

## The Directive

The 2014/34/EU Directive was adopted by the European Union to regulate the market for products suitable for use in potentially explosive atmospheres, harmonizing their technical characteristics and application standards.

The 2014/34/EU Directive came into force on the 30<sup>th</sup> of March 2014 and repeals Directive 94/9/EC with effect from 20<sup>th</sup> of April 2016; it imposes ATEX certification on all products marketed in the European Union, no matter of manufacture place and regulations in force there, if installed in potentially explosive environments.

#### Criteria for classifying equipment groups into categories

Group I includes equipment intended for underground work in mines and their surface installations (category M1 and M2).

Group II includes equipment intended for use in other locations liable to be endangered by explosive atmospheres (categories 1, 2, 3).

Products classified in the two groups may have different modes of explosion protection depending on the area in which the equipment is to be used.

For further information on Group II and its classification, please see the table on page III.4

## Equipment Protection Level (EPL)

The EN 60079-14 standard introduced a method for risk assessment that takes into account equipment protection levels, called EPL, which indicates the ignition risk inherent within the equipment, regardless the protection mode adopted.

The Atex Category letters "G" and "D" define whether the equipment can be used in areas containing hazardous gas (G) or dust (D). In the EPL classification, categories 1, 2 and 3 were replaced by the letters **a**, **b** and **c**.

The meaning of the markings is as follows:

- For Gases:

**Ga** identifies equipment for use in explosive atmospheres due to the presence of gas, with a "very high" level of protection that is not a source of ignition during normal operation or when subject to expected failure or when subject to rare failure;

**Gb** identifies equipment for use in explosive gas atmospheres, with a "high" level of protection, which is not a source of ignition during normal operation or when subject to anticipated malfunction, although not on a regular basis;

Gc identifies equipment for use in explosive gas atmospheres, with an "increased" level of protection, which is not a source of ignition during normal operation and which has some additional protective measures to ensure that it remains an inactive ignition source when subject to regularly expected events (e.g. lamp failure).

- For Dusts:

**Da** identifies equipment for explosive atmospheres due to the presence of combustible dusts, with a "very high" level of protection and which is not a source of ignition in normal operation or when subject to rare failures;

**Db** identifies equipment for explosive atmospheres due to the presence of combustible dusts, with a "high" level of protection and which is not a source of ignition in normal operation or when subject to expected, but not frequent, failures;

**Dc** identifies equipment for explosive atmospheres due to the presence of dust, with an "increased" level of protection, which is not a source of ignition in normal operation and which may have additional protections to ensure that it remains inactive as an ignition source in the event of regular and expected failures.

## Gas and Dust groups

The ATEX regulation proposes a classification of explosion-hazardous gases and dusts against which the user can protect himself by using a product with an appropriate protection system.

For Group **II** materials, the hazardousness of gases and dust covered by the product increases from subdivision **IIA-IIIA**, the least hazardous, to subdivision **IIC-IIIC**, the most hazardous.

To determine the gases and dust potentially present and their subdivisions, please refer to the subdivision table for Group II on page III.4  $\,$ 

#### Temperature classes for gases and dusts

The housing of the appliance must not have any flash points on its outer surface which could cause spontaneous combustion.

Different substances can ignite at different temperatures. The lower the flash point temperature, the more dangerous the substance. Consequently, any equipment used in an explosive atmosphere is classified according to the maximum surface temperature it generates.

The maximum surface temperature of the material must always be well below the auto-ignition temperature of the dusts and gases present.

For more information on the corresponding temperature classes and maximum surface temperatures, see the relevant table on page III.4

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# Introduction 2014/34/EU ATEX Directive



	ation and lab	eling of area	s at risk	of exp	olosion				Subdiv	vision a	nd different	tiation of g	gases,	mists a	nd st	teams	
Flammable subjects	(Presence of	e Atomospheres) Explosion risk areas (Partition)		risk	Device of Group	lassification Category	Equipment Protection Level (EPL)		Explosion group		Most common gases in reference to explosion group and temperature classes						
Gasas	Continuously, for long periods or frequently		Zone 0		II						Ammonia Methane	Ethanol Cyclohex.	Gasolir Diesel	e Aceta	ldob		
Gases Steams Mists Dusts	Occasionally	Occasionally			II	1G	Ga				Ethane Propane	n-Butane	n-Hexan		iden.		
	Rarely or for periods	very short	Zone 2		II	2G 3	G	Gc			Smog	Ethylene	Ethylen glycol				
	Continuously periods or fre	γ, for long equently	Zone 20		II					IIC	Acrylic Nitrile	Ethylene oxide	Hydrog sulphid		etner		
	Occasionally		Zone 21		II	1D 2D	Da Db				Coal hydrogen	Acetylene					Disulfide
	Rarely or for periods	very short	Zone 22			3		Dc									
					Ť	T	Ĭ			Ĭ	T1 < 450°C T2 < 300°C						
											T3 < 200°C						
Marking											T4 < 135°C						
Community conformity t		Specific marking or protection from									T5 < 100°C						
requiremen		explosions									<mark>T6 &lt; 85°C</mark>						
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