Product Information **Ultramid®**

A 50H1 BLACK-K

PA66 FR(30)

Product description

Ultramid® A 50H1 Black-K is an unreinforced polyamide 66 based on a non-phosphorous and non-halogenated flame retardant system, heat stabilized, for injection moulding. This flame retardant grade, offers excellent filling qualities combined with good stiffness.
European Railways Certifications - EN 45545-2 HL3; 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

The information contained in this document is given in good faith based on our current knowledge. It is only an indication and it is in no way binding. This information must on no account be used as a substitutive for necessary prior tests which alone can ensure that a product is suitable for a given use. ANY WARRANTY OF PRODUCT PERFORMANCE, MERCHANDABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED. Users are responsible for ensuring compliance with local legislation and for obtaining the necessary certifications and authorizations. Users are requested to check that they are in possession of the latest version of this document, and BASF SE is at their disposal to supply any additional information.

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.

This grade complies with RoHS Directive 2011/65/EU, 2015/863 and local regulations as amended.

Grades produced or imported in Europe comply with REACH directive 1907/2006/EC as amended.

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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Product Information

We create chemistry

Typical values for uncoloured product at 23 °C[1)]	Test method	Unit	Values[2)]
General Properties			
Asia Pacific	-	-	**+**
Processing: Injection moulding (M), Extrusion (E), Blow moulding (B)	-	-	**M**
Colour; black (bk), uncoloured (un), coloured (co), transparent (tr)	-		**bk,un**
Pellets	-	-	**+**
Physical			
Water absorption, 24 h in water, 23 °C	ISO 62	%	**0.88**
Moisture absorption, equilibrium 23°C/50% r.h	similar to ISO 62	%	**2.70**
UL (f1) proven for outdoor use: color code, min. thickness	UL 746 C	color, mm	**BK, 0.75**
Density	ISO 1183	kg/m³	**1160 / -**
Mechanical properties			**dry / cond.**
Tensile modulus	ISO 527-1/-2	MPa	**3800 / 1700**
Yield stress, 50 mm/min	ISO 527-1/-2	MPa	**85 / 55**
Stress at break	ISO 527-1/-2	MPa	**80 / 45**
Strain at break	ISO 527-1/-2	%	**9 / 100**
Flexural modulus	ISO 178	MPa	**3700 / 1700**
Flexural modulus (ASTM)	ASTM D 790	MPa	**3800 / 1750**
Flexural strength	ISO 178	MPa	**130 / 55**
Flexural strength (ASTM)	ASTM D 790	MPa	**120 / 50**
Charpy notched impact strength ISO 179/1eA (-30°C)	ISO 179/1eA	kJ/m²	**3 / -**
Charpy notched impact strength ISO 179/1eA (23°C)	ISO 179/1eA	kJ/m²	**3.2 / 7**
Charpy impact strength ISO 179/1eU (-30°C)	ISO 179/1eU	kJ/m²	**80 / -**
Charpy impact strength ISO 179-1eU (23°C)	ISO 179/1eU	kJ/m²	**80 / N**
Izod notched impact strength ISO 180/A (23°C)	ISO 180/A	kJ/m²	**3 / -**
Izod notched impact strength ASTM D 256 (23 °C)	ASTM D 256	J/m	**40 / -**
Thermal properties			
HDT B (0.45 MPa)	ISO 75-1/-2	°C	**237**
HDT A (1.80 MPa)	ISO 75-1/-2	°C	**85**
Melting temperature, DSC (10°C/min)	ISO 11357-1/-3	°C	**263**
Electrical properties			**dry / cond.**
Surface resistivity	IEC 62631-3-2	Ohm	**3E15 / 1E14**
Volume resistivity	IEC 62631-3-1	Ohm*m	**3E13 / 1E10**
Electric strength (d = 0.8 mm)	IEC 60243-1	kV/mm	**33 / -**
Electric strength (d = 2.0 mm)	IEC 60243-1	kV/mm	**21 / -**
Relative permittivity (100Hz)	IEC 62631-2-1	-	**3.5 / -**
Dissipation factor (100 Hz)	IEC 62631-2-1	E-4	**0.017 / -**
Comparative tracking index, CTI, test liquid A	IEC 60112	-	**600 / -**
Flammability			
Burning Behav. at 1.6 mm nom. thickn.	IEC 60695-11-10	class	**V-0**
Burning Behav. at thickness 0.4 mm	IEC 60695-11-10	class	**V-0**
Burning Behav. at thickness 0.8 mm	UL-94, IEC 60695	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 (0.4 mm)	IEC 60695-2-13	°C	**960**
Glow Wire Ignition Temperature (0.8 mm)	IEC 60695-2-13	°C	**960**
Oxygen index	ISO 4589-1/-2	%	**33**

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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	**260 - 270**
Injection molding cylinder temperature 2 (compression)	-	°C	**265 - 275**
Injection molding cylinder temperature 3 (metering-zone, head room of screw)	-	°C	**265 - 275**
injection molding, Mold temperature, range	ISO 294	°C	**60 - 80**