

Absolute Pressure – The total pressure exerted on a system, equal to the gauge pressure plus atmospheric pressure. Absolute pressure is designated as PSIA. Often pressure measurements utilize a gauge to record the difference between the system and the atmospheric pressure. This is called gauge pressure and is designated as PSIG.

Atmospheric Pressure – The pressure exerted by the weight of the atmosphere at sea level, equal to 14.696 PSI or 0.98692 Bar.

Absolute Zero – The zero point of the ideal gas temperature scale designated as 0° Kelvin, -273.15° Celsius, and -459.67° Fahrenheit.

Absorption – Physical or chemical process in which the atoms or molecules of a material penetrate into another material. The atoms or molecules are taken up by the volume in the material, not the surface.

Adsorption – Adhesion of the atoms or molecules of a material to the surface of another material (called an adsorbent). Usually a gas, a liquid or a dissolved substance will adhere to the surfaces of a solid.

Anhydrous – The general term describing a material that does not contain any water molecules.

Atomic Weight – Ratio of the average mass of a chemical element's atoms to carbon-12. The standard atomic weight of a naturally occurring element is the ratio of the weighted average of all of the naturally occurring isotopes to carbon-12, expressed in atomic mass units.

Atomic Mass Unit – 1/12th the mass of carbon 12.

Asphyxiant Gas – Non-toxic gas that can displace the oxygen containing atmosphere, resulting in unconsciousness and death.

ACGIH – American Conference of Government Industrial Hygienists – Professional Society devoted to the advancement of occupational and environmental health.

Boiling Point – Temperature at which the pressure of a liquid is equal to the pressure exerted by the surrounding atmosphere. See Normal Boiling Point.

BTU – British Thermal Unit – The quantity of heat required to raise the temperature of one pound of water 1° F.

Calibration Gas – A gas or gas mixture of accurately known composition used as a comparative standard.

Calorie – The amount of heat required to raise the temperature of one gram of water 1° C.

Catalyst – A substance that reduces the activation energy of a chemical reaction. Catalysts participate in reactions, but are not consumed by the reaction.

CGA – Compressed Gas Association – Professional Organization dedicated to the development and promotion of Safety Standards and Safe Practices in the Industrial Gas Industry.

CAS – Chemical Abstract Services – A division of the American Chemical Society (ACS) that provides comprehensive databases of publicly disclosed research in chemistry and related sciences, including the world's largest collection of substance information, the CAS RegistrySM.

Compressed Gas – Any Material or mixture with a pressure exceeding 40 PSIA at 70° F or having an absolute pressure exceeding 104 PSIA at 130° F or any flammable liquid having a vapor pressure exceeding 40 PSI at 100° F.

Corrosive – A Chemical compound which visibly destroys or irreversibly damages living tissue or chemically attacks and eats away rubber, metal, or other substances.

Critical Temperature – The lowest temperature at which a gas cannot be liquefied, no matter how much pressure is applied. At this temperature, the liquid and gas have the same density.

Critical Pressure – The pressure required to liquefy a gas at its critical temperature.

Cryogenic Liquid – A liquid with a boiling point below -60° C.

Density – The ration of the mass of a substance to its volume.

DOT – Department of Transportation – Government agency whose purview is to regulate the transportation of hazardous materials.

Dew Point – The temperature at which water vapor begins to condense into liquid water.

EPA – Environmental Protection Agency

– Government agency established in 1970 for the establishment and enforcement of environmental protection standards.

Fill Density – The percent ratio of the weight of a liquefied gas in a container to the weight of the water that the container will hold at 68° F.

Flammable Limits – The concentration of a flammable vapor in air at normal atmospheric pressure and temperature that will propagate a flame upon contact with an ignition source. See LEL, UEL.

Flash Point – The lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air.

Inert Gas – A gas which does not react with other materials at NTP.

Liquefied Compressed Gas – A gas that can be liquefied in a container with increased pressure at normal temperature.

LEL – Lower Explosive Limit – The maximum concentration of a specific flammable vapor in air at NTP that will propagate a flame upon contact with an ignition source. Concentrations below this level will not propagate a flame upon contact with an ignition source.

Mole – The mass in grams of a substance that is equal to the molecular weight the substance. Also called gram molecular weight.

Molecular Weight – The sum of the atomic weights of all atoms in a molecule.

Normal Boiling Point – The temperature at which the vapor pressure of a liquid equals 1 atmosphere (14.696 PSIA).

NTP – Normal Temperature and Pressure – 20° C and 760 torr.

OSHA – Occupational Safety and Health

Administration – An agency of the Department of Labor whose mission is to prevent work related injuries and illnesses by issuing and enforcing standards for workplace safety and health.

Oxidizer – Substance that causes or contributes to the combustion of another material. An oxidizer is not necessarily combustible in itself.

PPM – Parts Per Million – Notation for specifying precise amounts of very low concentrations of chemical elements or compounds. For gases, denotes the number of molecules of a gas or gas mixture found in every 1 million molecules of the gas of gas mixture.

Specific Gravity – The ration of the weight of a given volume of a substance to the weight of an equal volume of a reference material. Liquids and solids are normally compared to water (sp. gr. of H₂O = 1), while gases are normally compared to air (sp. gr. of air = 1).

Specific Heat – The amount of heat required to change the temperature of a unit of mass (or a quantity, such as a mole) of a substance one degree at either constant pressure (CV) or constant temperature (CP).

Specific Volume – The volume occupied by a unit mass of a material at a given temperature. The specific volume of a gas is normally expressed as cubic feet of volume per pound of gas.

STP - Standard Temperature and Pressure – 0° C at 760 Torr.

Torr – Common unit of measure for vapor pressure. 1 Torr = 1 mm of mercury.

Toxic Gas – A gas that has an LC50 in air of 200 PPM or less. Even low concentrations of a gas may cause injury or death.

UEL – Upper Explosive Limit – The maximum concentration of a specific flammable vapor in air at NTP which will propagate a flame upon contact with an ignition source. Concentrations above this level will not propagate a flame upon contact with an ignition source.

Vapor Pressure – The pressure exerted by a vapor in equilibrium with its liquid or solid phase at a given temperature. The vapor pressure of gases is normally measured at 70° F.