elringklinger
Engineered Plastics

FACT SHEET

ATEX-compliant materials

For applications in potentially explosive atmospheres

ATEX (ATmosphères EXplosibles) refers to the European legal framework for explosion protection. In potentially explosive atmospheres containing flammable gases, vapors or dusts, even electrostatic discharges can act as an ignition source and trigger fires or explosions. Electrically conductive (antistatic) materials reduce this ignition risk and enable the safe use of plastics in ATEX environments.

The electrical surface or volume resistivity of a material is relevant for electrical conductivity. According to the Technical Rule for Hazardous Substances (TRGS) 727, a material is considered conductive if its specific resistance is between 10^4 and 10^9 Ω·m. With a specific resistance of ≤10^4 Ω·m, a material is considered electrically conductive. Humidity has a significant influence on conductivity.

The ATEX Product Directive 2014/34/EU defines basic requirements for equipment and protective systems intended for use in potentially explosive atmospheres. Manufacturers have to avoid potential ignition sources and to demonstrate the conformity of their products within the framework of the prescribed conformity assessment. Semi-finished products, such as raw materials or starting articles, cannot be ATEX-certified on their own; an ATEX assessment or marking always refers to the respective end product, the complete assembly or the device.

Electrically conductive plastics from ElringKlinger Engineered Plastics are used in applications where flammable gases, vapors, liquids or dusts are present and electrostatic discharges must be considered as a potential ignition source. In addition, they are used wherever unwanted electrostatic charging must be safely controlled or reliably prevented - for example, in the following areas:

- Plant engineering (chemical and pharmaceutical industries): Handling of flammable liquids, solvents or gases
- Food industry: processes with risk of dust explosions
- Mechanical engineering: Equipment and components for hazardous areas
- Fuel systems and mobility: transport of flammable liquids, solvents or gases
- Cleanrooms and sensitive production environments (semiconductor industry): Reduction of particle attraction and contamination
- Electronic assemblies and components: Protection against ESD and irreparable damage to sensitive semiconductor components
- Films and lightweight components: Prevention of adhesion to surfaces

Conductive materials from ElringKlinger Engineered Plastics are used in particular in products for processing or using of alcohols, solvents and flavorings, as well as in electric mobility applications, for example:

- Pump housings and pump linings
- ESD packaging for electronic components
- Containers and transport aids in the semiconductor industry
- Hoses and tubes
- Radial shaft seals

Conductive materials and applications

MATERIAL*	PROPERTIES AND APPLICATIONS
HS 17021	Electrically conductive compound (specific resistance <10^4 Ω·m) with high chemical resistance. Excellent tribological properties with outstanding lubricity and low wear on counter-running surfaces - even during dry running. Reduced cold flow and high-dimensional stability support applications where dimensional accuracy is critical.
HS 22100	Conductive material for the safe dissipation of electrostatic charges. Increased wear resistance and good dimensional stability support long-lasting components in ESD/ATEX-related applications. Suitable for predominantly static to moderately dynamic loads.
HS 22157	Conductive compound with very good mechanical properties. High dimensional stability and significantly increased wear resistance make the material ideal for demandings of friction- and load-intensive applications. Suitable for static and dynamic applications.
HS 22196	Conductive material for static applications (e.g. housing components and pump housings). Balanced mechanical properties and good dimensional stability support reliable series production. Generally suitable for food contact (application-specific testing required).
HS 22214	Conductive compound for structurally stressed, predominantly static components. Significantly increased mechanical strength and improved dimensional stability support high load levels. Generally suitable for food contact (application-specific testing required).
HS 22232	Conductive material for static applications (including housing components). Reduced cold flow supports dimensional stability and low leakage over the service life. Generally suitable for food contact (application-specific testing required).
HS 22237	Electrically conductive compound with very good tribological properties. Low wear and high dimensional stability support long-lasting, long-term applications, even with repeated motion cycles. Suitable for static to dynamic applications.
SU 69202	Electrically conductive material (specific resistance < 1 kΩ·m) designed for the controlled dissipation of electrostatic charges. High dimensional stability and exceptional wear resistance ensure long service life in applications subject to dynamic stress.
SU 70401	Electrically conductive compound (specific surface resistance < 1 kΩ·m) for the reliable dissipation of electrostatic charges. Developed for selected dynamic applications.

Table: Materials ElringKlinger Engineered Plastics

* The surface resistance of the conductive materials listed was determined according to DIN IEC 60093 on dry reference test specimens. Many of these materials are also available as semi-finished products.

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