

Glossary of Terms

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– Descriptive of an inorganic compound that does not contain water.

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

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.

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.

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 3-4 times (300-400%) 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.

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 Service (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.

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).

Compressed Gas Association, Inc. (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 mucus 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.

Cryogenic– Refers to the field of low temperatures, usually -130°F or below as defined by 173.300(f) of Title 49 of the Code of Federal Regulations.

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

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

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

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".

Dew Point– The temperature at which the liquefaction of vapor begins; the term is usually applied to condensation of moisture from the water vapor in the atmosphere.

Droop– The decrease in outlet pressure of a pressure regulator which results from an increase in flow rate. Essentially the reverse of lockup. Also see "LOCKUP".

Glossary of Terms (continued)

Environmental Protection Agency (EPA)– This is a governmental agency that establishes environmental standards within the United States.

EPA Hazard Categories– The Hazard categories used throughout this catalog as defined under EPA SARA Title III and 1910.1200 of Title 29 of the Code of Federal Regulations are as follows:

“Immediate (Acute) Health Hazard” including highly toxic, corrosive, toxic, irritant, sensitizer, and other hazardous chemicals which cause an adverse effect to a target organ which manifests itself within a short period of time following a one-time, high exposure to the substance.

“Delayed (Chronic) Health Hazard” including carcinogens and other hazardous chemicals which cause an adverse effect to a target organ which manifests itself after a long period of time following or during repeated contacts with the substance.

“Fire Hazard” including flammable, combustible pyrophoric, and oxidizer.

“Sudden Release of Pressure Hazard” including explosive and compressed gas.

“Reactive Hazard” including unstable reactive, organic peroxide, and water reactive.

Exposure Limits– Concentrations of substances (and conditions) under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effects. ACGIH limits are called TLV and OSHA exposure limits are called PEL. See “THRESHOLD LIMIT VALUE”.

Flow Capacity– The maximum flow capacity of a control device established at a specific set of conditions.

Fluid– Any material or substance that changes shape uniformly in response to an external force imposed upon it. The term applies to liquids, gases and finely divided solids.

Hydration– The reaction of molecules of water with a substance in which the H-OH bond is not split.

Inlet Pressure (P1; Supply Pressure; Upstream Pressure)– The pressure of the fluid to the supply connection of a control element.

Lockup– The increase in outlet pressure of a pressure regulator that occurs when flow is stopped. Essentially the reverse of droop. Also see “DROOP”.

Manifold– A series of connectors to a common outlet allowing several cylinders to be used simultaneously.

Maximum Operating Pressure– The maximum allowable use pressure for which a system is designed. Also referred to as “working pressure”.

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

Mole– The weight of a substance equal numerically to its molecular weight. A gram-mole is the weight in grams equal to the molecular weight; a pound-mole is the weight in pounds equal to the molecular weight.

Molecular Weight– The sum of the atomic weights of all the constituent atoms in the molecule of an element or a compound.

Normal Temperature and Pressure (NTP)– A gas industry reference base. Normal temperature is 70°F. Normal pressure is one atmosphere or 14.696 psia.

Outlet Pressure (P2; Delivery Pressure; Downstream Pressure)– The pressure of the fluid from the discharge connection of a control element.

Polar– Descriptive of a molecule in which the positive and negative electrical charges are permanently separated, as opposed to nonpolar molecules in which the charges coincide. Polar molecules ionize in solution and impart electrical conductivity.

Proof Pressure– A test pressure applied to control devices to verify structural integrity. No deformation or excessive leakage is permitted at this pressure and control element must function normally subsequent to this test. Normal industry standard is 1.5 times (150%) of working pressure. See also “BURSTING PRESSURE” and “MAXIMUM OPERATING PRESSURE”.

Relief Valve– A type of pressure relief device which is designed to relieve excessive pressure, and to reclose and reseal to prevent further flow of gas from the cylinder after reseating pressure has been achieved.

Self-Relieving (Self-Venting)– A feature incorporated in certain pressure reducing regulators which enables the unit to relieve the outlet pressure when adjusted in the decrease direction.

Specific Gravity (Sp. Gr.)– The ratio of the weight of one substance compared to the weight of an equal volume of another substance which is used as a standard. Usually gases are compared to air (air=1) while liquids and solids are compared to water (H₂O=1).

Specific Volume (Sp. Vol.)– Volume occupied by a unit mass of a substance at a given temperature. It is usually expressed in cubic feet per pound or gallons per pound.

Spring Housing– See “BONNET”.

Stainless Steel– Alloy steels containing high percentages of chromium, from less than 10% to more than 25%.

Standard Temperature and Pressure (STP)– An internationally accepted reference base. Standard temperature is 0°C. Standard pressure is one atmosphere or 14.6960 psia.

Tare Weight– The weight of an empty cylinder without cap and valve.

Threshold Limit Value (TLV)– TLVs are measures of toxicity established by ACGIH. The TLV of a substance refers, in general, to airborne concentrations at or below which nearly all workers may be repeatedly exposed without adverse effect.

Threshold Limit Value-Time Weighted Average (TLV-TWA)– Refers to the time-weighted average concentration for a normal 8 hour workday and a 40 hour workweek to which nearly all worker may be repeatedly exposed, day after day, without adverse effect.

Tied-Diaphragm– See “ATTACHED POPPET”.

Tied-Seal– See “ATTACHED POPPET”.

Upstream Pressure– See “INLET PRESSURE”.

Vapor Pressure– The pressure characteristic at any given temperature of a vapor in equilibrium with its liquid or solid form.

Working Pressure– See “MAXIMUM OPERATING PRESSURE”.