Labelling of explosion proof equipment according to ATEX 94/9/EC

Classification and labelling of hazardous locations

Flammable medium	Hazardous locations Probability of a potential explosive atmosphere occuring	Classification of hazardous locations	Product classification: Product group	Product classification: Product category	Product level (EPL)
Gases, mists, vapours	Always, temporarily or often present	Zone 0	II	1G	Ga
	Occasionally present	Zone 1	II	2G	Gb
	Very seldom or only present for a short period	Zone 2	II	3G	Gc
Dusts	Always, temporarily or often present	Zone 20	II	1D	Da
	Occasionally present	Zone 21	II	2D	Db
	Does not occur or only seldom for a short period	Zone 22	II	3D	Dc

Official institutes

code number	Institute Notified Body (NB)
0102	PTB (Germany)
0158	EXAM (Germany)

Example:

CE 0158 Ex

II 2G Ex d IIC T6 Gb
II 2D Ex tb IIIC T80°C Db

NB 12 ATEX 1007 X

Classification Explosion groups & Temperature classes

Explosion group	Examples depending on - explosion group - temperature class					
IIA	Ammonia, Methane, Ethane, Propane	Ethanol, Cyclohexene, n-Butane	Petrol, Diesel fuel, Fuel oil, n-Hexane	Acetaldehyde		
IIB	City gas, Acrylic nitrile	Ethylene, Ethylene oxide	Ethyl glycol, Carbon hydrogen	Ethyl ether		
IIC	Hydrogen	Acetylene				Carbon disulphide

Attention: this list is only an extract of possible flammable mediums and does not claim to be complete!

Temperature class	
T1	<450 °C
T2	<300 °C
T3	<200 °C
T4	<135 °C
T5	<100 °C
T6	< 85 °C

Product use depending on temperature class (T1 - T6). The temperature class indicates the max. temperature of the exposed surface of the product. For dust explosion proof, the max. surface temperature is directly shown (e.g. T80°C).

Temperature class

Protection principle	Type of protection	Code	Symbol	To use in zone [6]	CENELEC
Prevents transmission of the explosion outside	flameproof enclosure	Ex d		1, 2	EN 60079-1
Prevents high temperatures and sparks	increased safety	Ex e		1, 2	EN 60079-7
Low current/voltage supply	intrinsic safety	Ex i [1] Ex iD [2]		0, 1, 2 20, 21, 22	EN 60079-11
Positive pressure device	pressurised apparatus	Ex p Ex pD		1, 2 21, 22	EN 60079-2
Encapsulated	moulding	Ex m [3] Ex mD [4]		0, 1, 2 20, 21, 22	EN 60079-18
Parts immersed in oil to isolate from explosive atmosphere	oil immersion	Ex o		1, 2	EN 60079-6
Prevents transmission of explosion outside	powder filling	Ex q		1, 2	EN 60079-5
As above, but for use in zone 2	protection "n"	Ex n		2	EN 60079-15
Dust explosion proof	protection "tD"	Ex t [5]	IP66	20, 21, 22	EN 60079-31

Protection principle – Type of protection – EN 60079-0 General Requirements

Code	Dust classification
IIIA	flammable fibres
IIIB	non conductive dust
IIIC	conductive dust

IP	Protection against solids/dust	Protection against water
8	–	long periods of immersion
7	–	the effects of temporary immersion
6	totally protected against dust	strong jets of water
5	dust - limited ingress	low pressure jets from all directions
4	solids objects > 1 mm	sprays from all directions
3	solids objects > 2,5 mm	direct sprays up to 60° from vertical
2	solids objects > 12,5 mm	direct sprays up to 15° from vertical
1	solids objects > 50 mm	vertical falling drops of water
0	no protection	no protection

Ingress Protection EN 60529

Application	Code
For common use	–
For use under special circumstances	X
This product is an Ex-certified component for use in a complete system	U

Further information

[1] ia (zone 0, 1, 2), ib (zone 1, 2), ic (zone 2)
[2] iaD (zone 20, 21, 22), ibD (zone 21, 22), icD (zone 22)
[3] ma (zone 0, 1, 2), mb (zone 1, 2), mc (zone 2)
[4] maD (zone 20, 21, 22), mbD (zone 21, 22), mcD (zone 22)
[5] ta (zone 20, 21, 22), tb (zone 21, 22), tc (zone 22)
[6] Highest possible application areas