



# *FIRE SAFETY in the LABORATORY*

## A Glossary of Terms

UCSC Laboratory Safety Services  
Providing a little slug of information on...

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**Combustible Liquid** – A liquid having a flash point at or above 100 °F but below 200 °F

**Explosive** – a chemical that causes sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature

**Flammable Liquid** – a liquid having a flash point below 100 °F

**Flash Point** – the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite in the presence of a spark and oxygen (may vary based on ASTM standards)

**Lower Explosive Limit (LEL)** – the lowest concentration of gas or vapor (% by volume in air) which will burn or explode if an ignition source is present

**Oxidizer** – a chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen and other gases

**Pyrophoric Material** – a chemical substance or mixture that will ignite spontaneously in dry or moist air at or below 130 °F

**Reactive Material** – a chemical substance or mixture that may vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature and includes chemical substances in the following categories

**Explosive Material** - a chemical that causes sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature

**Organic Peroxide** – an organic compound that contains the bivalent –O-O- structure which may be considered a structural derivative of hydrogen peroxide, in which one or both of the hydrogen atoms has been replaced by an organic radical

**Pressure Generating Material** – a chemical substance or mixture which may spontaneously polymerize, with an increase in pressure, unless protected by the addition of an inhibitor or by refrigeration

**Water Reactive Material** – a chemical substance or mixture that reacts with water to release heat or gas which is flammable or toxic

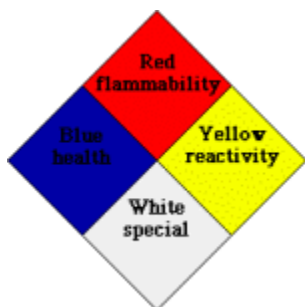
**Unstable** – a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature

**Upper Explosive Limit (UEL)** - the highest concentration of gas or vapor (% by volume in air) which will burn or explode if an ignition source is present

**NFPA Rating** – The National Fire Protection Association (NFPA) has developed a color coded warning symbol for indicating the health (blue), flammability (red), and reactivity (yellow) hazards of chemicals in prevention and control of fires and explosions. In addition, a special precaution symbol (water reactive, oxidizer, radioactive symbol on a white background) may be used. Below is information regarding the NFPA flammability rating.

#### Flammability Rating

- 4 – Materials that will rapidly vaporize at normal temperature and pressure and readily burn
- 3 – Liquids and solids that can be ignited under almost all ambient temperature conditions
- 2 – Materials that must be moderately heated or exposed to high ambient temperatures before ignition can occur
- 1 – Materials must be pre-heated before ignition can occur
- 0 - Materials will not burn



**HMIS Rating** – The National Paint and Coatings Association has proposed the Hazardous Materials Identification Systems (HMIS). Ratings are given for Health, Flammability, Reactivity, and Personal Protection. These ratings overlap partially with both NFPA ratings and OSHA classifications. Below is information regarding the HMIS flammability rating.

#### Flammability Rating

- 4 – Severe Hazard: Very flammable gases or very volatile flammable liquids with flash points between 73 °F and 100 °F (OSHA Class IA)
- 3 – Serious Hazard: Materials capable of ignition under almost all normal temperature conditions, including flammable liquids with flash points below 73 °F and boiling points at or above 100 °F as well as liquids with flash points between 73 °F and 100 °F (OSHA Classes IB and IC)
- 2 – Moderate Hazard: Material which must be moderately heated before ignition will occur, including flammable liquids with flash points at or above 100 °F and below 200 °F (OSHA Class II and Class IIIA)
- 1 – Slight Hazard: Materials that must be preheated before ignition will occur. Flammable liquids in this category will have flash points at or above 200 °F (OSHA Class IIIB)
- 0 – Minimal Hazard: Materials which are normally stable and will not burn unless heated.