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PLASTUM

M a t e r i a l   D a t a   S h e e t

Trade name		SEMITRON ESd 410C	

Properties	*Unit*	*Test method*	*Value*
General Properties			
Density	g/cm³	DIN EN ISO 1183-1	1,41
Moisture absorption			
Saturation in air of 23°C/50% RH	%	DIN EN ISO 62	0,60
Saturation in water of 23°C	%	DIN EN ISO 62	1,10
Flammability acc.to UL 94 (Thickn. 3mm/6mm)		ISO 1210 (UL 94)	V-0 / V-0
Mechanical Properties			*Test specimen "dry"*
Yield point	MPa	DIN EN ISO 527	-
Elongation at break	%	DIN EN ISO 527	2
Tensile modulus of elasticity	MPa	DIN EN ISO 527	5.850
Notched impact strength (Charpy)	kJ/m²	ISO 179/1eA/Pendulum 1J	4
Ball indentation hardness	N/mm²	DIN EN ISO 2039-1	-
Shore - Hardness	Scale D	DIN 53505	85
Thermal Properties			
Melting temperature	°C	ISO 11357-1/-3	-
Thermal conductivity	W/(mK)	DIN 52612	0,35
Specific thermal capacity	kJ/(kgK)	DIN 52612	-
Coefficient of linear thermal expansion	10^{-6} K^{-1}	Average betw.20°C-60°C	40
Service temperature - long-term	°C		- 20 up to 170
Service temperature - short-term, max.	°C		200
Heat deflection temperature, Method A:1,8 MPa	°C	DIN EN ISO 75-1/-2	200
Electrical Properties			
Dielectric constant, 1 MHz		IEC 60250	3,0
Dielectric dissipation factor, 1 MHz		IEC 60250	0,002
Volume resistivity	Ohm cm	IEC 60093	$10^4 - 10^6$
Surface resistivity	Ohm	ANSI/ESD STM 11.11	$10^4 - 10^6$
Comparative tracking index CTI, Sol. A		IEC 60112	-
Dielectric strength	kV/mm	IEC 60243	-

Remarks:

The following applies to Polyamides:
Under the influence of moisture absorption, the mechanical properties change. The material becomes tougher and more resistant to impact, the modulus of elasticity declines. Depending on the environmental atmosphere, the temperature and the period of moisture absorption, only the surface layer is affected by alterations of property to a certain depth. On thick-walled parts, the center area remains unaffected.

The short-term maximum application temperature only applies to very low mechanical stress for a few hours.
The long-term maximum application temperature is based on the thermal ageing of plastics by oxidation, resulting in a decrease of the mechanical properties. This applies to an exposure to temperatures for at least 5.000 hours causing a 50% loss of the tensile strength from the original value (measured at room temperature). This value says nothing about the mechanical strength of the material at high application temperatures. In case of thick-walled parts, only the surface layer is affected by oxidation from high temperatures. With the addition of antioxidants, a better protection of the surface layer is achieved. In any   case, the center area of the material remains unaffected.
The minimum application temperature is basically influenced by possible stress factors like impact and/or shock under application. The values stated refer to   an minimum degree of impact stress.
The electrical properties as stated result from measurements on natural, dry material. With other colors (in particular black) or saturated material, there may be clear differences in the electrical properties.
The values indicated result from numerous individual measurements for an approximation of the values and are to our today's knowledge. They serve as information about our products and are presented as a guide to choose from our range of materials. This, however, does not include an assurance of specific properties or the suitability for particular application purposes that are legally binding. Since the properties also depend on the dimension of the semi-finished products and the degree of crystallisation (e.g. nucleating by pigments), the actual values of the properties of a particular product may differ from the indicated values.
* The mechanical properties of fiber reinforced material were measured on injection molded samples, parallel to fiber direction. Special
construction details of further material specifications on request.