

# Akulon® Ultraflow K-FKGS6 /B

Polyamide 6

DSM Engineering Materials

PROSPECTOR®

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## Technical Data

### Product Description

30% Glass Reinforced, Heat Stabilized, Flame Retardant, High Flow

Design Challenge  
Downsizing & Miniaturization

### General

Material Status	• Commercial: Active
Literature <sup>1</sup>	• <a href="#">Processing (English)</a> • <a href="#">Technical Datasheet (English)</a> • <a href="#">White Paper - Manufacturing next-generation EV charging plugs (English)</a>
UL Yellow Card <sup>2</sup>	• <a href="#">E43392-235107</a> • <a href="#">E47960-240106</a>
Search for UL Yellow Card	• <a href="#">DSM Engineering Materials</a> • <a href="#">Akulon® Ultraflow</a>
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Filler / Reinforcement	• Glass Fiber, 30% Filler by Weight
Additive	• Heat Stabilizer
Features	• Flame Retardant • Heat Stabilized • High Flow
Processing Method	• Injection Molding
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1) • Shear Stress vs. Shear Rate (ISO 11403-1) • Specific Volume vs Temperature (ISO 11403-2) • Viscosity vs. Shear Rate (ISO 11403-2)
Resin ID	• PA6-GF30 FR(17)

Physical	Dry	Conditioned	Unit	Test Method
Density	1.55	--	g/cm <sup>3</sup>	ISO 1183
Spiral Flow				
-- <sub>4</sub>	11.0	--	cm	
-- <sub>5</sub>	12.0	--	cm	
-- <sub>6</sub>	13.0	--	cm	
Molding Shrinkage				ISO 294-4
Across Flow	0.77	--	%	
Flow	0.21	--	%	
Water Absorption				ISO 62
Saturation, 23°C	4.5	--	%	
Equilibrium, 23°C, 50% RH	1.3	--	%	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				ISO 527-1
--	12000	8300	MPa	
1.00 mm	12000	8000	MPa	
120°C	5400	--	MPa	
160°C	3500	--	MPa	
Tensile Stress				ISO 527-2
Break	155	105	MPa	
Break, 1.00 mm	150	95.0	MPa	
Break, 120°C	75.0	--	MPa	
Break, 160°C	55.0	--	MPa	



Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Strain				ISO 527-2
Break	2.3	3.6	%	
Break, 1.00 mm	2.0	2.8	%	
Break, 120°C	6.3	--	%	
Break, 160°C	8.1	--	%	
Flexural Modulus				ISO 178
--	11500	8000	MPa	
120°C	5700	--	MPa	
160°C	4100	--	MPa	
Flexural Stress				ISO 178
--	240	165	MPa	
120°C	110	--	MPa	
160°C	75.0	--	MPa	
Weldline Strain				ISO 527-2
1.00 mm	0.60	1.0	%	
4.00 mm	0.60	1.0	%	
Weldline Strength				ISO 527-2
1.00 mm	45.0	30.0	MPa	
4.00 mm	45.0	30.0	MPa	
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	12	12	kJ/m <sup>2</sup>	
23°C	12	14	kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	60	60	kJ/m <sup>2</sup>	
23°C	55	55	kJ/m <sup>2</sup>	
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	215	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	205	--	°C	ISO 75-2/A
Ball Pressure Test (210°C)	Pass	--		IEC 60695-10-2
Melting Temperature <sup>7</sup>	220	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow	2.0E-5	--	cm/cm/°C	
Transverse	1.1E-4	--	cm/cm/°C	
RTI Elec				UL 746B
0.75 mm	140	--	°C	
3.0 mm	140	--	°C	
RTI Imp				UL 746B
0.75 mm	110	--	°C	
3.0 mm	110	--	°C	
RTI Str				UL 746B
0.75 mm	110	--	°C	
3.0 mm	130	--	°C	
Effective Thermal Diffusivity	1.20E-7	--	m <sup>2</sup> /s	



Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	--	1.0E+14	ohms	IEC 62631-3-2
Volume Resistivity	1.0E+13	1.0E+11	ohms·m	IEC 62631-3-1
Relative Permittivity				IEC 62631-2-1
1 MHz	3.40	4.00		
100 Hz	3.50	10.0		
Dissipation Factor				IEC 62631-2-1
100 Hz	6.0E-3	3000		
1 MHz	0.012	700		
Comparative Tracking Index	325	--	V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				
1.5 mm	• V-0 • 5VA	--		UL 94 IEC 60695-11-10, -20
3.0 mm	V-0	--		UL 94 IEC 60695-11-10, -20
0.75 mm	V-0	--		IEC 60695-11-10, -20
Glow Wire Flammability Index				IEC 60695-2-12
0.75 mm	960	--	°C	
3.0 mm	960	--	°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.75 mm	800	--	°C	
1.5 mm	800	--	°C	
Oxygen Index	30	--	%	ISO 4589-2
Fill Analysis	Dry	Conditioned	Unit	Test Method
Melt Density	1.15	--	g/cm <sup>3</sup>	
Melt Specific Heat	1900	--	J/kg/°C	
Melt Thermal Conductivity	0.26	--	W/m/K	ASTM E1461

**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> Injection Pressure: 800 bar, 1.00 mm
- <sup>5</sup> Injection Pressure: 900 bar, 1.00 mm
- <sup>6</sup> Injection Pressure: 1.00E+3 bar, 1.00 mm
- <sup>7</sup> 10°C/min



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**Where to Buy**

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**Supplier****DSM Engineering Materials**

**Web:** <http://www.dsm.com/contactdep>

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**Distributor****3Polymer (Guangzhou) Chemical Technology Co., Ltd.**

**Telephone:** +86-20-3466-7988

**Web:** <http://3polymer.com>

**Availability:** China

**Channel Prime Alliance**

**Telephone:** 800-247-8038

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

**Availability:** North America

**Nexeo Plastics**

*Nexeo Plastics is leading global resin distributor with the technical resources you need to overcome material challenges. Visit us on the web at [www.nexeoplastics.com](http://www.nexeoplastics.com).*

**Telephone:** 833-446-3936

**Web:** <https://www.nexeoplastics.com/>

**Availability:** North America

**Nexeo Plastics - Europe**

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

**Telephone:** +34-93-480-9125

**Web:** <https://www.nexeoplastics.com/>

**Availability:** Belgium, Denmark, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom

**RESINEX Group**

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

**Telephone:** +32-14-672511

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

**Availability:** Europe

**TER HELL Plastic GmbH**

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

**Telephone:** +49-2366-5661-0

**Web:** <https://www.terplastics.com/>

**Availability:** Austria, Bulgaria, Czech Republic, France, Germany, Hungary, Poland, Romania, Slovakia, Slovenia, Switzerland

