

Explosions and Inspection



Know Your Ex #0001



PREVENTION OF EXPLOSIONS

In Explosion-protection, prevention of explosions is the basic goal and main line of defense – deploying the techniques of substitution or elimination, control and mitigation of explosion risk of flammable material.

Expressed in the fire triangle, the risk of explosion is lowered by deploying the techniques of substitution/elimination, control and mitigation of explosion risk is achieved by striking off one of the three elements required to cause an explosion.

In Explosion-protection, it is not merely the selection of certified equipment with Ex markings that determines the equipment safe to be used in a hazardous area.

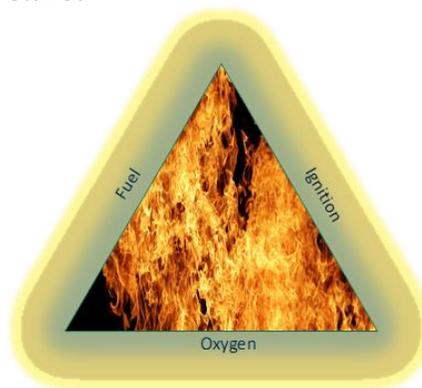
The classification of the hazardous area, the correct selection of the equipment to match the area, the installation and the inspection and maintenance of Ex equipment are

some of the crucial steps in ensuring that this safety critical element of the facility is correctly dealt with.

In IEC 60079-14, the requirements for design, selection, erection and initial inspection of electrical equipment to be used in hazardous areas are defined.

In IEC 60079-17, factors directly related to the inspection and maintenance of electrical installations within hazardous areas are addressed.

In IEC60079-19, the requirements for the overhaul and repair of Ex equipment is detailed.



GRADES OF INSPECTION

The grade of inspection according to IEC 60079-17 may be visual, close or detailed. In a visual inspection, the defects can be identified the use of access equipment and tools.

A close inspection covers all aspects of a visual inspection and in addition identifies defects which will be apparent by the use of access equipment and tools. The enclosure is not opened, and the equipment remains energized.

A detailed inspection covers all the aspects of visual and close inspections and in addition identifies defects which will only be apparent by opening the enclosure and using tools and test equipment. Typically, a detailed inspection is carried out while the equipment de energized.

Types of Inspection

Initial inspections are used to check that the selected type of protection and its installation are appropriate based on detailed inspections. This is required before plant or equipment is brought into service according to IEC 60079-14.

IEC 60079-17 covers factors directly related to the inspection and maintenance of electrical installations within hazardous areas and three types of inspections are detailed - periodic, sample and continuous supervision.

Periodic inspections which may be of visual, close or detail grades. The interval between periodic inspections shall not exceed three years without seeking expert advice.

Sample inspections may be visual, close or detail grades and its composition shall be determined with regards to the purpose of the inspection.

Continuous supervision is usually done with visual and close grades of inspection and is intended to apply to plants where regular maintenance activities are undertaken by competent personnel who have experience in the specific installation and its environment.

In all cases, it is required that only skilled personnel are allowed to carry out inspections for Ex equipment in hazardous areas.

Initial inspections before plant brought into service according to IEC 60079-14.



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