SUSTAPLAST KG

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Material Data Sheet

Material Grade:	**Sustamid® 6 G** *mould polymerized*
Modification:	---
Colour :	standard is natural, other colours on reques
DIN EN ISO 1043 designation:	**PA 6**
Field of application:	Universally useable material for general mechanica engineering applications e.g. for rollers, rope pulleys,bearings, gears etc

Properties	*Unit*	*Test method*	*Value*
General Properties			
Specific Gravity	g/cm³	DIN 53479	1,15
Moisture Absorption			
-saturation at 23°C / 50% RH	%	DIN EN ISO 62	2,5
Flammability, specimen thickness 3,2 mm	---	ISO 1210 (UL 94)	V-2
Flammability, specimen thickness >12 mm	---	ISO 1210 (UL 94)	V-0
Mechanical Properties			*Test specimen in "dry" condition*
Tensile Strength (at yield)	MPa	DIN EN ISO 527	80
Tensile Elongation (at break)	%	DIN EN ISO 527	>40
Tensile Modulus of Elasticity	MPa	DIN EN ISO 527	3.300
Notched Impact Strength (Charpy)	KJ/m²	ISO 179/1eA/Pendulum 1J	>4
Ball Indentation Hardness	N/mm²	DIN EN ISO 2039-1	175
Hardness, Shore "D" Scale	Skala D	DIN 53505	83
Thermal properties			
Melting Temperature	°C	ISO 11357	220
Thermal Conductivity	W/K x m	DIN 52612	0,23
Specific Heat Capacity	kJ/kg K		1,7
Coefficient of Linear Thermal Expansion	10^{-6} x K^{-1}	av. value 20° - 60°C	80
Service Temperatur in Air - Continuous	°C	---	-40 bis 110
Service Temperatur in Air - Short term max.	°C	---	170
Heat Deflection Temperature	°C	DIN EN ISO 75	95
Electrical Properties			
Dielectric Constant	50 Hz	IEC 60250	3,7
Dielectric Dissipation Factor	50 Hz	IEC 60250	0,02
Volume Resistivity	Ohm cm	IEC 60093	10^{15}
Surface Resistivity	Ohm	IEC 60093	10^{13}
Comparative Tracking Index	---	IEC 60112	CTI 600
Dielectric Strength	KV/mm	IEC 60243	20

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 under room temperature). This value does not allow for the mechanical hardness of the material under 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 a 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.