Laboratory Safety Manual Glossary

ACGIH (**A**merican **C**onference of **G**overnmental **I**ndustrial **H**ygienists) Organization of professionals in government agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits for chemical substances and physical agents (see TLV and BEI).

Acute An adverse effect on the human body with symptoms of high severity coming quickly to a crisis.

Allergic Sensitization A condition acquired through exposure to a particular substance. Additional exposure may cause a more severe reaction.

Aspiration The removal of fluids or gases from a cavity by suction.

BEI (Biological Exposure Indices) Levels of determinants in specimens from a healthy worker who has been exposed to chemicals. A reference value for biological monitoring.

BSC Biological Safety Cabinet.

Bronchitis The inflammation of one or more of the larger passages leading to the lungs.

Carcinogen A substance that has been shown to cause malignant (cancerous) tumors.

Catalyst A chemical which changes the rate of a chemical reaction between two other chemicals without affecting the chemical itself.

Chronic An adverse effect on the human body with symptoms, which develop slowly over a long period of time or which frequently recur.

Combustible A chemical or agent with a flashpoint at or above 100ºF but below 200ºF.

Compressed Gas Liquefied, pressurized gas typically stored in metal cylinders.

Cornea The transparent membrane that covers the anterior part of the eye.

Corrosive A chemical that causes visible destruction of or irreversible alterations in, living tissue by chemical action at the site of contact.

Cyanosis A bluish discoloration of the skin, especially on the face and fingers, indicating a lack of sufficient oxygen in the blood.

Dermatitis An inflammation of the skin.

Deflagration The propagation of a reaction zone at a velocity that is less than the speed of sound in the unreacted medium.

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

Evaporation Rate A measure of the length of time required for a given amount of a substance to evaporate compared with time required for an equal amount of ether or butyl acetate to evaporate.

Flammable A chemical or agent with a flashpoint below 100ºF.

Flammable Limits (Explosive Limits) Lower Flammable (Explosive) Limit - The lowest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures below this concentration are too “lean” to burn.

Upper Flammable (Explosive) Limit - The highest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures above this concentration are too “rich” to burn.

Flash Point The lowest temperature at which a liquid will give off enough flammable vapor to ignite.

Hazardous Chemical Any chemical whose presence or use is a physical or health hazard. Some examples include chemicals that are toxic, corrosive, flammable, highly reactive or explosive or emit ionizing radiation.

Health Hazard Chemical, biological, radioactive or physical agents which may cause an adverse effect on the human body.

Hematopoetic Toxin A chemical or agent that adversely affects blood function.

Hepatotoxin A chemical or agent that adversely affects the liver.

IBC Institutional Biosafety Committee (same as Biological Safety Committee)

IDLH (**I**mmediately **D**angerous to **L**ife and **H**ealth) Immediately dangerous to life and health. The maximum concentration of a chemical from which one could escape within 30 minutes without any escape -impairing symptoms or irreversible health effects. (Note: carcinogenic effects are not considered in setting these values.)

Ingestion The taking in of a substance through the mouth.

Inhibitor A chemical which is added to another substance to prevent an unwanted chemical change from occurring.

Irritant A chemical which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

LD50 (Lethal **D**ose **50)** The single dose of a substance which causes the death of 50% of an animal population when exposed to the substance by any route other than inhalation. LD50 is usually expressed as milligrams or grams or material per kilogram of animal weight. (mg/kg or g/kg). The animal species and means of administering the dose (oral, intravenous, etc.) should also be stated.

Lavage The washing or irrigation of an organ.

LEL, LFL (**L**ower **E**xplosive **L**imit, **L**ower **F**lammable **L**imit) Refers to the lowest concentration of gas or vapor (% by volume in air) that burns or explodes if an ignition source is present at ambient temperatures.

LSO Laboratory Safety Department.

Mutagen A substance that causes changes in the genetic material in cells. Some mutagens may also be carcinogens.

Narcosis An unconscious state, normally caused by a drug.

Nephrotoxin A chemical or agent that adversely affects the kidneys.

Neurotoxin A chemical or agent that adversely affects the nervous system.

Organic Peroxide A chemical or agent that contains the bivalent –O–O– structure and may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

OSHA Occupational **S**afety and **H**ealth **A**dministration, United States department of Labor.

Oxidizing Material A chemical which gives off free oxygen in a chemical reaction. This includes chemicals such as peroxides, chlorates, perchlorates, nitrates and permanganates. These can react vigorously when stored in contact with reducing materials.

PEL (**P**ermissible **E**xposure **L**imit) Established by OSHA this maybe expressed as a time-weighted average TWA) limit or a ceiling exposure limit (CEL). OSHA PELs have the force of the law.

Polymerization A chemical reaction in which two or more small molecules combine to form larger molecules.

Pulmonary Edema An abnormal accumulation of fluid in the lungs.

Pyrophoric Chemicals or agents that ignite spontaneously in air at a temperature of 130 ºF (54.4 ºC) or below.

Reactivity A measure of the tendency of a substance to undergo chemical reaction with the release of energy.

Reducing Material A chemical which absorbs oxygen or accepts electrons in a chemical reaction.

Reproductive Health Hazard A chemical, physical or biological agent that causes reproductive impairment in adults and/or developmental impairment or death in the embryo/fetus or child. Men and women of childbearing potential should take care to avoid exposure.

Reproductive Toxin A chemical or agent that adversely affects reproductive function.

RSC Radiation Safety Committee.

RSO Radiation Safety Officer.

SDS Safety Data Sheet(s)

Sensitizer A chemical that causes those exposed to develop an allergic reaction after repeated exposure (See allergic sensitization above).

Solubility A measure of the amount of the substance that will dissolve in a given amount of water or other solvent.

Spontaneous Heating An increase in the internal temperature of substance due to a chemical or physical change without the application of external heat

Stability A measure of the ability of a substance to be handled and stored without undergoing unwanted chemical changes.

Systemic Affecting the body as a whole.

Teratogen A substance which interferes with embryonic or fetal development. Women of child bearing potential should take care to avoid exposure.

Thermal Decomposition Chemical breakdown of a material brought about by exposure to heat.

TLV (**T**hreshold **L**imit **V**alue) The airborne concentration of a substance which represents conditions under which it is believed that nearly all workers may be repeatedly exposed day after day (for eight hours each day) without adverse effects.

TLVC (**T**hreshold **L**imit **V**alue **C**eiling) The airborne concentration of a substance that should not be exceeded during any part of the working day.

Toxicity The measure of the adverse effect exerted on the human body by a poisonous material.

Unstable Reactive Chemicals or agents that vigorously polymerize, decompose, condense or become self-reactive under conditions of shock, pressure or temperature.

Vapor Density Relates the density of the vapors from a substance to the density of air. Chemicals with a vapor density less than 1 will rise and those with a value greater than 1 will sink in air.

Vapor Pressure The pressure a vapor exerts when it is in equilibrium with its liquid or solid form. Units are usually expressed in mm of Hg.

Volatile Evaporates quickly.

Water Reactive A chemical or agent that reacts with water to release a gas that is either flammable or presents a health hazard.