

## Intrinsically Safe Equipments

Now a days working in an organization which is in explosive environment, you need to protect yourself. And for this there are many types of equipment available to protect you. Some of them are mentioned below.

- 1. Intrinsically Safe Drilling Machines:** In coal mines and other explosive atmosphere industries drilling machines causes most of the explosion because these machines works at a very high voltage and produces sparks when started or closed. Due to high speed of drilling needle it gets heated frequently. Thus to protect this drilling machine is protected by polymers and hence reduces the explosion caused by drilling machine.
- 2. Intrinsically Safe Mobile:** Communication is most common in an industry. Without communication an industry can stand. Communication is necessary to build relation, to instruct your employee, to process data in your organization etc. Thus intrinsically safe mobile are used in Explosive Atmosphere.
- 3. Gas detectors:** In chemical industries or in explosive area gases play an important role. If the level of explosive gases increases then the chances of explosion also increases. The gas detectors intrinsically safe equipment detects the level of explosive gases in the atmosphere and gives warning is the level of gases exceeded the safety level. Due to which the frequency of explosion can be reduced.
- 4. Optical radiation equipments:** These are used for protection of equipment and transmission systems using optical radiation. The optical radiations help in detecting whether the machine fit or not. Its optical radiations checks any wave or transition power exceeds, a warning is issued that the system needs to be cool down.
- 5. Pressure equipment:** The normal atmospheric pressure is 1-bar. But at petrochemical industries, nuclear power plants and chemical plants this level is changed to make reaction rate fast and appropriate. If this changed level increases the ability of the furnace to bear this pressure reduces and suddenly it can explode. Thus pressure equipments are used to detect the level of level of pressure at explosive atmosphere.
- 6. Safety requirements for the design and construction:** The ability of design to bear the pressure and other safety measure are required before accepting the construction of the plants.
- 7. Explosion prevention and protection:** There is a high probability for every organization that the explosion can occur at any moment of time. Thus they

should adapt appropriate technique of prevention and protection. They have to design the plant in such a way that any probability of causing explosion is covered in it and the solution to prevent them self at that moments should be there. They should also have the facility of first aid.

- 8. Intrinsically Safe LED-Head lamp:** This head lamp is used in helmet or directly into the head to provide light in mines (e.g. coal mines). It is light weighted, hence you can work easily with this.

**Technical data**

CE designation:	CE 0102
Operating time:	> 4 hours (continuous operation)
Power supply:	2x LR03 (Micro, AAA) (type-approved batteries)
Dimensions:	approx. 45 mm x 70 mm
Weight:	approx. 90 g (with batteries)
Protection rating:	IP67

- 9. Safety of industrial trucks:** In all the industries transport is need to ship their products and services from factory to local market or other factories. For this, heavy vehicles are needed like truck. In explosive environment they can lead to explosion is they are not prevented properly. Thus, they are made to operate in explosive environment like in flammable gas, vapor, mist and dust. Reciprocating internal combustion engines technology is used to shield these trucks engine and to protect the explosion.

- 10. Coating plants:** This is another technique used to protect explosion in such an environment. In this the machines are dipped in an organic liquid coating material to provide a shield from outside environment.

- 11. Leak detection systems:** Leak detection system is a technique to detect the leakage in the plant. If the level of explosive gases exceeded this system will issue a warning. It is the most common technique to detect the level of explosive gases in environment. Whenever the level changes it detect whether the new level is below danger or not. If it exceeded danger level then a warning is generated. It also helps in detecting from where leakage is happening. And thus, worker can repair it as soon as they can.

- 12. Overfill prevention devices for static tanks for liquid petroleum fuels:** In petrochemical plants the tanks should fill up to an appropriate level. If this

increase the chances of tank explosion increases which can lead to a greater explosion due to presence of explosive gases in environment. Thus a overflow prevention device is used to detect the fuel level in static tanks.

- 13. Automotive LPG filling system for light and heavy duty vehicles:** The manufacture of automotive LPG filling system is done to ensure that there should be no leakage while filling up the vehicles. There nozzle, dimensions and other design are checked properly to ensure that there should be no leakage.
- 14. LPG equipment and accessories:** LPG equipments have a maximum probability to explode as they need explosive gases as an ignition fuel. This fuel ignites at a very low temperature and can results in explosion. Thus special checks are done before implanting LPG equipment and accessories.
- 15. Electrostatic handheld spraying equipment:** This system is used to protect the electronic equipments/apparatus that are capable of causing explosion at explosive atmosphere.
- 16. Transportable ventilated rooms:** Ventilation system is the most essential system for an industry. If the There is no ventilation system then the explosive gases inside the factory increases and explosion can happen any moment of time. If we didn't install the ventilation system then there is no chance that the factory can stand for long then a day. The toxic gases inside the factory can cause cancer to worker or may lead to their death. Thus it is important to install the ventilation system in a factory.
- 17. Temperature Controller:** It is a device used to detect the working temperature of a factory. If the working temperature changes from the specified range then this system externally provide support to the furnace and maintains a specific range of temperature.