



## NYLON 6FR

### Technical Data Sheet

#### Product characteristics

- Free of halogen and phosphorus
- Flame retardant and self-extinguishing
- High hardness and rigidity

#### Product applications

- Rail vehicle construction
- Aviation industry
- Ship building

	Test method	Unit	Guideline Value
<b>General properties</b>			
Density	DIN EN ISO 1183-1	g / cm <sup>3</sup>	1,17
Water absorption	DIN EN ISO 62	%	3,0
Flammability (Thickness 3 mm / 6 mm)	UL 94		V0 / V0
<b>Mechanical properties</b>			
Yield stress	DIN EN ISO 527	MPa	82
Elongation at break	DIN EN ISO 527	%	3
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3800
Shore hardness	DIN EN ISO 868	scale D	83
<b>Thermal properties</b>			
Melting temperature	ISO 11357-3	°C	222
Thermal capacity	DIN 52612	kJ / (kg * K)	1,70
Coefficient of linear thermal expansion	DIN 53752	10 <sup>-6</sup> / K	90
Service temperature, long term	Average	°C	-20 ... 85
Service temperature, short term (max.)	Average	°C	160
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	65
<b>Electrical properties</b>			
Volume resistivity	DIN EN 62631-3-1	Ω * cm	10 <sup>13</sup>
Surface resistivity	DIN EN 62631-3-2	Ω	10 <sup>16</sup>

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 data stated above are average values ascertained by statistical tests on a regular basis. They are in accordance with DIN EN 15860. 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 crystallization (e.g. nucleating by pigments), the actual values of the properties of a particular product may differ from the indicated values.

All reasonable care has been taken in the compilation of the information contained within this literature. All recommendations on the use of our products are made without guarantee as conditions of use are beyond the control of Alperton Engineering Ltd. It is the customer's responsibility to ensure that the product is fit for its intended purpose and that the actual conditions of use are suitable.