

European Directive ATEX 94/9/EC

Equipment and protective systems intended for use in potentially explosive atmospheres

What is ATEX?

The ATEX directive 94/9/EC has been around since 1996 but it is in force in the European Union (EU) and EFTA members as from July 1st 2003.

The name of the directive comes from the French **AT**mosphères **EX**plosibles and it applies to all plant, equipment and components, both electrical and mechanical, which will or may be used in an explosive atmosphere.

What does explosive atmosphere mean?

An "Explosive Atmosphere" is defined as a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire mixture. Often people think that an explosive atmosphere can only be generated by intrinsically-flammable products, such as fuels or solvents, or under particular circumstances for instance in a coal-mine, where suspended coal-particles can trigger the explosion. Unluckily other very innocuous products such as wood-powder, flour, sugar and corn, can propagate explosions too.

Specifications and Responsibility

The directive establishes the safety prerequisites for equipment, electrical or otherwise, for protective systems for use in potentially-explosive atmospheres. It also covers devices intended to be used outside the explosive atmosphere, deemed to be useful or indispensable for the safe management of equipment or protective systems as regards explosion risks. The ATEX directive specifically defines procedures for the evaluation of a product's design and manufacture (production) based on Equipment Groups and Categories (selection of materials, marking, user instructions and design and construction).

All equipment under its scope will be required to bear the European CE Marking (**C**onformité **E**uropéenne) as verification of compliance with the directive.

Responsibility for conformance is given to the manufacturer of the product.

Examples of products covered by the directive

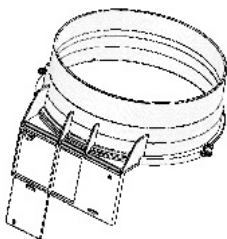
Valves, fans, blowers, pumps, petrol and diesel fuel filters, level-switches, electrical equipment, anti-explosives, safety and security, filtration plants, control and communication devices, electric motors, compressors, diesel engines ... to name but a few.



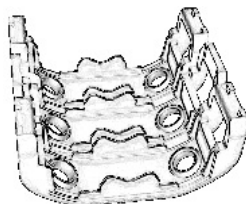
Warning sign for locations where Explosive Atmospheres may occur.



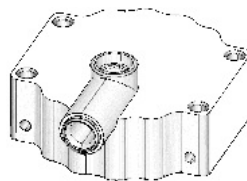
The specific marking of Explosion protection



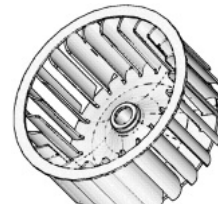
Extractor frame



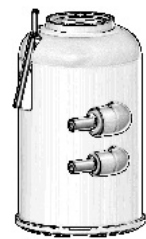
Electrical shield cover



Safety valve



Impeller

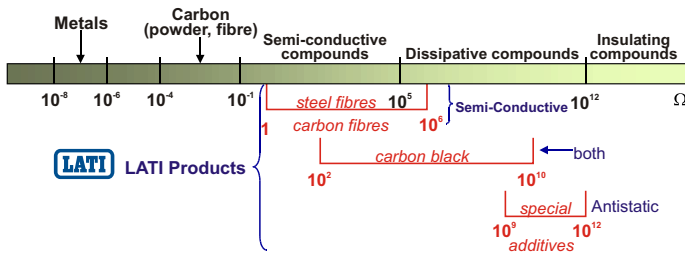


Fuel filter housing

The LATI Product Range as applicable to the ATEX directive

The directive covers equipment that will or may be used in areas endangered by potentially explosive atmospheres, where there is the need to use partially electrically-conductive plastic materials able to discharge the static electricity to earth.

Within LATI's product families there are materials which, thanks their special properties, can fulfil the ATEX directive, in particular **LATISTAT**, **LATIOHM** and **LATISHIELD**.



Resistivity Values

- Resistivity varies with **temperature**
- Resistivity varies with **humidity**
- **Surface Resistivity** is usually 1/10th of **Volume Resistivity**

For applications requiring a product surface permanently free of static accumulation, LATI offers **LATISTAT**, namely dissipative materials. These are available only in black colour.

LATIOHM represents an alternative to LATISTAT, being defined as semi-conductive or dissipative compounds depending upon the surface resistivity values (from 10 to 10¹² Ohm). They are also available in a **wide colour range**.

In addition **LATISHIELD**, a range of products with added stainless-steel, or other metallic fibres, developed to address the problem of electromagnetic shielding, dissipate static charges before they have the chance to accumulate, and so fulfil the requirements of the above-mentioned directive.



(figure 1)

Our LATIOHM 62-09 PD01 G/20-V2HF GREY:2430 (semi-conductive / electrostatically-dissipative compound based on Polyamide 6, glass-fibre reinforced, UL94 V-2 classified, halogens and red phosphorous free) has been selected for the production of the HART configurator housing used in several industrial processes (oil industry, chemical, oil, gas and so on). The ATEX directive required the use of a material with conductivity less than 1 Giga Ohm; another reason for choosing LATIOHM was the possibility to satisfy other requirements such as excellent mechanical properties (stiffness and impact strength) and a good resistance to self-tapping screws.



(figure 2)

In order to fulfil the new ATEX directive with a binding resistivity value of 10E3 Ohm, another Customers has chosen LATIOHM 62-03 PD01 G/20 BLACK:3302 (semi-conductive / dissipative compound based on Polyamide 6, glass-fibre reinforced) for the realisation of housings and contact-holder locks in electrical switches for use in distribution cabins.

LATI is willing to share with you its expertise in this field, and its T.S. and R&D Teams are at your complete disposal to analyse your requirements and collaborate on project developments.