+135-3858-6433 (GuangDong)
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EXTEM™ Resin XH1015

Americas: COMMERCIAL

Thermoplastic Polyimide Extem™ XH1015 Resin.

TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	1050	kgf/cm²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	970	kgf/cm²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	10	%	ASTM D 638
Tensile Modulus, 5 mm/min	34800	kgf/cm²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1710	kgf/cm²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	31900	kgf/cm²	ASTM D 790
Tensile Stress, yield, 5 mm/min	101	MPa	ISO 527
Tensile Stress, break, 5 mm/min	74	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	6	%	ISO 527
Tensile Strain, break, 5 mm/min	7	%	ISO 527
Tensile Modulus, 1 mm/min	3100	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	120	MPa	ISO 178
Flexural Modulus, 2 mm/min	2870	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	4	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	0	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	0	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	4	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	0	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	0	kJ/m²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	260	°C	ASTM D 1525

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TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	250	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	235	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	237	°C	ASTM D 648
CTE, 23°C to 150°C, flow	5.E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.1E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	250	°C	ISO 306
Vicat Softening Temp, Rate B/120	247	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	223	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.31	-	ASTM D 792
Water Absorption, 23°C/48hrs	0.6	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm (5)	1 - 1.2	%	SABIC Method
Melt Flow Rate, 367°C/6.6 kgf	10	g/10 min	ASTM D 1238
Density	1.31	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	2.3	%	ISO 62
Melt Volume Rate, MVR at 220°C/5.0 kg	0	cm³/10 min	ISO 1133

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	175	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	380 - 410	°C
Nozzle Temperature	375 - 405	°C
Front - Zone 3 Temperature	380 - 410	°C
Middle - Zone 2 Temperature	370 - 400	°C
Rear - Zone 1 Temperature	360 - 385	°C
Mold Temperature	150 - 175	°C

PROCESSING CRITICAL SUCCESS FACTORS:

- DRYING: must dry to <=0.02% moisture. Good dehumidifying dryer is critical (verify dew point). If needed, dry longer than 6 hours and at a higher temperature (200°C).
- FEEDING: minimize exposure of dried resin to humid air to avoid moisture absorption. Cover the feed hopper in case of an open hopper.
- RESIDENCE TIME: use a ramp profile for residence times > 2-3 minutes.
- INJECTION SPEED: slow speed (e.g., 15-25 mm/sec) is good for minimizing part stress. Higher speed (e.g., 25-50 mm/sec) is better for part appearance and higher gloss.
- GATES: pin-gates (used for crystalline resins) cause shear degradation. Use generous gates when possible.
- TEMPERATURE SETTINGS: Use high heat rated (e.g., ceramic) heater bands

PROCESSING BEST PRACTICES:

- Barrel temperature profile depends on residence time
  - flat profile for ~2-3 min residence time
  - ramp profile for longer residence time
- Use 40-70% of barrel capacity per cycle to reduce residence time
- XH resins are amorphous and do not need long cooling times (unlike crystalline resins)
- Use low shear screw to minimize shear (similar to Ultem)
- Minimize back pressure and minimize decompression/suckback (can cause splay)
- Use slow injection velocity to reduce shear splay; decoupled molding preferred
- During shut-down, heaters can be banked at 200-225°C after all the residual resin is run out of the barrel

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Back Pressure	0.3 - 0.7	MPa
Screw Speed	70 - 100	rpm
Shot to Cylinder Size	40 - 70	%
Vent Depth	0.025 - 0.076	mm

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