

Equipment level protection (EPL)

ZONE	EPL
0	"Ga"
1	"Ga" o "Gb"
2	"Ga", "Gb" o "Gc"
20	"Da"
21	"Da" o "Db"
22	"Da", "Db" o "Dc"

Hazardous places according to Legislative Decree 233/03

Business	Places
chemical and petrochemical industry	gas-fuelled heating plants with P>35Kw
pharmaceutics industry	garages, repair shops, body shops
metal processing	fuel distribution
food industry (storage and processing of cereals, flour and sugar)	bread baking ovens
processing of wood	places where painting processes occur
fabric and spinning industry	distilleries, production of alcoholic beverages

ELECTRICAL SYSTEMS FOR AREAS CONTAINING EXPLOSIVE GASES:

Ex =	Electrical system built and tested for utilization in an atmosphere filled with explosive gasses.
nA =	The electrical system does not produce sparks when operating normally.
II =	Electrical system suitable for areas with a potentially explosive atmosphere, different from mines, with firedamp.
Gc =	Enhanced protection level
T4 =	Maximum internal or external surface temperature; classification according to regulation cei en 60079-0 table 2
IP66 =	Housing entirely protected against dust and the water jets

ELECTRICAL SYSTEMS FOR AREAS CONTAINING EXPLOSIVE POWDERS:

Ex =	Electrical system built and tested for utilization in an atmosphere containing powders.
IIIC	Electrical equipment for premises with potentially explosive atmospheres due to the presence of combustible dust, other than mines with the presence of firedamp
Dc	Enhanced protection level
tc	Protection against explosive atmospheres due to the presence of dust where the electrical equipment is equipped with an enclosure
22 =	Permitted hazardous area.
IP6X =	Housing entirely protected against dust
T 135°C =	Maximum temperature in a dust-free environment

SELECTION OF ELECTRICAL SYSTEMS
IN RELATION TO HAZARDOUS AREAS

HAZARDOUS AREA	CLASSIFICATION	EPL	PROTECTIONS PERMITTED
	0	Ga	"ia" Intrinsic safety "ma" Encapsulation Two independent EPLs "Gb"
ATMOSPHERE CONTAINING GAS	1	Gb	"d" Explosion proof "e" Increased safety "ib" Intrinsic safety "m" "mb" Encapsulation "o" Oil immersion "p, px, py" Pressurisation "q" Powder filling Field bus intrinsically safe concept (FISCO) Optical radiation safety
	2	Gc	"ic" Intrinsic safety "mc" Encapsulation "n, nA" Non sparking "nR" Restricted breathing "nL" Energy limitation "nC" Sparking device and components "pz" Pressurisation Field bus non-incendive concept Optical radiation safety
ATMOSPHERE CONTAINING GAS	20	Da	"Da" "Id" Intrinsic safety "md" Encapsulation "tD" Protection by enclosure
	21	Db	"iD" Intrinsic safety "mD" Encapsulation "tD" Protection by enclosure "pD" Pressurisation
	22	Dc	"iD" Intrinsic safety "mD" Encapsulation "tD" Protection by enclosure "pD" Pressurisation

RELEVANT REGULATIONS

Directive 94/9/CE entrusts conformed European regulations with the task of setting out basic technical requirements to guarantee safety in explosion-prone areas, replacing contrasting national and European regulations belonging to the same sector.

IEC 60079-0	Electrical systems for potentially explosive atmospheres GENERAL REGULATIONS
IEC 60079-15	Electrical systems for potentially explosive atmospheres. PROTECTION METHOD "n"
IEC 60079-10-1	Explosive atmospheres Classification of hazardous locations. Explosive atmospheres due to the presence of gas
IEC 60079-14	Explosive atmospheres Design, selection and installation of electrical equipment
IEC 60079-10-2	Explosive atmospheres Classification of hazardous locations. Explosive atmospheres due to the presence of dust
IEC 60079-31	Explosive atmospheres Fixtures with protection by "t" enclosure for use in the presence of combustible dust
IEC 60079-28	Explosive atmospheres Protection of equipment and transmission systems using optical radiation