

Absolute Pressure – A quantity of pressure measured with respect to total vacuum. Equal to the sum of a pressure gauge reading and atmospheric pressure.

Absolute Zero – The minimum point in thermodynamic temperature scale (-273.16 °C or -459.69 °F)

Absorption – The penetration of matter in bulk into other matter, as in the dissolving of a gas in liquid.

Accuracy – The degree of agreement of a measured value with the true or expected value of the quantity of concern.

Adsorption – Adherence of the atoms, ions or molecules of a gas or liquid to the surface of another substance, called the adsorbent. Molecular Sieves are adsorbents.

American Conference of Governmental Industrial Hygienists (ACGIH) – This Conference is a professional society, not an official Government Agency. It is an organization devoted to the development of administrative and technical aspects of worker protection.

Anhydrous – A descriptive term meaning without water.

Annealing Gas – A hydrogen and nitrogen mixture used to provide a reducing atmosphere during heating of metals to render them less brittle on cooling.

Asphyxiant Gas – A gas which has little or no positive toxic effect but which can bring about unconsciousness and death by replacing air and thus depriving an organism of oxygen.

Attached Poppet (Tied-Seat; Tied-Diaphragm) – A feature of certain regulators whereby the stem (poppet) is physically attached to the diaphragm.

Atomic Weight – The relative weight of an atom of an element, compared to carbon-12. Equivalent to the sum of protons and neutrons in the nucleus.

Azeotropic Mixture (Azeotrope) – A liquid mixture of two or more substances which behaves like a single substance in that the vapor produced by partial evaporation of liquid has the same composition as the liquid. The constant boiling mixture exhibits either a maximum or minimum boiling point as compared with that of other mixtures of the same substances.

Back Pressure Regulator – A pressure regulator which controls upstream (inlet) pressure. Similar in function to a relief valve.

Balanced Poppet (Balanced Valve; Balanced Stem) – A valve which has been designed to be pressure balanced; hence the valve spring provides the shutoff force. Used essentially to reduce or minimize decaying inlet pressure effect.

Boiling Point – The temperature at which the vapor pressure of the liquid is equal to the prevailing pressure of the atmosphere. The normal boiling point is the temperature at which the vapor pressure of the liquid is 14.7 psia (1 atm).

Bonnet (Spring Housing) – The part of a regulator which houses the control spring.

Bourdon Tube – A curved metal tube, sealed at one end, which flexes to a known degree when pressurized internally.

Brass – Copper/zinc alloys of varying composition. Some brass also contains low percentages of other elements such as manganese, aluminum, silicon, lead and tin.

British Thermal Unit (BTU) – The quantity of heat required to raise the temperature of one pound of water one degree F at or near its point of maximum density (39.1°F).

Bursting Disk (Frangible Disk) – A metal disk which is part of a safety device, and which is intended to burst and allow gas to escape within predetermined pressure limits to prevent rupture of the device it is installed on. Similar in function to a safety relief valve, except it has no reseal capability.

Burst Pressure – A design test pressure which allows for permanent deformation and leakage, but parts must remain assembled (i.e., no sudden ruptures). Normal industry standard is 4 times (400%) of maximum operating pressure. See also “Proof Pressure” and “Maximum Operating Pressure.”

Calibration – Comparison of a measurement standard or instrument with another standard or instrument to report or eliminate by adjustment any variation (deviation) in the accuracy of the item being compared.

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

Calorie – The amount of heat required to raise the temperature of one gram of water one degree Celsius.

Carrier Gas – Gas used with a gas chromatography to carry the sample through the system.

Catalyst – A substance that initiates a chemical reaction and allows it to proceed under different conditions than otherwise possible.

CGA Number – Cylinder/container valve outlet connection number assigned by the Compressed Gas Association. CGA numbers are detailed in CGA Standard V-1.

Chemical Abstract Services (CAS) – CAS numbers represent chemical substances recorded in the CAS Chemical Registry System. This numbering system identifies chemical substances by an unambiguous computer language description of its molecular structure, including all stereo-chemical detail. The CAS number, which has no chemical significance, is simply a number assigned in sequential order to each substance as it enters the Registry System. All specific substances reported in the world's scientific and technical literature and indexed in Chemical Abstracts, (CA) since 1965 (when the Registry System began) are included in this master file.

Chemiluminescence – A species which chemically absorbs and emits light (usually at low temperatures).

Chromatogram – The record produced by the gas liquid chromatograph. It is also a measure of instrument performance.

Coefficient of Flow (Cv) – Defined as the actual flow performance in U.S. gallons of water per minute at 60 °F when inlet pressure (P1) is 1 psig and outlet pressure (P2) is atmospheric (14.7 psia).

Column – Part of the gas chromatography system where the separation of the sample takes place (can be packed or capillary).

Combustion – An exothermic oxidation reaction which may occur with any organic compound, as well as with certain elements.

Compressed Gas – (1) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F; or (2) a gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F regardless of the pressure at 70 °F or (3) a liquid flammable material having a vapor pressure exceeding 40 psi at 100 °F as determined by ASTM D-323-72.

Compressed Gas Association (CGA) – This is a nonprofit technical association whose membership includes many corporations active in all phases of the compressed gas industries. Founded in 1913, the CGA uses experience and knowledge of its members to promote industry wide standards and procedures for safety in the manufacture, storage, transport and use of compressed gases.

Corrosive – The ability of a chemical compound to attack and produce irreversible damage to human tissues, such as eyes, skin or mucous membranes. Also, the ability of a chemical compound to attack and eat away rubber, metal and other substances.

Cracking Pressure – A term used in back pressure control only (e.g., back pressure regulators, relief valves), for determining the inlet pressure at which flow starts.

Creep – Any increase in outlet pressure of a pressure regulator subsequent to lockup. Usually seen as a long term slow pressure increase. This generally indicates a seat leak which is an abnormal condition.

Critical Density – The density of a pure material at its critical temperature and critical pressure.

Critical Point – The transition point at which the liquid and gaseous states of a substance merge into each other. It is the temperature above which a substance cannot exist in two phases, no matter how great the pressure. See also “Critical Temperature” and “Critical Pressure.”

Critical Pressure – At the critical temperature, the highest pressure at which a pure material can exist as a gas in equilibrium with its liquid.

Critical Temperature – The temperature above which a gas cannot be liquefied by pressure alone. At this temperature, there is no distinction between liquid and vapor, both having the same density and constituting one homogenous system.

Cryogenic Liquid – A liquid having a normal boiling point below -240 °F (-151.11 °C).

Cryoogenic Liquid Container – An insulated container designed to store, handle and transport liquids having boiling points below -130 °F.

Cylinder – A container designed to hold compressed gases or liquefied compressed gases. Cylinders are manufactured and tested according to DOT/TC/MEX specifications.

Dehydration – Removal of one or more molecules of water from a chemical compound.

Delayed (Chronic) Health Hazard – See “EPA Hazard Categories.”

Delivery Pressure – See “Outlet Pressure.”

Density – The ratio of the amount of anything per unit volume: e.g., mass of any substance per unit volume at any definite temperature. It is usually expressed in pounds per cubic foot (lbs/ft³). See also “Specific Gravity.”

Department of Transportation (DOT) – This is a government agency whose Title 49, Code of Federal Regulations regulates the transport of hazardous materials.