

## Technical Data

### Product Description

A glass fibre reinforced injection moulding grade with improved flame retardance. Flame retardant based on red phosphorus; giving outstanding electrical properties and very high stiffness and strength.

### General

Material Status	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Processing (English)</a> • <a href="#">Technical Datasheet (English)</a>
UL Yellow Card <sup>2</sup>	• <a href="#">E41871-233749</a>
Search for UL Yellow Card	• <a href="#">BASF Corporation</a> • <a href="#">Ultramid®</a>
Availability	• Asia Pacific • Europe
Filler / Reinforcement	• Glass Fiber, 50% Filler by Weight
Additive	• Flame Retardant
Features	• Flame Retardant • High Stiffness • Good Electrical Properties • High Strength • Oil Resistant
Agency Ratings	• EC 1907/2006 (REACH)
RoHS Compliance	• RoHS Compliant
Forms	• Pellets
Processing Method	• Injection Molding
Multi-Point Data	• Creep Modulus vs. Time (ISO 11403-1) • Isothermal Stress vs. Strain (ISO 11403-1) • Shear Modulus vs. Temperature (ISO 11403-1) • Viscosity vs. Shear Rate (ISO 11403-2) • Isochronous Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1)

Physical	Dry	Conditioned	Unit	Test Method
Density	1.60	--	g/cm <sup>3</sup>	ISO 1183
Apparent (Bulk) Density	0.70	--	g/cm <sup>3</sup>	
Melt Volume-Flow Rate (MVR) (275°C/5.0 kg)	25	--	cm <sup>3</sup> /10min	ISO 1133
Water Absorption				ISO 62
Saturation, 23°C	3.7 to 4.3	--	%	
Equilibrium, 23°C, 50% RH	0.70 to 1.1	--	%	
Viscosity Number				ISO 307
96% H2SO4 (Sulphuric Acid)	140	--	cm <sup>3</sup> /g	
Mold Shrinkage - constrained <sup>4</sup>	0.40	--	%	

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus	16000	12000	MPa	ISO 527-1
Tensile Stress (Break)	180	130	MPa	ISO 527-2
Tensile Strain (Break)	2.0	3.0	%	ISO 527-2
Tensile Creep Modulus <sup>5</sup> (1000 hr)	--	5400	MPa	ISO 899-1
Flexural Modulus	13000	--	MPa	ISO 178

Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	11	--	kJ/m <sup>2</sup>	
23°C	13	16	kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	50	--	kJ/m <sup>2</sup>	
23°C	55	55	kJ/m <sup>2</sup>	
Notched Izod Impact Strength (23°C)	14	20	kJ/m <sup>2</sup>	ISO 180/A

Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	250	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	250	--	°C	ISO 75-2/A



**Ultramid® A3X2G10**

Polyamide 66

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Thermal	Dry	Conditioned	Unit	Test Method
Melting Temperature	260	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 80°C	1.5E-5 to 2.0E-5	--	cm/cm/°C	
Transverse : 23 to 80°C	4.0E-5 to 5.0E-5	--	cm/cm/°C	
Specific Heat	1300	--	J/kg/°C	
Thermal Conductivity	0.35	--	W/m/K	DIN 52612
Maximum Service Temperature - short cycle operation	220	--	°C	
Temperature Index - at 50% loss of tensile strength				IEC 60216
-- <sup>6</sup>	145	--	°C	
-- <sup>7</sup>	125	--	°C	

Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	--	1.0E+10	ohms	IEC 60093
Volume Resistivity	1.0E+15	1.0E+12	ohms-cm	IEC 60093
Electric Strength <sup>8</sup>	33	30	kV/mm	IEC 60243-1
Relative Permittivity (1 MHz)	3.60	5.00		IEC 60250
Dissipation Factor (1 MHz)	0.020	--		IEC 60250
Comparative Tracking Index (Solution A)	600	--	V	IEC 60112

Flammability	Dry	Conditioned	Unit	Test Method
Glow Wire Flammability Index (1.0 mm)	960	--	°C	IEC 60695-2-12
Oxygen Index	27	--	%	ISO 4589-2
Smoke Density	180	--		ISO 5659-2
Smoke Toxicity - CIT NLP acc. to CEN/TS 45545-2	0.36	--		NF X70-100

Additional Information	Dry	Conditioned	Unit
Polymer Abbreviation	PA66-GF50 FR	--	

Injection	Dry Unit
Drying Temperature	80 to 100 °C
Drying Time	4.0 hr
Suggested Max Moisture	0.15 %
Hopper Temperature	80 °C
Rear Temperature	295 °C
Middle Temperature	295 °C
Front Temperature	295 °C
Nozzle Temperature	295 °C
Processing (Melt) Temp	290 to 300 °C
Mold Temperature	80 to 90 °C
Residence Time	< 10.0 min
Screw Speed	< 18 m/min



**Notes**

<sup>1</sup> These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

<sup>2</sup> A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

<sup>3</sup> Typical properties: these are not to be construed as specifications.

<sup>4</sup> Test box with central gating, dimensions of base (107\*47\*1,5) mm, processing conditions: TM = 320°C (unreinforced) or 330°C (reinforced), TW = 80°C

<sup>5</sup> strain <= 0.5%, 23°C

<sup>6</sup> 5000 h

<sup>7</sup> 20000 h

<sup>8</sup> 60\*60\*1 mm<sup>3</sup>



## Ultramid® A3X2G10

Polyamide 66

**BASF Corporation**

# PROSPECTOR®

[www.ulprospector.com](http://www.ulprospector.com)

### Where to Buy

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#### Supplier

##### **BASF Corporation**

Wyandotte, Wyandotte USA

**Telephone:** 800-545-8359

**Web:** <https://www.basf.com/us/en.html>

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#### Distributor

##### **ALBIS Plastic**

*ALBIS Plastic is a global distribution and compounding company. Contact ALBIS Plastic for availability of individual products per country.*

**Telephone:** +49-40-78105-0

**Web:** <http://www.albis.com/>

**Availability:** Algeria, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tunisia, United Kingdom

##### **Ultrapolymers**

*Ultrapolymers is a Pan European distribution company. Contact Ultrapolymers for availability of individual products by country.*

**Telephone:** +32-11-57-95-57

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