so they can evaluate what fire fighting techniques to employ when they enter a facility where hazardous materials are present. The system does not provide any detailed hazard information, but it is acceptable as an in-plant labeling system as long as training regarding the system is provided. Also, the material safety data sheets (MSDSs) must be available to provide the required detailed chemical hazard information.

There are three categories of hazards identified by the NFPA system:

- Health
- Flammability
- Instability (Reactivity)

Five divisions ranging from zero (0) no hazard, to four (4) severe hazards, indicate the degree of severity for each hazard numerically.

The square-on-point label contains four colored squares with a number appearing in each square. The blue square indicates health hazard, the red square represents flammability, and the yellow square indicates instability. The fourth square represents a special hazard, such as unusual reactivity with water. The usual symbol for alerting fire fighting personnel to the possible hazard of using water is the letter W with a line through it.



RATING SUMMARY

Health (Blue)

- 4 Danger- May be fatal on short exposure. Specialized protective equipment required.
- 3 Warning - Corrosive or toxic. Avoid skin contact or inhalation
- 2 Warning – May be harmful if inhaled or absorbed.
- 1 Caution – May be irritating
- 0 No unusual hazard

Flammability (Red)

- 4 Danger – Flammable gas or extremely flammable liquid
- 3 Warning – Flammable liquid flash point below 100° F
- 2 Caution – Combustible liquid flash point of 100° F to 200° F
- 1 Combustible if heated
- 0 Not combustible

Instability (Yellow) (Reactivity)

- 4 Danger- Explosive material at room temperature.
- 3 Danger – May be explosive if shocked, heated under confinement, or mixed with water
- 2 Warning – Unstable or may react violently if mixed with water
- 1 Caution – May react if heated or mixed with water but not violently
- 0 Stable – Not reactive when mixed with water

Special Notice Key (White)

- W Water reactive
- OX Oxidizing Agent