

# TASHKOO

## A review on ATEX designation and Hazardous areas

Hazardous Areas are all areas where explosive mixture of flammable materials would be produced, processed, transported or stored, especially in chemical, petrochemical, Oil and Gas industries and mines. In hazardous Areas safety has critical importance.

To provide the highest possible safety and protect workers from the risk of explosive atmospheres there are mandatory standards and codes for all electrical and mechanical equipment to be used in potentially explosive atmospheres. ATEX comes from **AT**mosphere **EX**plosive and ATEX approved devices are equipments with special mechanical and electrical features, which makes it safe to use them in Hazardous Areas.

### Zone Classifications:

Zones 0, 1 & 2 are for gas atmosphere and Zones 20, 21 & 22 are for dust atmosphere

Zones 0 & 20: Explosive atmospheres permanent or long time or frequent

Zones 1 & 21: Explosive atmosphere occasionally

Zones 2 & 22: Explosive atmosphere rarely

### Temperature Class:

Electrical Devices are split into temperature classes according to the maximum surface temperature at which the Ex-atmosphere can be achieved:

### Type of Protection:

In areas where the occurrence of an explosive mixture of flammable materials and air cannot be prevented by applying primary explosion protection, special measures for the preventing of ignition source are to be taken. For example separation (o, q, m), exclusion (p), Special mechanical construction (d,e), limitation of energy (ia, ib) or other methods (s)

### Category:

Category 1: Very high degree of safety, safety is provided by two protective measures, protected against rarely occurring machine errors or 2 independent machine errors. Can be used in Zones 0 or 20

Category 2: High degree of safety, Can be used in Zones 1 or 21

Category 3: Normal degree of safety: sufficient safety for no user operational errors conditions. Can be used in Zones 2 or 22

### ATEX Mark:

This mark is required in accordance with Directive 94/9 EC to be at the beginning of ATEX approved devices.

### Explosion Group:

The equipment group appears in this part. Group I is for devices operating in mining and dust and methane atmosphere. Group II is for devices operating in above ground applications such as chemical and petrochemical industries. There is also a further division to specify different ignition protection classes for "personal Safety", "Pressure Resistant Casing and Stand Casing" (designations IIA to IIC)

ATEX marking	Type of Gas	Ignition energy/μJ
I	methane	280
IIA	propane	> 180
IIB	ethylene	60 ... 180
IIC	hydrogen	< 60

### Conformity Mark:

This mark means that this product complies with applicable standards.

Based on previous CENELEC standard an extra "E" was required before "Ex". In IEC system there is no need to this "E".

### Gas or Dust atmosphere:

"G" is for gas atmosphere and "D" is for dust atmospheres.

### Devise Group:

Group "I" for Mining and "II" for all other explosive areas.

~~II~~ ~~E~~ ~~X~~ ~~I~~ ~~A~~ ~~I~~ ~~C~~ ~~T~~ ~~6~~  
**1** **G** **II** **Ex**

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