



## Glossary of Terms

**Abort Gate / Abort Damper:** A device for the quick diversion of material or air to the exterior of a building or other safe location in the event of a fire.

**Authority Having Jurisdiction (AHJ):** an organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, and installation, or a procedure.

**Approved:** Acceptable to the authority having jurisdiction.

**Backflow Damper:** Backflow dampers are designed to activate under back-pressure and relieve hazardous conditions from pneumatic conveying systems. Typical installations locate the backflow damper prior to dust collection equipment or after process equipment, which may have the potential to generate and introduce sparks into a pneumatic system. The unit has an explosion vent mounted on the topside for pressure relief. In the event that an explosion is traveling back down the pipe, the damper blade will automatically slam shut and the explosion vent diaphragm will rupture, venting to atmosphere.

**Combustible Dust:** A combustible particulate solid that presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape.

**Combustible Particulate Solid:** Any combustible solid material composed of distinct particles or pieces, regardless of size, shape, or chemical composition.

**Class II locations:** Class II locations are those that are hazardous because of the presence of combustible dust. The following are class II locations where the combustible dust atmospheres are present:

Group E. Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, and other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment.

Group F. Atmospheres containing combustible carbonaceous dusts that have more than 8 percent total entrapped volatiles (see ASTM D 3175, Standard Test Method for Volatile Matter in the Analysis Sample of Coal and Coke, for coal and coke dusts) or that have been sensitized by other materials so that they present an explosion hazard. Coal, carbon black, charcoal, and coke dusts are examples of carbonaceous dusts.

Group G. Atmospheres containing other combustible dusts, including flour, grain, wood flour, plastic and chemicals.



**Deflagration:** Combustion that propagates through a gas or along a surface of an explosion at a rapid rate driven by the transfer of heat; to burn or cause to burn with great heat.

**Deflagration Isolation:** A method employing equipment and procedures that interrupts the propagation of a deflagration of a flame front, past a predetermined point.

**Deflagration Suppression:** The technique of detecting and arresting combustion in a confined space while the combustion is still in its incipient stage, thus preventing the development of pressures that could result in an explosion.

**Deluge:** Overflow, Flood.

**Detonation:** To explode with sudden violence.

**Dust-ignitionproof:** Equipment enclosed in a manner that excludes dusts and does not permit arcs, sparks, or heat otherwise generated or liberated inside of the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specified dust on or in the vicinity of the enclosure.

**Dust Testing:** Used to evaluate the characteristics of the product that is being collected or transferred to verify  $k_{st}$  and  $p_{max}$  for the application of venting, suppression or isolation. Each particular type of dust should be tested instead of using the general classifications that are published.

**Dusttight:** Enclosures constructed so that dust will not enter under specified test conditions.

**Explosion:** The bursting or rupture of an enclosure or a container due to the development of internal pressure from a deflagration.

**Explosion Isolation:** System or single device, which prevents the propagation of explosion effects from one volume to an adjacent volume.

**Explosion Pentagon:** Fire triangle plus two additional elements: (1) dispersion of dust particles in sufficient quantity and concentration, (2) confinement of the dust cloud.

**Fire Triangle:** Consists of three elements, combustible dust (fuel), ignition source (heat), and oxygen in air (oxidizer). Eliminate one of the elements and the fire would be extinguished.



**Flameless Venting:** - Suppressing flame front allowing off gases (pressure) to escape

- Quench the flame when it ejects from an explosion vent
- Extinguishes the flame from a vented explosion

**Hybrid Mixture:** A mixture of a flammable gas with either a combustible dust or a combustible mist.

**Interconnected:** The connection of process equipment to each other or to a filtration, cyclone, separator, which would allow an explosion to travel between equipment generating secondary explosions.

**Kst:** The dust explosibility constant, defined as the maximum rate of pressure rise of a dust explosion in a 1 cubic meter vessel.

**Listed:** Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

**Magnet Separators:** Used to extract tramp metal from a process to eliminate the possibility of sparks being generated.

**Minimum Explosible Concentration (MEC):** the minimum concentration of combustible dust suspended in air, measured in mass per unit volume that will support a deflagration.

**Minimum Ignition Energy (MIE) –** The minimum energy that can ignite a mixture of a specified flammable material with air or oxygen, measured by a standard procedure.

**Pmax:** The maximum pressure developed in the 20 liter sphere when testing dust for explosibility characteristics by ASTM E1226 method. (It is a factor used to help size explosion vents and suppression.)

**Pred:** Highest explosion pressure in a vessel protected with explosion vents; usual units are barg (bar, gauge; unit of pressure) or psig. (How much pressure can the vessel structure strength withstand.)

**Propagates:** To cause to spread out and affect a greater number or greater area.

**Pstat:** Explosion vent relief pressure; usual units are barg or psig.



**Return Air:** Recycling of air through a baghouse, cyclone, separator, and returning it back to the building.

**Separation:** The interposing of distance between the combustible particulate solid process and other operations that are in the same room.