

Glossary

Analyzer	A device used to determine what components are present and in what quantity. Most analyzers are designed to analyze only one component for a specific quantity range (i.e. a meter designed to measure ppm may have a hard time measuring percentages, and vice versa).
Anhydrous	A substance that contains no water.
Asphyxiant	A substance, such as a toxic gas, that reduces the concentration of breathable oxygen by displacement and induces asphyxia.
Atmosphere (atm)	A unit of pressure which is equal to the air pressure at sea level; 1 atm = 14.696 psia or 1 atm = 101.325kPa.
Atmospheric Pressure	The pressure at any point in the atmosphere exerted by the weight of the atmospheric gases. The value at sea level is 1 and reduces as altitude increases.
Auto Ignition Temperature	The lowest temperature at which a material will ignite or sustain combustion in the absence of a spark or flame.
Blanketing	The process of creating an inert atmosphere to prevent unwarranted reactions from occurring.
Boiling Point	The temperature at which the vapor pressure of a given liquid reaches atmospheric pressure, 14.7 psia
Calibration Gas	A gas mixture of known composition used for the calibration of an instrument or control of a process reaction.
Calibration Standards	Standard gases used to calibrate instruments
Carrier Gases	High-purity gases (helium, hydrogen and nitrogen) that are carried out the sample contents from GC column to the detector at particular temperature. Usually GC and GC-MS are used for such separation technique.
CGA	Compressed Gas Association. An association that sets standards for gas industry. Examples of CGA standards are cylinders, cryogenic vessels connection, and oxygen cleaning standards.
Cold Box	A box that contains cryogenic equipment.
Compressed Gas	Any gas having a critical temperature below -10 C.
Compressibility Factor	The ratio between the real property (pressure, volume, temperature) and its value in the ideal state according to the ideal gas law. The value $z = 1$ indicates that the gas follows the ideal gas law without deviation
Corrosive	A product that will deteriorate many substances it comes into contact with, such as metals, polymers or tissue.
Cracking	The method in which the kerosene friction could be changed

	into gasoline.
Critical Density	The density of a pure material at its critical temperature and critical pressure.
Critical Pressure	The pressure that is needed to cause the gas to condense at the critical temperature.
Critical Volume	The volume occupied by 1.0 gram-mole of a substance at its critical temperature and pressure.
Cryogenic	Refers to the field of low temperatures, usually -195 C or below.
Density	The ratio of the mass of a specimen of a substance to its volume. Formula: $d=m/v$; d-density, m-mass, v-volume
Dew Point	Temperature and pressure at which the liquefaction of a vapor begins. Usually applied to the amount of water vapor in some gas.
Dewar	Vessel, which contains cryogenic liquid gases.
Doping Gas	A gas or gas mixture used by the electronics industry to add controlled amounts of impurities to dope silicon or other semiconductors.
DOT	Department of Transportation. Regulates transportation of hazardous materials.
Electrolysis	Passage of an electrical current into a solution resulting in the disassociation of its ions.
Flammable Gas	Any gas that reacts with oxygen, whether pure or diluted (as in air), releasing a large quantity of heat and producing a flame.
Flammable Limits	The minimum or maximum concentration of a vapor in air, below or above which propagation of a flame does not occur on contact with a source of ignition. Normally referred as lower flammable limit (LFL) or upper flammable limit (UFL).
Flammable Liquid	A liquid with a flash point of less than 100°F.
Flammable Range	The temperature range in which a gas will form a flammable mixture with air.
Flash Point	The lowest temperature at which the vapor of a combustible liquid can ignite in air.
Fuel Gas	A combustible gas or gas mixture.
Fusible plug	A non-re closing pressure relief device designed to function by yielding or melting of a plug of material (usually a metal alloy) at a predetermined temperature.
Gas	A state of matter in which the material has a very low density and viscosity and can expand and contract greatly in response to changes in temperature and pressure. At this point, the substance easily diffuses into other gases, and readily and uniformly distributes itself throughout any container. A gas can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature (below the critical temperature).

Gas Chromatograph	An instrument used to separate a sample of a substance into its components. In chromatography a chemical substance is separated by making use of differences in the rates at which the substances travel through or along a stationary medium.
Halocarbon	A compound of carbon and halogen(s), such as the freon family of gases, or Genetron.
Hand wheel	A manually operable device attached to the valve stem through which the opening or closing of the valve is controlled.
Hydrocarbons	Organic compounds composed solely of carbon and hydrogen. Basic hydrocarbons are: C ₃ H ₈ (propane), CH ₄ (methane), C ₆ H ₁₄ (hexane), and C ₃ H ₆ (propylene).
Hydrolysis	Decomposition of a chemical compound by reaction with water. The water reacts with the compound to produce other compounds through the splitting of a bond forming a weak acid or base or both.
Hydrostatic Test	A cylinder test required by the Department of Transportation to determine the elastic expansion of the cylinder. Hydrostatic testing is done to insure the integrity of pressure vessels.
Industrial Gases	Packaged oxygen, nitrogen, argon, helium, hydrogen, acetylene, Acachi, and carbon dioxide, NH ₃ .
Inert	A material, which under normal temperatures and pressures does not react with other materials.
Inert Gas	A gas that exhibits great stability and extremely low reaction rates under normal temperature and pressure conditions. The noble gases (He, Ar, Kr, Xe), in which no chemical reaction takes place under NPT, are called inert gases.
Inerting	Process of purging a container or covering a product with a non-reactive atmosphere such as nitrogen, carbon dioxide, argon, or helium.
Inhibited	A gas that has had a substance added to prevent or deter its reaction whether with other materials or itself (polymerization). Usually used to deter polymerization.
Kelvin scale	The fundamental temperature scale (also called the absolute, or thermodynamic, scale) independent of the thermometric properties of the working substance.. The temperature measurement is based on the average kinetic energy per molecule of a perfect gas. The zero of the Kelvin scale is -273.16°C (-459.67°F). A unit Kelvin change is equivalent to a degree Celsius (°C) change. To convert from degree Fahrenheit (°F) use the formula: $TK = (t^{\circ}F + 459.67)/1.8$. Symbol: K.
Kpa	One pound per square inch (psi) of pressure is equivalent to 6.894757 kPa. As used in the handbook, the term kPa refers to gauge pressure whereas the term kPa abs refers to absolute pressure.
LEL	Abbreviation for Lower Explosive Limit. The lower limit of the flammable range. Synonym: lower flammable limit.

Leak Detector	Instrument using helium or halocarbon sensor to identify small leaks in piping systems.
Liquefied Compressed Gas	A gas which is partially liquid at its charging pressure and a temperature of 70°F.
Liquefied Gas	Any gas having a critical temperature of –10°C or above.
LNG	Liquid Natural Gas.
LPG	Liquefied Petroleum Gas.
MAWP	Maximum Allowable Working Pressure. This is the maximum design pressure of a system or vessel. This is the point at which the safety valves are set, not the maximum pressure the system can operate at.
Minimum pressure	Minimum pressure rating. With respect to compressed gas containers, the term minimum pressure refers to the lowest service pressure rating authorized for cylinders of that specification in a particular gas service. For example, if specification 3A480 cylinders were authorized, specification 3A1000 or 3A2200 cylinders could also be used.
Mole	The amount of a substance containing the same number of atoms as 12 grams of pure carbon (C ¹²). A gram-mole (gram molecule) contains 6.0225 x 10 ²³ molecules of the substance.
Molecular Sieve	Material used to separate gases in pressure swing adsorption. Molecular sieves absorb molecules and separate them by size.
Molecular Weight	The sum of atomic weights of all the constituent atoms in a molecule.
MSDS (Material Safety Data Sheet)	Describes the physical and health hazards of each gas. These data sheets also provide precautionary information on the safe handling of the gas as well as emergency and first aid procedures.
Oxidant	A gas that supports combustion.
Oxidizer or Oxidizing Agent	Any substance that promotes oxidation of another substance, either by accepting electrons or hydrogen ions. Oxidizers support (or in some case, cause) combustion; for example, oxygen, nitrous oxide or chlorine.
Partial Pressure	The pressure exerted by a designated component, or components, of a gaseous mixture.
PEL	Permissible Exposure Limit.
PPM	Parts Per Million, a convenient means of expressing very low concentrations of a substance in a mixture, or a low level contaminant in a pure product.
Pressure relief valve	A type of pressure relief device designed to relieve excessive pressure. The valve re-closes and reseals, preventing further flow of fluid from the cylinder after reseating pressure has been achieved.
psia	Pounds per square inch absolute. One atmosphere pressure equals 14.696 psia. psia = psig + 14.696.
psig	Pounds per square inch gauge. Gauge pressure always ignores the first atmosphere absolute (14.696 psia).
Purging	Processes of expelling an unwanted gas or liquid from a

	system through the introduction of a different gas or liquid until the last vestiges of unwanted gas or liquid have been removed.
Purifier	Device to purify a gaseous product stream to lower impurity levels than originally in the gas stream.
Pyrophoric	Materials that spontaneously ignite on contact with air at normal conditions.
Rare Gases	Refer to those constituents of air that comprise less than 1% of air and are generally considered inert: argon, helium, krypton, neon and xenon.
Relative humidity	The ratio, expressed as a percentage, of the amount of water vapor present in the air at a specific temperature to the maximum amount the air could hold at that temperature.
Rupture disk	The operating part of a pressure relief disk which, when installed in the device, is designed to rupture at a predetermined pressure to permit discharge of the cylinder contents.
Safety Relief Device	A safety device usually incorporated in a cylinder valve and actuated by excessive pressure or temperature, or both, at predetermined limits to avoid failure of the pressure vessel.
Solubility of a Gas	The ratio of concentration of gas in the solution to the concentration of gas above the solution. The dissolving process for gases is an equilibrium. The solubility of a gas depends directly on the gas pressure. If the temperature remains constant, increasing the pressure will increase the amount of dissolved gas.
Span Gas	Usually gas mixtures used to “span” or calibrate a process or laboratory instrument. A span gas has a precisely defined concentration of the analyte gas to which the analyzer responds.
Specialty Gases	Products with flammable, toxic, corrosive and hazardous properties that can cause serious accidents, injuries and even death if proper precautions and safety practices are not observed when handling these kinds of products.
Specific Gravity	The ratio of the weight of a given volume of a substance to the weight of an equal volume of a reference material, namely water for solids and liquids, and air for gases.
Specific Volume	Volume of a unit mass of a substance at a given temperature. Expressed as cubic feet per pound at 70°F, as used in this catalog.