

GLOSSARY OF TERMS

TERM

DEFINITION

Absolute Pressure	Gauge pressure plus atmospheric pressure (psia)
Absorption	To take internally into the body through the contact with the skin surface.
American Conference of Governmental Industrial Hygienists (ACGIH)	An organization of professionals in government agencies or educational institutions engaged in occupational safety and health programs. ACGIH develops and publishes recommended occupational exposure limits (TLV) for hundreds of chemical substances and physical agents.
Acid or Ammonia Suits	Special protective clothing that prevents toxic or corrosive substances or vapors from coming.
Acute Effect	An adverse effect to a human or animal body, caused by exposure to a chemical or physical agent, with symptoms developing rapidly. Also see chronic.
Acute Toxicity	the adverse (acute) effects resulting for a single dose or exposure to a substance.
Aerator	a device for introducing air into dry bulk solids to improve flowability.
Aerosol	a dispersion of particles of microscopic size in a gaseous medium. Particles may be solid (dust, fume, or smoke) or liquid (mist or fog).
Agency Representative	individual assigned to an incident from an assisting or cooperating agency who has been delegated full authority to make decisions on all matters affecting that agency's participation at the incident.

Agency	representatives report to the incident liaison officer.
Airbill	a shipping paper prepared from a bill of lading that accompanies each piece of an air shipment.
Air Inversion	a meteorological condition in the Earth's atmosphere in which the temperature of the air some distance above the Earth's surface is higher than the air temperature of the surface. Normally, air temperatures decrease as altitude increases, such a condition traps air, and releases gases and vapors near the Earth's surface, thus impeding their dispersion.
Air-Reactive Materials	substances that will ignite at normal temperatures when exposed to air.
Allocated Resources	resources that will ignite at normal temperatures when exposed to air.
Ambient Temperature	the normal temperature of the environment.
Anergolic Mixture	a mixture of fuel and oxidizer which will not ignite on contact but which requires an outside source of ignition.
Asphyxiant	a vapor or gas which can cause unconsciousness or death by suffocation (lack of oxygen).
Asphyxiating Materials	substances that can cause death by displacing the oxygen in the air.
Assigned Resources	resources checked in and assigned work task on an incident.
Assisting Agency	an agency directly contributing suppression, rescue, support, or service resources to another agency.
Available Resources	resources assigned to an incident and available for an assignment.
Baffle	an intermediate partial bulkhead which reduces the surge effect in a partially loaded tank.

Ballistic Missile	a missile which is guided to a point where the motor stops, or the warheads are released at which time it acts as a free-falling object.
Barrel	42 US gallons
Binary Agent	lethal agent produced by the reaction of nonlethal chemical constituents mixed within an ammunition.
Binary Munitions	ammunition which contains two or more chemicals that remain separated until use. The ammunition is not lethal or explosive until mixed on demand or by shock.
Blasting Agent	a material that is very insensitive with little probability of accidental ignition.
Boiling Liquid Expanding	a major container failure, into two or more Vapor Explosion (BLEVE) pieces, at a moment in time when the contained liquid is at a temperature well above its boiling point at normal atmospheric pressures.
Blow-Down Valve	a manually operated valve whose function is to quickly reduce tank pressure to atmospheric pressure.
Boiling Point	the temperature at which the vapor pressure of a liquid equals the atmospheric pressure. The boiling point is an important indicator of the vapor pressure of a substance. A liquid with a low boiling point (less than 100 degrees F.) has a higher pressure. In turn, this will indicate a tendency to BLEVE.
Boilover	the violent expulsion of oil and froth from a tank due to the rapid expansion of water into steam when the heat wave in the oil reaches the water layer, usually suspended toward the bottom of a tank of heavy or unrefined oil.
Branch	that organizational level having functional or geographic responsibility for major segments of incident operations. The branch level is organizationally between section and division/group.

Breakthrough	the penetration of material or materials through a gas or vapor air purifying element or fabric. The quantity or extent of breakthrough during service life testing is often referred to as the percentage of the input concentration.
Breakthrough Time	the time that it takes a specific chemical to pass through protective clothing referenced by manufacturer test data.
Booster	the propulsion system which provides the initial thrust required to launch a vehicle.
Bulk Container	a cargo container, such as that attached to a tank truck or tank car, used for transporting materials in bulk quantities.
Bulkhead	a structure used to protect against damage caused by shifting cargo and or to separate loads.
Bulk Plant	that portion of a property where flammable or combustible liquids are received by tank vessel, pipe line, tank cars, or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel.
Bung	a cap or screw used to cover the small opening in the top of a metal drum or barrel.
Chemical Abstracts Service® (CAS)	a Columbus, Ohio organization, which indexes information published in <u>Chemical Abstracts</u> by the American Chemical Society® and provides index guides in which information about particular substances may be located in the Abstracts when needed. CAS numbers identify specific chemicals.
Camp	a geographical site, within the general incident area, separate from the base, equipped and staffed to provide food, water, and sanitary services to incident personnel.
Capacity Indicators	devices installed on a tank to indicate capacity at a specific level sometimes called markers.

Carboy	a bottle or rectangular container for liquids of about 5- to 15-gallon capacity that is made of glass, plastic, or metal and is often cushioned in a protective container.
Carcinogens	cancer producing substances.
Cargo Manifest	a shipping paper that contains all of the contents being carried by the transporting vehicle or vessel.
Cast	to give a shape to a substance by pouring a liquid substance into a mold and letting it harden or cure.
Cast High Explosive	when involved in fire or heat, exposed pieces of cast-high explosives tend to melt, flow, and resolidify forming shock sensitive mixtures.
Check-In	locations where assigned resources check in at an incident. The locations are: incident command post (resources unit), incident base, camps, staging areas, heli-bases, division supervisors (for direct line assignments).
Chemical Properties	properties of a material that relate to toxicity, flammability, or chemical reactivity.
Chemical Igniters	usually highly pyrophoric and are used to ignite propulsion systems.
Chemical Transportation (CHEMTREC ®)	a telephone hotline for chemical emergencies open 24 Emergency Center hours, everyday. (phone: 1-800-424-9300).
Chronic Effect	an adverse effect on a human or animal body, with symptoms which develop slowly over a long period of time and exposure to a chemical or physical agent, also see acute.
Chronic Toxicity	adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time, ordinarily used to denote effects in experimental animals.
Cleanout Fitting	fitting installed in the top of a tank to facilitate washing of the tank interior.

Code of Federal Regulations (CFR)	the formal name given to those books or documents that contain the specific regulations provided for by the law.
COFC	container on flat car
Cold Zone	contains the command post and such other support functions as are deemed necessary to control the incident. This is also referred to as the clean zone or support zone.
Combustion or Combustible Liquid	sudden fracture of a container or structure; any liquid that has a flash point at or above 100° F and below 200° F.
Communications Unit (Comm Unit)	a vehicle (trailer or mobile van) used to provide the major part of an incident communications center.
Combustion	an oxidation reaction in which heat and light are produced.
Command	the act of directing, ordering, and controlling resources by virtue of explicit legal, agency, or delegated authority.
Command Staff	consists of the information officer, safety officer, and liaison officer, who report directly to the incident commander.
Company	any piece of equipment having a full complement of personnel.
Compatible	having no undesirable reaction with or upon another material.
Compressed Gas	any material or mixture having in the container a absolute pressure exceeding 40 pounds per square inch gauge (psig) at 70° F, or having an absolute pressure exceeding 104 psig at 130° F.
Compressed Gas in Solution	a nonliquified gas that is dissolved at high pressure in a solvent.
Concentration	the relative amount of a substance when combined or mixed with other substances.

Confinement	those procedures taken to keep a material in a defined or local area.
Connection Box	contains fittings for trailer emergency and service brake connections and an electrical connector to which the lines from the towing vehicle may be connected. It was previously called junction box, light box, or bird box.
Consignee	the person who is to receive the shipment.
Consist	a rail shipping paper similar to a cargo manifest. It may contain a list of cars in the train in order or a list of those cars containing hazardous materials and their location on the train.
Container	an article of transport equipment which is (a) of a permanent character and strong enough for repeated use; (b) specifically designed to facilitate the carriage of goods by one or more modes of transport without intermediate reloading; and (c) fitted with devices permitting its transfer from one mode to another.
Container Chassis	a trailer chassis having simply a frame with locking devices for securing and transporting a container as a wheeled vehicle.
Container Ship	a ship specially equipped to transport large freight containers in horizontal, or more commonly, in vertical container cells. The containers are loaded and unloaded usually automatically by special cranes.
Container Specification Number	a number found on a shipping container preceded by DOT, which indicates that the container has been built according to federal specifications.
Containment	those procedures taken to keep a material in its container.
Contamination	staining or polluting that occurs by physical contact with another substance.
Contaminants	any substance accidentally or unwillingly introduced into air, water, or food products which has the effect of rendering them toxic or otherwise harmful.

Control	the procedures, techniques, and methods used in the mitigation of a hazardous materials incident, including containment, extinguishment, and confinement.
Control Agents	any material that is used to contain or extinguish a hazardous material or its vapors.
Control Zones	the designation of areas at a hazardous materials incident based on safety and the degree of hazard. Many terms are used to describe the zones involved in a hazardous materials incident.
Cooperating Agency	an agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort (e.g., Red Cross, law enforcement agency, telephone company, etc.)
Coordination	the process of systematically analyzing a situation, developing relevant information, and informing appropriate command authority (for its decision) of viable alternatives for selection of the most effective combination of available resources to meet specific objectives.
Corner Fittings	strong metal devices, located at the corners of a container, having several apertures which normally provide the means for handling, stacking, and securing the freight container.
Corner Structures	vertical frame components located at the corners of a container, integral with the corner fittings.
Corrective Actions	actions taken by the incident commander to correct the problem at hand in a hazardous materials emergency.
Corrosive Material	any liquid or solid that can destroy human skin tissue: a liquid that has a severe corrosion rate on steel.
Crossover Line	installed in tank piping system to allow unloading from either side of tank.
Cryogenics	gases that must be cooled to a very low temperature in order to bring about a change from a gas to a liquid.

Dangerous Cargo Manifest	cargo manifest used on ships that contains a list of all the hazardous materials on board, including their location.
Decomposition	breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into parts, elements, or simpler compounds.
Decontamination	the physical or chemical process of reducing and (Contamination Reduction) preventing the spread of contamination from persons and equipment used at hazardous materials incidents.
Decontamination Area	the area usually located within the warm zone where decontamination takes place.
Deflagration	an explosion characterized by rapid combustion rather than a detonation. The burning which takes place at a speed below the velocity of sound.
Degradation	a type of decomposition characteristic of high molecular weight substances such as proteins, polymers, branched-chained sulfonates etc. It may result from oxidation, heat, sunlight, solvents, material action, or in the case of body proteins from infectious microorganisms.
Department of Transportation (DOT)	agency responsible for shipping regulations for hazardous materials products in the United States.
Dermal	used on or applied to the skin.
Dermal Toxicity	adverse effects resulting from skin exposure to a substance. Ordinarily used to denote effects in experimental animals.
Detonation	a wave that passes along the body of an explosive, instantaneously converting the explosive into gas.
Detonators	a small pyrotechnic device used to detonate a larger amount of high explosive.

Dikes	temporary walls constructed to halt the flow of a liquid substance; earthen or concrete walls surrounding oil tanks designed to catch overflow from tanks and relieve the danger of flowing flammable liquids spreading to other exposures.
Dispatch	the implementation of a command decision to move a resource or resources from one place to another.
Dispatch Center	a facility from which resources are directly assigned to an incident.
Disposable Respirators	a respirator that is discarded after the end of its recommended period of use, after excessive resistance or physical damage, or when odor breakthrough or other warning indicators render the respirator unsuitable for further use.
Division	that organization level having responsibility for operations within a defined geographic area or with functional responsibility. The division level is organizationally between the strike team and the branch. See also group.
Dome	the circular fixture on the top of a tank car that contains valves and relief devices.
Dust	a solid, mechanically produced particle with a size ranging from submicroscopic to macroscopic.
Emergency Shutoff Levers	a means of operating a valve that stops the flow of a liquid.
Engine	any ground vehicle providing specified levels of pumping, water, and hose capacity but with less than the level of personnel.
Engine Company	any ground vehicle providing specified levels of pumping, water, hose capacity, and personnel.
Endangered Persons	those persons who are in the exposures area created by a hazardous materials incident.

Environmental Protection Agency (EPA)	a Federal agency with environmental protection regulatory and enforcement authority, administers Clean Air Act, Clean Water Act, and other Federal environmental laws.
Escape Only Respirator	respiratory devices designed for use only during escape from hazardous atmospheres.
Etiologic Agent	a living micro-organism that may cause human disease (e.g., AIDS).
Evaporation Rate	the rate at which a particular material will vaporize (evaporate), as compared to the rate of vaporization of a known material.
Excess Flow Valve	a safety valve designed to shut off the flow of a liquid when the rate exceeds a set rate.
Explosions	the sudden release of energy, usually in the form of large volumes of gas which exert pressure on the surrounding medium. The explosions may be deflagrations or detonations.
Explosives	any substance or article, including a device, that is designed to function by explosion (i.e. an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function by explosion.
Explosive Bolts	small pyrotechnic devices used to separate or release parts of equipment (stages, hatches, etc.).
Explosive Limits	all concentrations of a mixture of flammable vapor or gas in air, usually expressed in percent by volume, in which a flash will occur or a flame will travel if the mixture is ignited. (Also known as flammable limits.)
Exposures	people, property, or the environment that are or may be exposed to the harmful effects of a hazardous materials emergency.
Extruded	to force, press, or push out; to shape by forcing through a die.
Feedback	an element of a system that is the return portion of the outputs to the input. This allows the system to evaluate itself.

Fire Point	the lowest temperature of a liquid at which vapors are evolved fast enough to support continuous combustion.
Flares	used for illumination purposes and to decoy surface to air missiles away from aircraft.
Flame Impingement	the points where flames contact the surface of a container.
Flammable	a flammable liquid is defined by NFPA and DOT as a liquid with a flash point below 100°F.
Flammable Gas	in order to be considered a flammable gas, a chemical must have an LFL of 13 percent or below, or a flammable range of 12 percent. (US DOT)
Flammable Limits	see explosive limits
Flammable Liquids	any liquid having a flash point below 100°F.
Flammable Material	a substance that is capable of being easily ignited and burning rapidly.
Flammable Range	the concentration of gas or vapor in air that will burn if ignited. It is expressed as a percentage that defines the range between a lower explosive limit (LEL) and an upper explosive limit (UEL). A mixture below the LEL is too lean to burn; a mixture above the UEL is too rich to burn.
Flammable Solid	any material, other than an explosive, that is liable to cause fires through friction, retained heat from manufacturing or processing, or that can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation hazard.
Flashing	liquid tight rail on top of a tank which contains water and spillage and directs it to suitable drains, may be combined with DOT overturn protection.
Flashing Drain	metal or plastic tube which drains water and spillage from flashing to the ground.

Flash Point	the minimum temperature at which a liquid gives off enough vapors to form an ignitable mixture with the air near the surface of the liquid.
Flashback	reignition of flammable liquid caused by exposure of its vapors to an ignition source.
Floating Roof	a type of roof used on oil tanks to stop evaporation loss and reduce the fire hazard by reducing the vapor space over the liquid.
Fork Pockets	the transverse structural apertures in the base of the container which permit entry of forklift devices.
Formula	the conventional scientific designation for a material (water is H ₂ O, sulfuric acid is H ₂ SO ₄ , etc).
Frothover	a steady, slow frothing over the rim of a tank without the sudden violent action that occurs in a boilover.
Fuel	a material that is oxidized to produce energy.
Fume	a solid condensation particulate, usually of a vaporized metal.
Full Structural Protective	clothing includes helmets, Clothing self-contained breathing apparatus, coats and pants customarily worn by firefighters (turnout or bunker coats and pants), rubber boots, gloves. It also includes covering for the neck, ears, and other parts of the head not protected by the helmet or breathing apparatus hazardous materials. Bands or tape are added around the legs, arms, and waist.
Fusible Plugs	a safety relief device in the form of a plug of a low melting metal. The plugs close the safety relief device channel under normal conditions, and are intended to yield or melt at a set temperature to permit the escape of gas.
Gas	a formless atmosphere which occupies completely the space or an enclosure; an aeriform fluid that is in a gaseous state at standard temperature and pressure.

Gauge Pressure	the pressure read on a gauge which does not take atmospheric pressure into account [psig] (pounds per square inch guage).
General Staff	the group of incident management personnel comprised of: incident commander, logistics chief, operations chief, finance chief, planning chief)
Grain	a solid propellant charge shaped to fit into a rocket-motor casing.
Gross Weight	the weight of a trailer together with the weight of its entire contents.
Group	a functional division (e.g., air support, salvage, structure protection, etc.)
Half-Life	the time required for an unstable element or nuclide to lose one-half of its radioactive intensity in the form of alpha, beta, and gamma radiation. It is a constant for each radioactive element or nuclide. Half-lives vary from fractions of a second for some artificially produced radioactive elements to millions of years. For example, the half-life of Uranium 235 is 10,000,000 years.
Hatch Plan	a schematic drawing of the location of all cargo on a ship (also referred to as a storage plan).
Hazard Class	a group of materials, as designated by the DOT, that share a common hazardous property, (i.e., radioactivity, flammability).
Hazard Sector	that function of an overall incident command system that deals with the actual mitigation of a hazardous materials incident.
Hazard Sector Officer	the person responsible for the management of the hazard sector.
Hazard or Hazardous	capable of posing an unreasonable risk to health, safety, or the environment; capable of doing harm.
Hazardous Chemical	defined by the Occupational Safety and Health Administration (OSHA) as any chemical which is a physical hazard or a health hazard to employees.

Hazardous Material	a substance or material, in any quantity or form, that may pose an unreasonable risk to health, safety, and property, when released from its container.
Hazardous Materials	a group of trained personnel operating under Response Team and emergency response plan and appropriate standard operating procedures to control or otherwise minimize or eliminate the hazards to people, property, or the environment from a released hazardous material.
Hazardous Substance	any substance designated under the Clean Water Act and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as posing a threat to waterways and the environment when released (US EPA).
Hazardous Wastes	discarded materials regulated by the EPA because of public health and safety concerns. Regulatory authority is granted under the Resource Conservation and Recovery Act.
Head	the front and rear closure of a tank shell.
Heat Wave	a layer of hot liquid in a tank, produced by the heat of the burning vapor at the top of the tank. As the burning progresses, this layer becomes thicker extending down into the liquid in the tank.
High Order Detonation	a detonation in which everything in the immediate area is vaporized. Sonic waves and severe blast overpressure is created.
High Temperature Protective Clothing	protective clothing designed to protect the wearer for short-term, high-temperature exposures. This type of clothing is usually of limited use in dealing with chemical commodities.
Hopper	slopping panels at bottom of tank which direct dry bulk solids to the outlet piping.

Hot Zone	the area immediately surrounding a hazardous materials incident, which extends far enough to prevent adverse effects from hazardous materials releases to personnel outside the zone. This zone is also referred to as the exclusion zone or restricted zone.
Hygroscopic	the ability of a substance to absorb moisture from the air or from the human body resulting in severe burns.
Hypergolic Mixture	the property by which a fuel and an oxidizer will ignite on contact with each other without the need of an outside source of ignition.
Hypergolics	substances that spontaneously ignite on contact with another. Many hypergolics are used as rocket fuels.
Immediately Dangerous to life and Health (IDLH)	the maximum level of concentration from which one could escape within thirty minutes without any irreversible health effects.
Immediately Dangerous to Life and Health	any atmosphere that poses an immediate hazard to life or produces immediate irreversible, debilitating effects on health. A companion requirement to the PEL, IDLH concentrations (IDLH) represent concentrations above which respiratory protection should be required, IDLHs are expressed in ppm or mg/cu meter.
Igniter	a small device used to initiate the burning of combustible mixtures, such as propellants. Igniters may be electrical or chemical.
Ignition Temperature	the minimum temperature to which a fuel in air must be heated in order to start self-sustained combustion independent of the heating source.
Improved Conventional Munitions	ammunition which embodies a unique design to control the number, size, and distribution of fragments produced when functioned.
Incident	an occurrence or event, either human-caused or natural phenomena, that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and natural resources.

Incident Action Plan	the incident action plan, which is initially prepared at the first meeting, contains general control objectives reflecting the overall incident strategy, and specific action plans for the next operational period. When complete, the incident action plans will have a number of attachments.
Incident Command Post (ICP)	the location at which the primary command functions are executed.
Incident Command System (ICS)	the combination of facilities, equipment, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned stated objective pertaining to an incident.
Incident Commander	the person who has total responsibility for all operations at a hazardous materials emergency.
Incipient Fires	fires that are in the beginning stages.
Incompatible	materials which could cause dangerous reactions from direct contact with one another are described as incompatible.
Individual Container	a cargo container, such as a box or drum, used to transport materials in small quantities.
Inert	a substance incapable of reacting dangerously or with hazard.
Infectious Substances	a viable microorganism, or its toxin, that causes or may cause disease in humans or animals. Infectious substance and etiologic agent are synonymous. Class 6 (Poison)
Ingestion	the taking in of toxic materials through the mouth.
Inhalation	the taking in of toxic materials by breathing in through the nose or mouth.

Inhibitor	a chemical which is added to another substance to prevent an unwanted chemical change from occurring involving hazardous materials. Detailed DOT classification lists specify appropriate warning labels-such as Oxidizing Agent or Flammable Liquid-which must be used for various substances during transport.
Initial Attack	resources initially committed to an incident.
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 single exposure or multiple exposures.
Irritating	an irritating material, as defined by DOT, is a liquid or solid substance which, upon contact with firm or when exposed to air, gives off dangerous or intensely irritating fumes (not including poisonous materials; see poison, [class A] and poison, [class B]).
Jacket	a metal cover which protects the tank insulation.
Jurisdictional Agency	the agency having jurisdiction and responsibility for a specific geographical area.
Labels	four inch square diamond markers required on individual shipping containers smaller than 640 cubic feet.
Lethal Concentration (LC)	a concentration of a substance being tested which will kill a test animal by inhalation.
Lethal Concentration (LC ₅₀)	the concentration of an inhaled substance results in the death of 50 percent of test population. (The lower the value, the more toxic the substance.) LC ₅₀ is an inhalation exposure expressed in ppm, mg/liter, or mg/cu meter.
Lethal Dose	a concentration of a substance being tested which will kill a test animal by ingestion or skin contact.

Lethal Dose (LD ₅₀)	the concentration of an ingested or injected substance which results in the death of 50 percent of the test population. (The lower the dose, the more toxic the substance.) LD ₅₀ is an oral or skin exposure expressed in mg/kg.
Light Ends	petroleum products which have relatively low flash points and high vapor pressure. Common light ends are methane, ethane, propane, and butane.
Liquefied Gas	a gas that is partially liquid at a temperature of 70°F.
Liquefied Petroleum Gas (LPG)	gases which can be liquefied under moderate pressures. Common LPGs are butane and propane.
Liquid Propellant	a liquid fuel, possibly fuel oxidizer mixture, burned in rocket or missile propulsion systems to provide thrust.
Lower Explosive Limit (LEL)	also known as LFL 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.
Lower Flammable Limit (LFL)	see lower explosive limit.
Low Order Detonation	a detonation in which there is not total obliteration but only a spewing of fragments. There is little or no blast overpressure and subsonic waves are produced.
Low Pressure Tank	a storage tank which has been designated to operate at pressure above 0.5 psi but not more than 15 psi.
Mold	a container into which a substance is poured or pressed to create a desired shape.
Monopropellant	a compound containing all of the elements necessary for its combustion or decomposition, or a compatible fuel and oxidizer which may be mixed prior to injection into a combustion chamber.

Material Safety Data Sheets (MSDS)	provided by manufacturers and compounds (blenders) of chemicals, with minimum information about chemical composition, physical and chemical properties, health and safety hazards, emergency response, and waste disposal of the material as required by OSHA 29 CFR 1910.120.
Melting Point	the temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.
Miscibility	a liquid's ability to mix with water.
Monitoring Equipment	instruments and devices used to identify and quantify contaminants.
Mutagen	a substance or agent capable of altering the genetic material in a living cell.
National Fire Protection Association (NFPA)	an international voluntary membership organization to promote or improve fire protection and prevention and establish safeguards against loss of life and property by fire. The NFPA is 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.
National Interagency Incident Management Systems (NIIMS)	consists of five major subsystems which collectively provide a total systems approach to all-risk incident management. The subsystems are the incident command system, training, qualifications and certification, supporting technologies, and publications management.
National Institute for Occupational Safety Health (NIOSH)	US Department of Health and Human Services (DHHS); Federal agency which among other and activities tests and certifies respiratory protective devices and air sampling detector tubes; recommends occupational exposure limits for various substances and assists OSHA and MSHA in occupational safety and health investigations and research.

National Oceanic and Atmospheric Administration (NOAA) Weather Station	a mobile weather data collection and forecasting facility (including personnel) which can be utilized within the incident area.
Nonflammable Gas	any gas that will not burn but may support combustion.
Nonliquified Gas	a gas that is entirely gaseous at 70°F.
Nonpersistent Agent	a chemical warfare agent that can be removed from human beings and equipment using natural decontaminants such as water, earth, fire, and weather.
NOS	not otherwise specified.
National Response Center	a notification center in the Coast Guard Building in Washington, DC, with a toll-free telephone number (1-800-424-8802) which must be called when significant oil or chemical spills or other environmentally related accidents occur.
Occupational Safety and Health Administration (OSHA)	part of the US Department of Labor; Federal agency with safety and health regulatory and enforcement authorities for most US industry and business.
Operational Period	the period of time scheduled for execution of a given set of operation actions as specified in the incident action plan.
Operations Coordination Center (OCC)	the primary facility scheduled for execution of a given set of operation actions as specified in the incident action plan.
Oral	used in or taken into the body through the mouth.
Oral Toxicity	adverse effects resulting from taking a substance into the body via ingestion, ordinarily used to denote effects in experimental animals.
Organic Peroxide	an organic derivative of the inorganic compound hydrogen peroxide.

Other Regulated Materials	materials that do not meet the definitions of (ORM) (ORM-A, B, and C) hazardous materials but possess enough hazardous characteristics that they require some regulation. ORM-D materials are hazardous materials transported in small quantities. ORM-E materials are those not included in any other hazard class.
Organic Material	a complex compound of carbon such as materials derived from living matter.
Outlet Valve	the valve which is farthest downstream in a tank piping system to which the discharge hose is attached.
Oxidizer	a material necessary to support combustion of a fuel.
Oxidizers	a substance that yields oxygen readily to stimulate the combustion of organic or inorganic matter.
Oxidizing Ability	the ability to yield oxygen readily to stimulate combustion.
Package Markings	the descriptive name, instructions, cautions, weight, and specification marks required to be placed on outside containers of hazardous materials.
Packaging	a broad term used by the DOT to describe shipping containers and any markings, labels, or placards affixed to them.
Penetration	the act or process of piercing something. In protective clothing, it typically means passing through zippers, exhalation valves, or other potential openings that exist within the suit.
Percent Volatile	by volume; the percentage of a liquid or solid (by volume) that will evaporate at an ambient temperature of 70°F (unless some other temperature is stated).
Permeation	to spread or flow throughout. In the case of protective clothing, it refers to a materials ability to be absorbed and passed into the interior of the clothing.

Permeation Rate	this average constant rate that occurs after breakthrough when the chemical contact is continuous and all forces affecting permeation have reached equilibrium.
Permissible Exposure Limit (PEL)	the maximum time weighted concentration at which 95 percent of exposed, healthy adults suffer no adverse effects over a 40-hour work week. An 8-hour time weighted average concentration, unless otherwise noted. PEL's are expressed in either ppm or mg/cu meter. They are commonly used by OSHA and are found in the NIOSH <u>Pocket Guide to Chemical Hazards</u> .
Persistent Agent	a chemical warfare agent that requires a special decontaminating agent other than the natural decontaminants.
Personal Protective Equipment	the equipment provided to shield or isolate a person from the chemical, physical, and thermal hazards that may be encountered at hazardous materials incident. Adequate personal protective equipment should protect the respiratory system, skin, eyes, face, hands, feet, body, and hearing. Personal protective equipment includes both personal protective clothing and respiratory protection.
pH	indication of the acidity or alkalinity of a substance. A pH from 1 to 7 is acidic and from 7 to 14 is alkaline. A pH of 7 is neutral.
Physical Properties	those properties that do not involve a change in the chemical identity of the substance. They affect the physical behavior of the material inside and outside the container such as the change of the state of the material: boiling point, specific gravity, vapor density, and water solubility.
Piggyback Transport	a type of shipping in which bulk containers from one mode, such as highway transportation, are placed on flat cars or container ships for transportation by another mode; e.g, rail or marine.
Placards	square diamond markers (10 ¾ inch), required on the transporting vehicle such as a truck, tank car, or a freight container 640 cubic feet or larger.

Poison	a material, other than a gas, that is either known to be so toxic to humans as to afford a hazard to health during transport or in the absence of adequate data on human toxicity is presumed to be toxic to humans, including irritating materials that cause irritation.
Polar Solvents	any flammable liquid that is miscible and destroys regular foam by mixing with the water in the foam.
Polymerization	a chemical reaction in which one or more small compounds combine to form larger compounds. A hazardous polymerization is a reaction that takes place at a rate which releases large amounts of energy (usually heat). If hazardous polymerization can occur with a given material, the MSDS usually will list conditions which could start the reaction and since the material usually contains a polymerization inhibitor, the expected time period before the inhibitor is used up should be stated.
Parts Per Billion (ppb)	a unit for measuring the concentration of gas or vapor in air; parts (by volume) of the gas or vapor in a billion parts of air; also used to indicate the concentration of a particular substance in a liquid or solid.
Parts Per Million (ppm)	a unit for measuring the concentration of a gas or vapor in air; parts (by volume) of the gas or vapor in a million parts of air; also used to indicate the concentration of a particular substance in a liquid or solid.
Pressure Vehicle	a storage tank or vessel which has been designed to operate at pressures above 15 psi.
Preventive Actions	actions taken by the incident commander at an emergency to prevent the problem from increasing, thereby keeping losses to a minimum.
Propellant	a general term used for a fuel or fuel and oxidizer mixture which is burned in rocket and missile propulsion systems to provide thrust.

Propellants	two separately stored substances which will provide a combustible mixture after injection into a combustion chamber.
Protective Clothing	equipment designed to protect the wearer from heat and hazardous materials contacting the skin or eyes. Protective clothing is divided into three types: structural firefighting, chemical, and high-temperature protective clothing.
Pounds per Square Inch (PSI)	for MSDS purposes, a unit for measuring the pressure a material exerts on the walls of a confining vessel or enclosure. For technical accuracy, pressure must be expressed as psig or psia (that is, gauge pressure plus sea level atmospheric pressure, or psig plus about 14.7 pounds per square inch).
Pyrophoric	a property of a substance which permits it to ignite on contact with air.
Pyrophoric Liquid	any liquid that ignites spontaneously in dry or moist air at or below 130° F.
Radioactive Materials	materials that spontaneously emit ionizing radiation.
Reaction	a chemical transformation or change; the interaction of two or more substances to form new substances.
Reactive Materials	substances capable of or tending to react chemically with other substances.
Reactivity	a description of the tendency of a substance to undergo chemical reaction (usually with the release of energy). Undesirable effects such as pressure buildup, temperature increase, 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 of use or storage.
Relay Emergency Valve	a combination valve in an air brake system, which controls brake application and which also provides for automatic emergency brake application should the trailer become disconnected from the towing vehicle.

Resources	all of the immediate or supportive assistance available to help control an incident; including personnel, equipment, control agents, agencies, and printed emergency guides.
Respiratory Protection	equipment designed to protect the wearer from the inhalation of contaminants. Respiratory is divided into three types: positive pressure self-contained breathing apparatus, positive pressure supplied air respirators, and air purifying respirators.
Respiratory System	the body's breathing system; includes the lungs, and air passages (trachea or windpipe, larynx, mouth, and nose), and the associated nervous and circulatory supply.
Response	that portion of the incident management in which personnel are involved in controlling a hazardous materials incident.
Ring Stiffener	a circumferential tank shell stiffener which helps to maintain the tank cross section (chemical tanks).
Rotary Gauge	a gauge for determining the liquid level in a pressurized tank.
Rupture Disk	a safety device which fails at a predetermined pressure and thus protects a pressure vessel from being overpressurized.
Safety Relief Valve	a device found on pressure cargo tanks containing an operating part that is held in place by spring force. Valve opens at set pressures.
Section	that organization level having functional responsibility for primary segments of incident operations such as: operations, planning, logistics, finance. The section level is organizationally between branch and incident commander.

Sensitizer	a substance which on first exposure causes little or no reaction in humans or test animals 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.
Sheer Section	a safety feature, incorporated in cargo tank piping and fittings, designed to fail or break completely to prevent damage to shutoff valves or the tank itself.
Shipping Paper	a shipping order, bill of lading, manifest, or other shipping document issued by the carrier.
Short-Term Exposure Limit (STEL)	ACGIH terminology. See TLV-STEL.
Side Rails	upper side rails: the main longitudinal frame members of a tank container used to connect the upper corner fittings; lower side rails: the main longitudinal frame members of a tank container used to connect the lower corner fittings.
Skin Toxicity	see dermal toxicity
Solid Propellant	a solid fuel or oxidizer mixture burned in rocket/missile propulsion systems to provide thrust.
Sloper	an expulsion of oil and froth from the surface of a tank, produced when water or foam is applied to a burning liquid surface.
Solubility	a measure of the amount of a substance that will dissolve in another substance.

Solubility in Water	a term expressing the percentage of material by weight) that will dissolve in water at ambient temperature. Solubility information can be useful in determining spill cleanup methods, and fire extinguishing methods for a material. Terms used to express solubility are: negligible (less than 0.1 percent); slight (0.1 to 1.0 percent); moderate (1 to 10 percent); appreciable (more than 10 percent); soluble in all proportions.
Span-Of-Control	the supervisory ratio of from three to seven individuals with five being established as a general rule of thumb.
Special Protective Clothing	chemical protective clothing specially designed to protect against a specific hazard or corrosive substances.
Specific Gravity	the weight of a substance compared to the weight of an equal volume of water; an expression of the density (or heaviness) of the material.
Splitter Valve	a valve installed to divide pipe line manifold
Spontaneous Combustion	the process by which a substance's temperature increases to the point of ignition without drawing heat from its surroundings.
Squib	a small initiating device which uses electrical energy to cause the ignition of a pyrotechnic device. It is frequently used as an initiator for larger, more powerful explosive.
Stability	an expression of the ability of a material to remain unchanged. For MSDS purposes, a material is stable if it remains in the same form under expected and reasonable conditions of storage or use. Example of conditions which may cause instability (dangerous change) are: temperatures above 150°F, shock from dropping, and combination with another chemical.
Stabilization	the stage of an incident when the immediate problem or emergency has been controlled, contained, or extinguished.

Stage of Incident	one of five definite and identifiable phases through which an emergency passes from onset (interruption of normal conditions) to stabilization.
Staging Area	that location where incident personnel and equipment are assigned on a 3-minute available status.
Standard Transportation Commodity Code (STCC) Number	a numerical code used by the rail industry on the waybill to identify the commodity.
Stress	a state of tension put on a shipping container by internal or external chemical, mechanical, or thermal change.
Strike Team	specified combinations of the same kind and type of resources, with common communication and a leader.
Subsurface Injection	discharge of foam or water into a storage tank from an outlet at the tank bottom or below the liquid surface.
Switch List	a document provided to the rail-yard crew for the purpose of classifying cars into trains or industrial cuts within the yard. A list of cars on a track and instructions as to where those cars go within the yard.
Synonym	Another name or names by which a material is known. For example methyl alcohol is also known as methanol or wood alcohol.
Tactics	methods or procedures used to deploy various tactical units (resources) to achieve objectives.
Tank Car	tank vehicle on rails.
Tank Farm	an area occupied by oil tanks of an oil refinery.
Tank Trailer	tank vehicle that is towed.
Tank Truck	self-propelled tank vehicle on tires.
Tare Weight	the weight of the container, wrapper, vehicle, etc. deducted from the total weight to determine the weight of the contents or load.

Task Force	a group of resources with common communications and a leader temporarily assembled for a specific mission.
Technical Assistance	personnel, agencies, or printed materials that provide technical information on handling hazardous materials.
Technical Specialist	personnel with special skills who are activated only when needed. Technical specialist may be needed in the areas of fire behavior, chemical behavior, water resources, environmental concerns, resource use, and training areas.
Teratogen	a substance to which exposure can result in malformations to the fetus.
Termination	that portion of incident management in which personnel are involved in documenting safety procedures, site operations, hazards faced, and lessons learned from the incident. Termination is divided into three phases: debriefing the incident, post-incident analysis, and critiquing the incident.
Threshold Limit Value/Ceiling (TLV/C)	the maximum concentration that should not be exceeded, even instantaneously.
Threshold Limit Term Value/Short Exposure Limit (TLV/STEL)	a 15-minute time weighted average exposure which should not be exceeded at any time, nor repeated more than four times daily with a 60-minute rest period required between each STEL exposure. These short-term exposures can be tolerated without suffering from irritation, chronic or irreversible tissue damage, or narcosis of a sufficient degree to increase the likelihood of accidental injury, impair self-rescue, or materially reduce worker efficiency. TLV/STELs are expressed in ppm and mg/cu meter.

Threshold Limit Value/Time Weighted Average (TLV/TWA)	the maximum airborne concentration of a material to which an average, healthy person may be exposed repeatedly for 8 hours each day, 40 hours per week without suffering adverse effects. They are based on current available data and are adjusted on an annual basis. (The lower the concentration, the more toxic the substance.) Because TLVs involve an 8-hour exposure, they are difficult to adapt for emergency response personnel use. TLV/TWAs are expressed in ppm and mg/cu meter.
TOFC	Trailer-on-Flatcar, also see piggyback.
Toxic	poisonous, will cause damage to the human body when present in small amounts. The degree of toxicity will vary with different toxic materials, the amount of physical exposure, and the amount of exposure time.
Toxic Materials	substances that can be poisonous if inhaled, swallowed, absorbed, or introduced onto the body through cuts or breaks in the skin.
Toxicity	the sum of adverse effects resulting from exposure to a material, generally by ingestion, skin, or inhalation.
Unstable Materials	substances capable of rapidly undergoing chemical changes or decomposition.
Unified Command	a method for all agencies or individuals who have jurisdictional responsibility and in some cases have functional responsibility at the incident to contribute to determining overall objectives for the incident and selection of a strategy to achieve the objective.
Unit	that organization element having functional responsibility for a specific incident planning, logistic, or finance.
Unstable Materials	substances capable of rapidly undergoing chemical changes or decomposition.

Upper Explosive Limit (UEL)	also known as UFL 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.
Vapor	a gas given off with or without the aid of heat, by substances that under ordinary circumstances are either solid or liquid.
Vapor Density	the weight of a given volume of pure vapor or gas compared to an equal volume of dry air at the same temperature and pressure. A number less than one indicates a vapor lighter than air; a number greater than one indicates a vapor heavier than air.
Vapor Pressure	<p>the pressure exerted by the vaporization of a liquid in a closed container. When vapor pressure tests are performed on products, the test temperature is usually 68-100°F., and the vapor pressure is expressed as psig or psid. Vapor pressures reported on MSDSs are in millimeters of mercury (mm Hg) at 68°F, unless stated otherwise. The following facts are important to remember:</p> <ol style="list-style-type: none"> 1. Vapor pressure of a substance at 1°F. will always be higher than the vapor pressure of the substance at 68°F. 2. Vapor pressures reported on MSDS's in mm Hg are usually very low pressure; 760 mm Hg is equivalent to 14.7 psi. 3. The lower the boiling point of a substance, the higher its vapor pressure.
Vapor Space	space left empty inside a tank containing liquefied gas to allow for expansion for the gas due to normal changes in temperature.
Vaporization	the process of changing from liquid to vapor.

Viscosity	the flow resistance of a liquid. This characteristic increases or decreases with the temperature of the liquid. Low viscosity liquids have little adhesive qualities and hence flow freely.
Volatility	the tendency or ability of a liquid to vaporize (evaporate).
Warhead	the portion of a rocket or missile intended to be explosive or lethal.
Warm Zone	the area where personnel and equipment decontamination and hot zone support takes place. It includes control points for the access corridor and thus assists in reducing the spread of contamination. this is also referred to as the decontamination, contamination reduction, or limited access e/corridor.
Water Reactive Materials	substances, generally flammable solids, that will react in varying degrees when mixed with water or when they come in contact with humid air.
Water Solubility	the ability of a liquid or solid to mix with or dissolve in water.
Waybill	the shipping paper used by the railroads indicating origin, destination, route, and product. There is a way bill for each car and they are carried by the conductor.
Weak Seam	in oil tanks, a special roof-to-shell seam attachment that is designed to give under overpressure and release vapor from the vapor space.

2. ABBREVIATIONS:

ACGIH -	American Conference of Governmental Industrial Hygienists
BLEVE -	Boiling Liquid Expanding Vapor Explosion
CAS -	Chemical Abstracts Service
CBU -	Cluster bomb unit
CHEMTREC -	Chemical Transportation Emergency Center
CFR -	Code of Federal Regulations
COFC -	Container on Flat Car
DOT -	Department of Transportation
DS2 -	Decontaminating agent
EPA -	Environmental Protection Agency
HE -	High Explosive
ICM -	Improved Conventional Munition
ICP -	Incident Command Post
ICS -	Incident Command System
IDLH -	Immediately Dangerous to Life and Health
LC -	Lethal Concentration
LD -	Lethal Dose
LEL -	Lower Explosive Limit
LFL -	Lower Flammable Limit
MSDS -	Material Safety Data Sheet
NFPA -	National Fire Protection Association
NIIMS -	National Institute for Occupational Safety and Health
NOS -	Not Otherwise Specified
NSN -	National Stock Number
OSHA -	Occupational Safety and Health Administration
OCC -	Operations Coordination Center
OPLAN -	Operations Plan
ORM -	Other Regulated Materials
PEL -	Permissible Exposure Limit
ppb -	Parts Per Billion
ppm -	Parts Per Million
PSI -	Pounds per Square Inch
R -	Roentgen
REM -	Unit of Radiation Dose Equivalent
SG	Studyguide
SW -	Study Guide Workbook
STEL -	Short Term Exposure Limit
STCC -	Standard Transportation Commodity Code
TLV/C -	Threshold Limit Value/Ceiling
TLV/STEL -	Threshold Limit Value/Short Term Exposure Limit
TLV/TWA -	Threshold Limit Value/Time Weighted Average
T.O. -	Technical Order
TOFC -	Trailer on Flat Car
UEL -	Upper Exposure Limit

3. CHEMICALS:

<u>SYMBOL</u>	<u>CHEMICAL OR COMMON NAME</u>	<u>USE</u>
AC	hydrogen cyanide	blood
BZ	bz	incapacitating
CA	bromobenzylcyanide	tear
CG	phosgene	choking
CK	cyanogen chloride	blood
CN	chloroacetophenone	tear
CS	chlorobenzylmalononitrile	tear
DA	diphenylchloroarsine	vomit
DC	diphenylcyanoarsine	vomit
DM	adamsite	vomit
DP	diphosgene	choking
ED	ethyldichloroarsine	blister
GA	tabun	nerve
GB	sarin	nerve
GD	soman	nerve
H	levinstein mustard	blister
HC	hexachloroethane	smoke or incendiary
HD	distilled mustard	blister
HL	mustard/lewisite	blister
HN	nitrogen mustard	blister
L	lewisite	blister
MD	methyldichloroarsine	blister
PD	phenyldichloroarsine	blister
PWP	plasticized white phosphorus	smoke or incendiary
SA	arsine	blood
TEA	triethyl-aluminum	smoke or incendiary
UDMH	unsemmetrical dimethyl munitions	hydrazine
VX	vx	nerve
WP	white phosphorus	smoke or incendiary

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