Glossary of Common MSDS Terms

ACUTE EFFECT: Health effects that usually occur rapidly, as a result of short-term exposure.

ACUTE TOXICITY: Acute effects resulting from a single dose of, or exposure to, a substance.

ANSI: American National Standards Institute is a privately funded, voluntary membership organization that identifies industrial and public needs for national consensus standards and coordinates development of such standards.

APPEARANCE: A description of a substance (including color, size, and consistency) at normal room temperature and normal atmospheric conditions.

ASPHYXIANT: A gas or vapor which can take up space in the air and reduce the concentration of oxygen available for breathing. Examples include acetylene, methane, and carbon dioxide.

AUTO-IGNITION TEMPERATURE: The temperature at which a material will ignite spontaneously or burn.

BOILING POINT: Temperature at which a liquid changes to a vapor state at a given pressure (usually sea level pressure = 760 mmHg).

"C" OR CEILING: The maximum allowable human exposure limit for an airborne substance, not to be exceeded even momentarily.

CARCINOGEN: A material that causes cancer. A chemical is considered to be a carcinogen, if:

1. It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or
2. It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP); or
3. It is regulated by OSHA as a carcinogen; or
4. There is valid scientific evidence in man or animals demonstrating a cancer-causing potential.

CHRONIC HEALTH EFFECTS: Either adverse health effects resulting from long-term exposure or persistent adverse health effects resulting from short-term exposure.

CHRONIC TOXICITY: Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time.

COMBUSTIBLE LIQUID: Any liquid having a flash point at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flash points of 200 °F (93.3 °C) or higher, the total volume of which make up 99 per cent or more of the total volume of the mixture.

CONDITIONS TO AVOID: Conditions encountered during handling or storage that could cause a substance to become unstable.

CORROSIVE MATERIAL: A liquid or solid that causes visible destruction or irreversible alteration in human skin tissue at the site of contact.

DECOMPOSITION: Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into simpler compounds.

DECOMPOSITION PRODUCTS: Describes hazardous materials produced during heated operations.

DENSITY: The mass of a substance per unit volume. The density of a substance is usually compared to water, which has a density of 1. Substances which float on water have densities less than 1; substances which sink have densities greater than 1.

DERMAL: Used on or applied to the skin.

DERMAL TOXICITY: Adverse effects resulting from skin exposure to a substance.

DRY CHEMICAL: A powdered, fire-extinguishing agent usually composed of sodium bicarbonate, potassium bicarbonate, etc.

EXPLOSION LIMITS: The range of concentration of a flammable gas or vapor (% by volume in air) in which explosion can occur upon ignition in a confined area.

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

EXPOSURE: A person's contact with a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.).

EXTINGUISHING MEDIA: Specifies the fire-fighting agents that should be used to extinguish fires.

FLAMMABLE: A chemical that includes one of the following categories:

1. Liquid, flammable--Any liquid having a flash point below 100 °F (37.8 °C), except any mixture having components with flash points of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total mixture volume.
2. Solid, flammable--A solid, other than an explosive, that can cause fire through friction, absorption of mixture, spontaneous chemical change, or retained heat from manufacturing or processing, or that can be readily ignited and, when ignited, will continue to burn or be consumed after removal from the source of ignition.

FLASH POINT: The temperature at which a liquid will give off enough flammable vapor to ignite. The lower the flash point, the more dangerous the product. A "flammable liquid" is a solution with a flash point below 100 °F (37.8 °C). The flash point of a material may vary depending on the method used, so the test method is indicated when the flash point is given.

FORESEEABLE EMERGENCY: Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which could result in an uncontrolled release of hazardous chemical into the testing environment.

HAZARDOUS MATERIAL: In a broad sense, any substance or mixture of substances having properties capable of producing adverse effects on the health or safety of a human being.

HAZARD RATINGS: Material ratings of one to four which indicate the severity of hazard with respect to health, flammability, and reactivity.

HAZARD WARNING: means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

INCOMPATIBLE: Materials that could cause dangerous reactions from direct contact with one another. These types of chemicals should never be stored together.

INGESTION: The taking in of a substance through the mouth.

INHALATION: The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

IRRITANT: A substance which, by contact in sufficient concentration for a sufficient period of time, will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a single exposure or multiple exposure.

LEL or LFL: Lower explosive limit, or lower flammable limit, of a vapor or gas; the lowest concentration (lowest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At concentrations lower than the LEL, the mixture is too "lean" to burn. See UEL.

LETHAL CONCENTRATION 50 (LC50): The concentration of a material in air which, on the basis of laboratory tests, is expected to kill 50 percent of a group of test animals when administered as a single exposure (usually 1 to 4 hours).

LETHAL DOSE 50 (LD50): A single dose of a material expected to kill 50 percent of a group of test animals. The dose is expressed as the amount per unit of body weight, the most common expression being milligrams of material per kilogram of body weight (mg/kg of body weight). Usually refers to oral or skin exposure.

MELTING POINT: The temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.

MIXTURE: Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

MUTAGEN: Those chemicals or physical effects that can alter genetic material in an organism and result in physical or functional changes in all subsequent generations.

NFPA: National Fire Protection Association is an international membership organization which promotes/ improves fire protection and prevention and establishes safeguards against loss of life and property by fire. Best known on the industrial scene for the National Fire Codes (16 volumes of codes, standards, recommended practices and manuals developed and periodically updated by NFPA technical committees). Among these is NFPA 704M, the code for showing hazards of materials as they might be encountered under fire or related emergency conditions, using the familiar diamond-shaped labels or placards with appropriate numbers and symbols.

NTP: National Toxicology Program. The NTP publishes an Annual Report on Carcinogens which identifies substances that have been studied and found to be carcinogens in animal or human evaluations.

ORAL TOXICITY: Adverse effects resulting from taking a substance into the body via the mouth. Ordinarily used to denote effects in experimental animals.

OSHA: Occupational Safety and Health Administration, U.S. Department of Labor, the agency that regulates work area conditions.

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 or other gases.

PERMISSIBLE EXPOSURE LIMITS (PEL's): PEL's are OSHA's legal exposure limits.

pH: A symbol relating the hydrogen ion (H+) concentration of that of a given standard solution. A pH of 7 is neutral. Numbers from 7 to 14 indicate greater alkalinity. Numbers from 7 to 0 indicate greater acidity.

POLYMERIZATION: A chemical reaction in which one or more small molecules combine to form larger molecules at a rate that releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS will usually list conditions which could start the reaction. In most cases the material contains a polymerization inhibitor, which if used up, is no longer capable of preventing a reaction.

PPM (Parts Per Million): Parts of vapor or gas per million parts of contaminated air by volume.

PPB (Parts Per Billion): Parts of vapor or gas per billion parts of contaminated air by volume.

RCRA: Resource Conservation and Recovery Act, administered by the EPA.

REACTIVITY: A description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects such as pressure build-up, temperature increase, and formation of noxious, toxic or corrosive byproducts may occur because of the reactivity of a substance by heating, burning, direct contact with other materials, or other conditions in use or in storage.

SENSITIZER: A substance which on first exposure causes little or no reaction, but which on repeated exposure may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of sensitization in the industrial setting, although respiratory sensitization to a few chemicals is also known to occur.

SHIPPING INFORMATION: The appropriate name(s), hazard class(es), and identification number(s) as determined by the United States Department of Transportation, International Regulations, and the International Civil Aviation Organization.

SPECIFIC GRAVITY: The weight of a material compared to the weight of an equal volume of water is an expression of the density (or heaviness) of a material. Insoluble materials with specific gravity of less than 1.0 will float in or on water. Insoluble materials with specific gravity greater than 1.0 will sink in water. Most (but not all) flammable liquids have specific gravity less than 1.0 and, if not soluble, will float on water an important consideration for fire suppression.

TERATOGEN: Any substance that causes growth abnormalities in embryos, genetic modifications in cells, etc.

THRESHOLD LIMIT VALUES (TLV's): Expresses the airborne concentration of a material to which nearly all persons can be exposed, day after day, without adverse effects. TLV's are expressed three ways:

1. TLV-TWA: The allowable Time Weighted Average concentration for a normal 8-hour workday (40-hour work week).
2. TLV-STEL: The short-term exposure limit or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods) and provided the TLV-TWA is not exceeded.
3. TLV-C: The ceiling exposure limit is the concentration that should never be exceeded, even instantaneously.

TOXIC: Refers to a chemical falling within any of the following toxic categories:

1. A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram, but not more than 500 milligrams per kilogram of body weight when administered orally to test animals weighing between 200 and 300 milligrams each.
2. A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram, but not more than 1000 milligrams per kilogram of body weight when

administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of test animals weighing between 2 and 3 kilograms each.

3. A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million, but not more than 2000 parts per million by volume of gas or vapor, or more than two milligrams per liter, but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to test animals weighing between 200 and 300 grams each.

TOXICITY: The sum of adverse effects resulting from exposure to a material, generally by the mouth, skin, or respiratory tract.

TWA (Time Weighted Average exposure): The airborne concentration of a material to which a person is exposed, averaged over the total exposure time, generally the total workday (8 to 12 hours).

UEL or UFL: Upper explosive limit or upper flammable limit of a vapor or gas; the highest concentration (highest percentage of the substance in air) that will produce a flash of fire when an ignition source (heat, arc, or flame) is present. At higher concentrations, the mixture is too "rich" to burn. See LEL.

UNSTABLE: Tending toward decomposition or another state, or as produced or transported, will vigorously polymerize, decompose, condense, or become self-reactive under condition of shocks, pressure, or temperature.

VAPOR DENSITY: The density of a material's vapor compared to the density of the air. If a vapor density is greater than one, it is more dense than air and will drop to the floor or the lowest point available. If the density is less than one, it is lighter than air and will float upwards like helium.

VAPOR PRESSURE: The pressure exerted at a given temperature of a vapor in equilibrium with its liquid or solid form. The higher the vapor pressure, the more easily a liquid will evaporate. Liquid materials that evaporate easily are termed volatile, and this means that air concentrations can build up quickly when working with the material in liquid form. Materials with high vapor pressures may be particularly hazardous if you are working in enclosed or confined areas, or if the air circulation is poor. Materials with low vapor pressure still may pose an inhalation hazard.

VOC: Volatile Organic Compound.

WATER REACTIVE: A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.