

EN60079 – ATEX classification

Classification key



II	2	G	Ex	ib	IIB	T4	Gb
1°	2°	3°	4°	5°	6°	7°	8°

Equipment group (first field)

I	Atmosphere type – Methane and dust	For use in underground mines
II	Atmosphere type – Gas, Vapors, Mist, dust	For use in surface industries

ATEX Category (second field)

- 1: Requires a very high level of protection and defined as an area having a permanent or prolonged risk of explosions (useful on zone 0, 1, 2)
- 2: Requires a high level of protection and has a frequent risk of an explosive mix being present in the air (useful on zone 1, 2)
- 3: Requires a normal level of protection with a small chance of an explosive mix forming (useful on zone 2)

Type of atmosphere (third field)

G:	Gas
D:	Dust

Explosion proof (fourth field)

Ex:	Explosion proof
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Protection concept (fifth field)

Op sh:	Optical radiation, protected by shutdown, enclosure or inherently safety	(useful on zone 0, 1, 2)	EN60079-28
Op is:	Optical radiation, protected by shutdown, enclosure or inherently safety	(useful on zone 0, 1, 2)	EN60079-28
Op pr:	Optical radiation, protected by shutdown, enclosure or inherently safety	(useful on zone 1, 2)	EN60079-28
e:	Increased safety type “n” non-sparking	(useful on zone 1, 2)	EN60079-7
nA:	Increased safety type “n” non-sparking	(useful on zone 2)	EN60079-7
d:	Flame proof	(useful on zone 1, 2)	EN60079-1
ia:	Intrinsic safety by limiting potential ignition energy and surface temperatures	(useful on zone 0, 1, 2)	EN60079-11
ib:	Intrinsic safety by limiting potential ignition energy and surface temperatures	(useful on zone 1, 2)	EN60079-11
ic:	Intrinsic safety by limiting potential ignition energy and surface temperatures	(useful on zone 2)	EN60079-11
px:	Pressurized, keep the flammable gas out	(useful on zone 1, 2)	EN60079-2
pz:	Pressurized, keep the flammable gas out	(useful on zone 2)	EN60079-2
nC:	Hermetic sealing	(useful on zone 2)	EN60079-15
nR:	Hermetic sealing	(useful on zone 2)	EN60079-15
ma:	Encapsulation	(useful on zone 0, 1, 2)	EN60079-18
mb:	Encapsulation	(useful on zone 1, 2)	EN60079-18
mc:	Encapsulation	(useful on zone 2)	EN60079-18
o:	Oil immersion	(useful on zone 1, 2)	EN60079-18

Gas group (sixth field)

- I: Methane
- IIA: Propane
- IIB: Ethylene
- IIC: Hydrogen, Acetylene

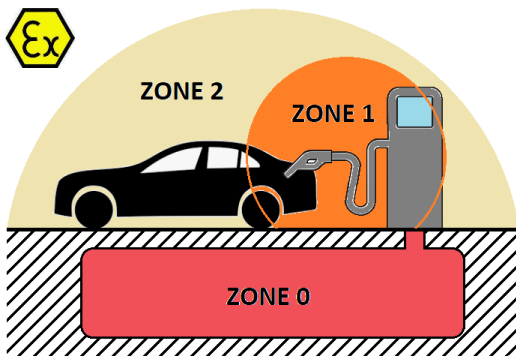
Temperature class (seventh field)

T1:	Surface temperature of equipment $\leq 450^{\circ}\text{C}$	Ignition temperature of flammable substances $< 450^{\circ}\text{C}$
T2:	Surface temperature of equipment $\leq 215^{\circ}\text{C}$	Ignition temperature of flammable substances $215^{\circ}\text{C} < T2 \leq 450^{\circ}\text{C}$
T3:	Surface temperature of equipment $\leq 160^{\circ}\text{C}$	Ignition temperature of flammable substances $160^{\circ}\text{C} < T3 \leq 215^{\circ}\text{C}$
T4:	Surface temperature of equipment $\leq 120^{\circ}\text{C}$	Ignition temperature of flammable substances $120^{\circ}\text{C} < T4 \leq 160^{\circ}\text{C}$
T5:	Surface temperature of equipment $\leq 100^{\circ}\text{C}$	Ignition temperature of flammable substances $100^{\circ}\text{C} < T5 \leq 120^{\circ}\text{C}$
T6:	Surface temperature of equipment $\leq 85^{\circ}\text{C}$	Ignition temperature of flammable substances $85^{\circ}\text{C} < T6 \leq 100^{\circ}\text{C}$

Equipment protection level [EPL] (eighth field)

- Ga:** Equipment for explosive atmospheres due to the presence of gas, with a level of protection 'very high', which is not a source of ignition in normal operation, or in case of expected failure or when subjected to a rare failure.
- Gb:** Equipment for use in explosive atmospheres due to the presence of gas, with a 'high' level of protection that is not the source of ignition in normal operation or when subject to expected malfunctions, although not on a regular basis.
- Gc:** Equipment for use in explosive atmospheres due to the presence of gas, with a level of protection „increased“ that is not a source of ignition in normal operation. It has some additional security measures in order to ensure that it remains a source of ignition not active in case of expected events on a regular basis.

Example of ATEX ZONE classification



ZONE 0 – A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapors or mist is present continuously or for long periods or frequently

ZONE 1 – A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapors or mist is likely to occur in normal operation occasionally.

ZONE 2 – A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapors or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.