TYPES OF EXPLOSION PROTECTION

Intrinsically Safe (Ex i)
A circuit, or part of a circuit, is intrinsically safe when any sparking produced normally, or by specified fault conditions, is incapable of causing ignition of a prescribed gas or vapour.

Flameproof (Ex d)
An enclosure for electrical equipment which is designed to withstand an internal explosion, without damage, should it occur. The length and gap of the flamepaths are the mechanism by which the explosion spark or flame is quenched to a lesser temperature than will ignite the surrounding hazard in the atmosphere, for which the equipment has been designed, i.e. Group I, IIA, B and C gases. A flameproof enclosure will not necessarily be weatherproof or dustproof.

Increased Safety (Ex e)
A method of protection by which additional measures are applied to electrical equipment so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks during the service life of the equipment. It applies only to electrical equipment of which no parts produce arcs or sparks, or exceed the limiting temperature in normal service.

Encapsulation (Ex m)
A type of protection in which the parts which could ignite an explosive atmosphere by either sparking or heating are enclosed in a compound in such a way that this explosive atmosphere cannot be ignited. Encapsulation is the process of applying an approved compound to enclose any electrical device(s) by suitable means such as embedding or potting.