SUSTAPLAST KG

Sustaplast Straße 1
D-56112 Lahnstein/Germany

Tel. 02621/693-0
Fax 02621/693170
Internet: www.sustaplast.de

Material Data Sheet

Trade name	Sustamid ® 12
DIN EN ISO 1043 designation	PA 12
Modification	
Colour	natural

Properties	*Unit*	*Test method*	*Value*
General Properties			
Density	g/cm³	DIN 53479	1,02
Moisture absorption			
At saturation in air of 23 °C/50%RH	%	DIN EN ISO 62	0,8
Flammability (thickness 3/6mm)		ISO 1210 (UL 94)	
Mechanical Properties			*Test specimen "dry"*
Yield point	MPa	DIN EN ISO 527	50
Elongation at break	%	DIN EN ISO 527	>200
Tensile modulus of elasticity	MPa	DIN EN ISO 527	1.800
notched impact strength	KJ/m²	ISO 179/1eA/Pendel 1J	20
Ball indentation hardness	N/mm²	DIN EN ISO 2039-1	100
Shore-Hardness	Skala D	DIN 53505	78
Thermal properties			
Melting temperature	°C	ISO 11357	178
Thermal conductivity	W/(K x m)	DIN 52612	0,3
Coefficient of linear thermal expansion	10^{-6} x K^{-1}	20°C-60°C	100
Operating temperature long term	°C		- 50 bis 80
Operating temperature short term- max.	°C		140
Heat deflection temperature	°C	DIN EN ISO 75	50
Electrical properties			
Dielectrical constant		IEC 60250	3,8
Dielectric dissipation factor		IEC 60250	0,04
Volume resistivity	Ohm cm	IEC 60093	10^{15}
Surface resistivity	Ohm	IEC 60093	10^{13}
CTI, solution A		IEC 60112	600
Dielectric strength	KV/mm	IEC 60243	26

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 ist 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 ist 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 ist 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 colours (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 fibre reinforced material were measured on injection molded samples, parallel to fibre direction.
Special construction details of further material specifications on request.