KAESER COMPRESSORS

HAZARDOUS AREA CLASSIFICATION CONSIDERATIONS

Wayne Perry, Senior Technical Director
Kaeser Compressors, Inc.

In the past, seeing the term “Hazardous Location” usually meant that the equipment being requested was destined for a chemical plant, refinery, or drilling platform. Today, we are seeing hazardous locations in sugar mills, grain storage facilities, and anywhere there may be flammable liquids, gasses, or dust present. Hazardous areas are defined as areas where the presence of flammable gases or liquids, combustible dusts, or easily ignited fibers exist in sufficient concentrations to cause a fire or explosion, provided a source of ignition. These areas range from portions of a room to whole plant sites.

Partly due to this expanded use of the classification system, specifiers are increasingly citing requirements for equipment suitable for use in classified areas. When properly used, the hazardous area classification system makes for a safer work environment. Too often, however, hazard classes are specified without concern for the significantly higher design and procurement costs they bring. In many cases, an open mind and a little ingenuity can avoid excessive costs for compressors and other equipment, without compromising safety.

Classification Systems

There are some differences between the classification system in North America and the system used in other parts of the world. In North America, the most common method for defining hazardous areas is by Class, Division, and Group. Classes are used to identify the type of material that may be found in the atmosphere:

Class I – Flammable gases and vapors in quantities sufficient to produce ignitable or explosive mixtures

Class II – Combustible or conductive dusts present in the atmosphere

Class III – Ignitable fibers or flyings are in the atmosphere, but not likely to be in sufficient quantities to produce ignitable mixtures.

Divisions are used to identify the probability that an ignitable substance will be in the atmosphere in concentrations that would support ignition:

Division 1 – The substance is present during normal operating conditions. This is further defined as being more than 10 hours per year.