

'CE' MARKING AND THE 94/9/EC ATEX DIRECTIVE ON EQUIPMENT AND PROTECTIVE SYSTEMS INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES.

'CE' marking has been introduced as part of the European Union's new approach to technical harmonisation as a means of identifying products that comply with all relevant EC directives. Subject to certain safeguards, products bearing the 'CE' mark are permitted to be sold throughout the EU without interference from national regulatory authorities. These Directives remove artificial trade barriers from individual countries and regulate safety within the European Union.

The Explosive Atmospheres 94/9/EC ATEX (Equipment) Directive became mandatory on the 1st July 2003. On this date the existing Explosive Atmospheres and Gassy Mines Directives was repealed. Thereafter only equipment and systems 'CE' marked as compliant with the ATEX Equipment Directive (and all other relevant mandatory directives) can be placed on the market within the EU.

The Directive applies to all equipment and systems for use in **potentially explosive atmospheres** within the EU. The scope of the Directive includes electrical and mechanical equipment for use in Group I (Mining) or Group II (Industrial) applications, both on and offshore. It considers risks of ignition of potentially explosive gas, vapours, mist and dust atmospheres. In addition, devices intended for use outside potentially explosive atmospheres, that contribute to the safe functioning of equipment and systems with regards to explosion risk, are also included.

Compliance of products to the ATEX Equipment Directive, through conformity assessment, is generally in two stages: design and production. A common route to product design compliance is to apply to a Notified Body (Ex. Test House) for an EC Type Examination Certificate. To comply, the equipment or system must meet the Essential Health and Safety Requirements (EHSRs) listed in the Directive. Harmonised EU standards have been adopted by CENELEC and CEN, relating to the design, construction and testing of equipment.

The production quality stage of the conformity assessment procedures ensure continued product compliance in manufacturing. Typically a manufacturer should have a Certificate ISO 9000 Quality Management System and comply with one of the quality modules in the ATEX Equipment Directive. However this will vary depending on product equipment Category; Equipment used in higher risk areas will require more onerous conformity assessment procedures to be applied. Once compliance with the relevant directives is complete and an EC Declaration of Conformity issued by the manufacturer, the 'CE' mark may be applied and the product placed on the market.

99/92/EC ATEX DIRECTIVE (WORKPLACE) ON MINIMUM REQUIREMENTS FOR IMPROVING THE SAFETY AND HEALTH PROTECTION OF WORKERS POTENTIALLY AT RISK FROM EXPLOSIVE ATMOSPHERES (mandatory since 1st July 2003).

The Directive covers both Group I and Group II activities, on shore and offshore within the EU, and aims to provide a better level of protection for the health and safety of workers in potentially explosive atmospheres where gas, vapours, mists and dusts may be present. Complete details of 99/92/EC may be found at: <http://europa.eu.int/comm/enterprise/atex/indexinf.htm>

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**LIGHTING
FOR HAZARDOUS AREAS**

To meet the exacting requirements of ATEX directive 94/9/EC, Peli lights are tested to ensure that they pose no threat of ignition when operating within hazardous locations. Using approved laboratories, the lights are tested to ensure that they will withstand rigorous impact and drop tests, severe environmental exposure and meet a minimum of IP54 ingress protection. Longevity and safety are assured by design.

Most Peli™ lights are certified to ATEX Category 3 (Zone 2) standards. In addition, the following are approved to the more restrictive Category 2 (Zone 1) and Category 1 (Zone 0) standards:

			
Super SabreLite™ Zone 1 2000Z1 - ATEX Cat. 2 (Zone 1)	StealthLite™ 4AA Zone 1 2400Z1 - ATEX Cat. 2 (Zone 1) StealthLite™ Rechargeable Zone 1 2450Z1 - ATEX Cat. 2 (Zone 1)	Little Ed™ Zone 1 3600Z1 - ATEX Cat. 2 (Zone 1) Little Ed™ Rechargeable Zone 1 3650Z1 - ATEX Cat. 2 (Zone 1)	HeadsUp™ Lite Zone 1 2610 - ATEX Cat. 2 (Zone 1)
			
MityLite™ 2AAA Zone 1 1900Z1 - ATEX Cat. 2 (Zone 1)	VB3 Zone 1 2220Z1 - ATEX Cat. 2 (Zone 1)	L1 Zone 0 1930Z0 - ATEX Cat. 1 (Zone 0)	L4 Zone 0 1830Z0 - ATEX Cat. 1 (Zone 0)



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**ATEX
GUIDELINES**





The ATEX Directive 94/9/EC requires **manufacturers** to supply **ONLY** properly certified electrical equipment if that equipment is to be used in potentially explosive areas. To meet the exacting requirements of ATEX Directive 94/9/EC, Peli™ lights are tested to ensure that they pose no threat of ignition when operating within hazard locations. Using only approved laboratories, Peli™ lights are tested to ensure that they will withstand rigorous impact and drop tests, severe environmental exposure and meet a minimum of IP54 ingress protection. The longevity and safety of all Peli™ lights are assured by design.

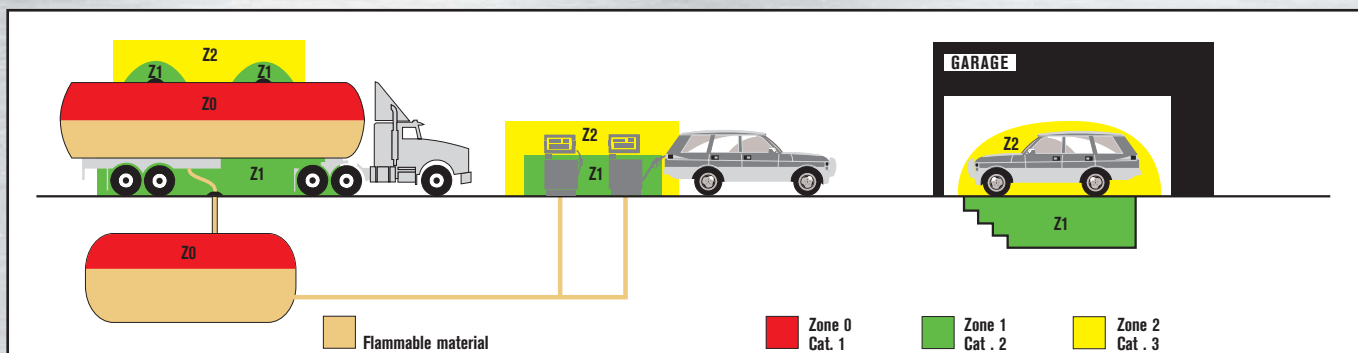
Another ATEX Directive, 99/92/EC, regulates the requirements for improving **safety and health protection of workers** who are potentially at risk from explosive atmospheres. ATEX Directive 99/92/EC states that each area must be classified according to its potential for

hazardous risk (zones 0, 1 or 2. See chart below) and that only ATEX certified equipment can be used in these areas.

Both of these directives are mandatory since 1 July 2003.

Classification of hazardous areas to EN 60079-10

Hazardous areas are classified into zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere. These areas can appear in potential hazardous atmospheres as explained on this image:



With the new ATEX Directive, every equipment is classified by category. Every category is associated to a type of zone. And every zone is classified according to the length of time where flammable material can be present in there, as it follows:

ATEX	Old Classification CENELEC	Criteria for Zone
Category 1	Zone 0	Flammable material present for long periods (more than 1.000 hours per year)
Category 2	Zone 1	Flammable material present in normal operation (10-1.000 hours per year)
Category 3	Zone 2	Flammable material present for short periods (less than 10 hours per year)

All electrical equipment should be classified according to these categories (zones) in order to certify in what areas it can be used.

ATEX Marking

(Printed on the body of the light)

CE 0539 Ex II 1 G EEx ia IIC T6 Tamb-40to+60°C



Code for L1 Zone 0

↑ CE means CE mark permitted by the European Committee for the Electromechanical Standardization
 ↑ 0539 Number of notified body (UL International Demko)
 ↑ Ex inside the Hexagon means "Protection against the Explosions"
 ↑ II means Group II equipment = Not for use in Mines
 ↑ 1 means ATEX Category 1 (Old Zone 0)
 ↑ G means tested for Gases and Vapours
 ↑ EEx means equipment tested under the latest European Harmonised Standard for use in Explosive atmospheres
 ↑ ia means intrinsic Safety 'I'
 ↑ IIC Gas Grouping (Acetylene & Hydrogen)
 ↑ T6 T (1,2,3,4,5,6) is the equipment classification by its maximum temperature: T1=450°C T2=300°C T3=200°C T4=135°C T5=100°C T6=85°C
 ↑ Tamb-40to+60°C Ambient temperature range in service (Standard between -20 & +40° C not needed to show)

X after the certificate number indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

Equipment group & equipment category

Equipment Group and Category identify the areas in which equipment may be safely used.

CONCEPT	EQUIPMENT GROUP	EQUIPMENT CATEGORY	PROTECTION LEVEL	HAZARD	USE
INDUSTRIAL 	II	1	Very high protection	Gas Dust	Zones 0, 1, 2 Zones 20, 21, 22
		2	High protection	Gas Dust	Zones 1, 2 Zones 21, 22
		3	Normal protection	Gas Dust	Zones 2 Zones 22
MINING 	I	M1	Very high protection	-	Operable in Ex atmosphere
		M2	High protection	-	De-energized in Ex atmospheres

Certification Code

Protection concept identifies the means by which explosion protection is achieved.

PROTECTION CONCEPTS FOR ELECTRICAL APPARATUS									
CONCEPT	General requirements	Oil immersion	Pressurised	Powder filled	Flameproof	Increased safety	Intrinsic safety	Encapsulation	Non-incendive
SYMBOL	-	Ex o	Ex p	Ex q	Ex d	Ex e	Ex ia / Ex ib	Ex m	Ex n
ICON	-								
DESCRIPTION	General requirements	Explosive gas excluded by immersing ignition source in oil	Explosive gas excluded by surrounding ignition source with pressurised inert gas	Explosive gas excluded by immersing ignition source in sand	Ignition within the apparatus enclosure is contained and will not ignite surrounding explosive atmosphere	Design excludes the possibility of incendive arcs, sparks or hot surfaces	Energy in circuit and temperature on components reduced to a safe level	Flammable gas excluded by encapsulating the ignition source in resin	Will not ignite explosive gas in normal operation, faults unlikely to occur
CATEGORY	-	2	2	2	2	2	1 / 2	2	3
STANDARD	EN 50014	EN 50015	EN 50016	EN 50017	EN 50018	EN 50019	EN 50020	EN 50028	EN 50021

Temperature Class

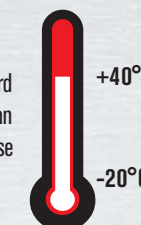
Temperature class relates to the hot surface ignition temperature of a particular explosive area. It must not be exceeded by the temperature classification of the equipment intended to be used in that area.

HOT SURFACES CAN IGNITE EXPLOSIVE AREAS						
TEMPERATURE CLASS	T1	T2	T3	T4	T5	T6
MAXIMUM SURFACE TEMPERATURE (°C)	450	300	200	135	100	85

There is no relationship between ignition temperature and ignition energy.

Ambient temperature

Equipment approved to the CENELEC standard having Temperature class based on use in an ambient of -20°C to +40°C unless otherwise stated (ie. Tamb-40to+60°)



Ingress protection (IP) Code to EN 60529

Equipments to be used in gases, vapours, mists or dusts must take into consideration the environmental conditions of the area. Apparatus resistance to ingress of both solid bodies and water is identified by use of an "IP rating".

1st Numeral: Protection Against Solid Bodies
 no protection | 0 | 1 (>50 mm) | 2 (>12.5 mm) | 3 (>2.5 mm) | 4 (>1 mm) | 5 (dust) | 6 (dust)

2nd Numeral: Protection Against Water
 no protection | 0 | 1 (90°) | 2 (15°) | 3 (60°) | 4 (360°) | 5 (spray) | 6 (high pressure) | 7 (water) | 8 (water)

1st numeral and 2nd numeral combined to identify level of ingress protection. i.e. dust protected, splashing protected: **Ingress Protection rating: IP 5 4**