



## ACRYLITE PLUS® zdf

CYRO Industries/Evonik Degussa Corporation - Polymethyl Methacrylate Acrylic

Monday, August 04, 2008

### General Information

#### General

Material Status	• Commercial: Active		
Availability	• North America		
Additive	• Impact Modifier		
Features	• Good Chemical Resistance	• Good Toughness	• Impact Modified
	• Good Impact Resistance	• Good Weather Resistance	• Medium Clarity
Forms	• Pellets		
Processing Method	• Extrusion	• Profile Extrusion	
	• Injection Molding	• Sheet Extrusion	

### ASTM and ISO Properties <sup>1</sup>

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.15	1.15	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	3.1 g/10 min	3.1 g/10 min	ASTM D1238
Molding Shrinkage (Flow)	0.0040 to 0.0060 in/in	0.40 to 0.60 %	ASTM D955
Water Absorption (Saturation)	0.30 %	0.30 %	ASTM D570
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	250000 psi	1720 MPa	ASTM D638
Tensile Strength	6400 psi	44.1 MPa	ASTM D638
Tensile Elongation (Yield)	4.0 %	4.0 %	ASTM D638
Tensile Elongation (Break)	20 %	20 %	ASTM D638
Flexural Modulus	260000 psi	1790 MPa	ASTM D790
Flexural Strength	10000 psi	68.9 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			ASTM D256
32 °F (0 °C), 0.250 in (6.35 mm)	0.500 ft·lb/in	26.7 J/m	
73 °F (23 °C), 0.250 in (6.35 mm)	1.00 ft·lb/in	53.4 J/m	
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	44	44	ASTM D785
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ASTM D648
264 psi (1.8 MPa), Annealed	185 °F	85.0 °C	
Vicat Softening Temperature	226 °F	108 °C	ASTM D1525
CLTE (Flow, 32 to 212 °F (0 to 100 °C))	0.000050 in/in/°F	0.000090 cm/cm/°C	ASTM D696
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL	HB	HB	UL 94
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.490	1.490	ASTM D542
Transmittance	85.0 %	85.0 %	ASTM D1003
Haze	96 %	96 %	ASTM D1003

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The information presented on this data sheet was acquired by IDES from the producer of the material. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

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<b>Processing Information</b>		
<b>Injection</b>	<b>Nominal Value (English)</b>	<b>Nominal Value (SI)</b>
Rear Temperature	425 to 450 °F	218 to 232 °C
Middle Temperature	450 to 480 °F	232 to 249 °C
Front Temperature	450 to 480 °F	232 to 249 °C
Nozzle Temperature	450 to 480 °F	232 to 249 °C
Processing (Melt) Temp	450 to 480 °F	232 to 249 °C
Mold Temperature	160 to 195 °F	71.1 to 90.6 °C
Injection Pressure	6000 to 15000 psi	41.4 to 103 MPa
Back Pressure	20.0 to 100 psi	0.138 to 0.689 MPa
Screw Speed	60 to 150 rpm	60 to 150 rpm
Clamp Tonnage	2.5 tons/in <sup>2</sup>	34 MPa
Screw Compression Ratio	2.0:1.0	2.0:1.0

**Injection Notes**

- Ram Speed (in/sec)  
 - Small gate: 0.5 to 1.5  
 - Large gate: 1 to 4

Extrusion	Nominal Value (English)	Nominal Value (SI)
Cylinder Zone 1 Temp.	360 to 415 °F	182 to 213 °C
Cylinder Zone 2 Temp.	375 to 430 °F	191 to 221 °C
Cylinder Zone 3 Temp.	390 to 440 °F	199 to 227 °C
Cylinder Zone 4 Temp.	405 to 450 °F	207 to 232 °C
Cylinder Zone 5 Temp.	405 to 450 °F	207 to 232 °C
Adapter Temperature	340 to 380 °F	171 to 193 °C
Die Temperature	400 to 460 °F	204 to 238 °C

### Extrusion Notes

The data listed above is for Rod and Profile Extrusion at a Screw Diameter of 2 to 3 1/2 inches.

#### Rod and Profile Extrusion

Screw Diameter 4 1/2 inch  
 Feed Zone (°F) 340 - 370  
 Rear Zone (°F) 360 - 400  
 Rear Center Zone (°F) 360 - 410  
 Center Zone (°F) 370 - 425  
 Front Center Zone (°F) 385 - 430  
 Front Zone (°F) 395 - 440  
 Gate (°F) 395 - 440  
 Adapter (°F) 395 - 440  
 Die (°F) 390 - 450

#### Sheet Extrusion

Screw Diameter 2 to 3 1/2 inch  
 Feed Zone (°F) 360 - 400  
 Rear Zone (°F) 380 - 420  
 Rear Center Zone (°F) 365 - 430  
 Center Zone (°F) 370 - 440  
 Front Center Zone (°F) 375 - 450  
 Front Zone (°F) 380 - 450  
 Adapter (°F) 430 - 450  
 Die End Plates (°F) 430 - 460  
 Die Left and Right (°F) 400 - 450  
 Die Center (°F) 400 - 450

#### Sheet Extrusion

Screw Diameter 4 1/2 inch  
 Feed Zone (°F) 340 - 400  
 Rear Zone (°F) 360 - 415  
 Rear Center Zone (°F) 365 - 425  
 Center Zone (°F) 370 - 425  
 Front Center Zone (°F) 375 - 440  
 Front Zone (°F) 380 - 445  
 Adapter (°F) 425 - 440  
 Die End Plates (°F) 430 - 450  
 Die Left and Right (°F) 400 - 440  
 Die Center (°F) 400 - 440

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.