Product Information **Ultramid®**

STAR S 60X1 V30 GREY R7016 CF

PA6-GF30 FR(40)

We create chemistry

Product description

Ultramid® STAR S 60X1 V30 Grey R7016 CF is a grade based on a non-halogenated flame retardant system and on a patented high flow polyamide 6 resin, reinforced of 30% of glass fiber, heat stabilized, for injection moulding. This grade is heat stabilized and provides optimized injection moulding performance.
European Railways Certifications - EN 45545-2 HL2; European Railways Certifications - EN 45545-2 HL3

Injection Notes

The material is supplied in airtight bags, ready for use. In case that the virgin material has absorbed moisture, it must be dried with a dehumidified air drying equipment, dew Point mini -20°C. Recommended time 2-4h.

Injection Advice:
• All reinforced, flame retardant compounds generate some level of abrasion/corrosion to the steel processing equipment. These issues may be magnified by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process. Therefore, BASF SE recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, BASF SE advises you to use a steel with high chromium and high carbon content (having a minimum concentration of 16% Chromium) to prevent corrosion and abrasion. For the correct reference of steel associated to flame retardant compounds' processing, please refer to your equipment manufacturers. In the case of high requirements on surface quality a mould temperature of up to 120°C can be considered.
• The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design.

Disclaimer

Safety Information

Detailed information regarding safety are available on the safety data sheet (MSDS). MSDS is sent with the first material order or available by contacting our customer services

Regulations Compliance

This product is not intended to be used for the following regulated market: food contact, drinking water, toys, cosmetics or medical devices.

Customer Services

Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:
- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

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Typical values for uncoloured product at 23 °C[1)]	Test method	Unit	Values[2)]
General Properties			
Asia Pacific	-	-	**+**
Near East/Africa	-	-	**+**
Processing: Injection moulding (M), Extrusion (E), Blow moulding (B)	-	-	**M**
Colour; black (bk), uncoloured (un), coloured (co), transparent (tr)	-		**bk,un,co**
Pellets	-	-	**+**
Physical			
Water absorption, 24 h in water, 23 °C	ISO 62	%	**0.9**
Water absorption, equilibrium in water at 23°C	similar to ISO 62	%	**4.2**
Moisture absorption, equilibrium 23°C/50% r.h	similar to ISO 62	%	**1.80**
Density	ISO 1183	kg/m³	**1420 / -**
Mechanical properties			**dry / cond.**
Tensile modulus	ISO 527-1/-2	MPa	**10800 / 7100**
Stress at break	ISO 527-1/-2	MPa	**147 / 92**
Tensile Strength at Break (ASTM)	ASTM D 638	MPa	**132 / -**
Strain at break	ISO 527-1/-2	%	**2.7 / 4.8**
Tensile elongation at break, 2 in/min (ASTM)	ASTM D 638	%	**2.6 / -**
Flexural modulus	ISO 178	MPa	**10100 / 5400**
Flexural modulus (ASTM)	ASTM D 790	MPa	**9730 / -**
Flexural strength	ISO 178	MPa	**235 / 160**
Flexural strength (ASTM)	ASTM D 790	MPa	**200 / -**
Charpy notched impact strength ISO 179/1eA (-30°C)	ISO 179/1eA	kJ/m²	**8 / -**
Charpy notched impact strength ISO 179/1eA (23°C)	ISO 179/1eA	kJ/m²	**9 / 12**
Charpy impact strength ISO 179/1eU (-30°C)	ISO 179/1eU	kJ/m²	**45 / -**
Charpy impact strength ISO 179-1eU (23°C)	ISO 179/1eU	kJ/m²	**55 / 62**
Izod notched impact strength ISO 180/A (23°C)	ISO 180/A	kJ/m²	**9 / 11**
Izod notched impact strength ASTM D 256 (23 °C)	ASTM D 256	J/m	**95 / -**
Izod impact strength ISO 180/U (23°C), MPTS	ISO 180/U	kJ/m²	**50 / 55**
Thermal properties			
HDT B (0.45 MPa), ASTM	ASTM D 648	°C	**205**
HDT A (1.80 MPa)	ISO 75-1/-2	°C	**205**
Melting temperature, DSC (10°C/min)	ISO 11357-1/-3	°C	**222**
Electrical properties			**dry / cond.**
Surface resistivity	IEC 62631-3-2	Ohm	**6E14 / -**
Volume resistivity	IEC 62631-3-1	Ohm*m	**1E13 / -**
Electric strength (d = 0.8 mm)	IEC 60243-1	kV/mm	**38 / -**
Electric strength (d = 2.0 mm)	IEC 60243-1	kV/mm	**25 / 23**
Relative permittivity (100Hz)	IEC 62631-2-1	-	**2.9 / 4.35**
Comparative tracking index, CTI, test liquid A	IEC 60112	-	**600 / 600**
Flammability			
Burning Behav. at 1.6 mm nom. thickn.	IEC 60695-11-10	class	**V-0**
Burning Behav. at thickness 0.8 mm	IEC 60695-11-10	class	**V-0**
Burning Behav. at thickness 3.2 mm	UL-94, IEC 60695	class	**V-0**
Glow Wire Flammability Index (0.8 mm)	IEC 60695-2-12	°C	**960**
Glow Wire Flammability Index (1.6 mm)	IEC 60695-2-12	°C	**960**
Glow Wire Flammability Index (3.2 mm)	IEC 60695-2-12	°C	**960**
Glow Wire Ignition Temperature (0.8 mm)	IEC 60695-2-13	°C	**775**
Glow Wire Ignition Temperature (1.6 mm)	IEC 60695-2-13	°C	**800**
Oxygen index	ISO 4589-1/-2	%	**35**

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Injection			
Pre/Post-processing, Pre-drying, Temperature	-	°C	**80**
Pre/Post-processing, max. allowed water content	-	%	**0.2**
Injection molding cylinder temperature 1 (feed zone)	-	°C	**230 - 235**
Injection molding cylinder temperature 2 (compression)	-	°C	**235 - 240**
Injection molding cylinder temperature 3 (metering-zone, head room of screw)	-	°C	**240 - 245**
injection molding, Mold temperature, range	ISO 294	°C	**60 - 90**