

## Solvay Specialty Polymers Ixef® BXT-2000/0203 Polyarylamide (PARA) (Unverified Data\*\*)

Category : Polymer , Thermoplastic , Polyarylamide (PAA)

### Material Notes:

Ixef BXT-2000/0203 resin was developed specifically for extrusion and blow-molding processes. Unlike grades targeted for injection molding, Ixef BXT-2000/0203 resin can be successfully extruded into tube, pipe, sheet and film and blow-molded into various profiles. BXT-2000/0203 resin has proven permeation resistance to most automotive fluids and fuels. It also offers low moisture absorption, excellent dimensional stability, and chemical resistance as well as outstanding mechanical properties. - Natural: Ixef BXT-2000/0203

**Additional Information:** Values are typical of limited production. Specifications for this product are not established yet.

**Extrusion Notes:** Drying: - All Ixef extrusion grades should be dried to moisture levels of less than 1200 ppm prior to processing. This is usually accomplished in a desiccated dryer set at 185°F (85°C) for 4 to 8 hours. Moisture content may be checked using a thermogravimetric analyzer set at 338°F (170°C). The test should be run until no additional moisture is detected or at least 20 minutes. Once dry, proper steps must be taken to insure that no moisture is picked up by the resin before processing.

**Extrusion Equipment:** - Ixef extrusion grades can generally be processed on standard extrusion equipment capable of achieving the process temperatures required. The extruder should be sized to keep polymer residence time under five minutes. The extruder screw should have a Length/Diameter (L/D) ratio of 20:1 to 30:1, and a compression ratio of at least 3:1, preferably 4:1. The screw should be designed to have 40 to 50% feed zone, 25 to 30% transition zone and 25 to 30% metering zone. - Extrusion die design should minimize sharp transitions and eliminate dead zones where polymer may be held up and degrade. Spider plates for tube dies and crossheads for wire coating should offer generous tapers to minimize nit lines. - Extrusion dies should be constructed of appropriate materials, preferably stainless steel and all flow surfaces highly polished. The die should contain heater cartridges and a controlling thermocouple. A pressure transducer is recommended to monitor die pressure and prevent equipment damage. A melt temperature sensor is recommended to prevent excessive polymer temperatures.

**Processing:** - The extruder barrel adapter(s) and die should be set at the temperatures noted on the data sheet for the particular grade being processed. A positive temperature profile (gradually increasing temperature from rear to front of the extruder) should always be used. When starting up, it is advisable to allow the equipment to soak at temperature for at least two hours to allow all components to reach a correct and uniform temperature. - Screw speeds of 10 rpm or greater will provide the shear necessary to melt and homogenize the polymer as well as to keep residence times to a minimum. - It is advisable to start the extrusion process slowly to monitor pressures and melt quality. Minor adjustments in temperature can have a significant effect on melt quality.

**Tubing:** - The excellent melt strength of the unfilled extrusion grade allows for great flexibility in draw. Tubes may be sized from 50 to 99% of the die diameter. (Draw down ratios from 1:1 to 2:1.) A vacuum calibrator is generally used to size the O.D. of the tube, with sizing rings at the desired diameter. The calibrator should be placed as close to the die as possible. A water spray in the calibrator is not usually required due to high heat transfer. Depending on extruder size and extrudate dimension, high extrusion rates can be achieved and are desirable.

**Film/Sheet:** - Films of thickness down to 0.004 (0.01mm) have been successfully extruded in the unfilled grades. The extrudate can be drawn significantly, allowing a number of gauge films to be produced from a single die, simply by varying the takeoff speed. Film width is a function of the die, however it can also be controlled by moving the take-up rolls away from the die. As the rolls are moved further from the die, the width of the film will decrease as long as the film is being drawn. The filled grades can practically be extruded as thin as 0.020 (0.5mm) and cannot be drawn as much as the unfilled.

**Profile:** - High tolerance and near-net shape profiles may be formed with Ixef Extrusion grades. Die design should be as noted above with dimensions cut to be 100% to 110% of the desired finished dimension. As the extrudate will often be relatively low in viscosity, especially for the unfilled grades, various methods of supporting the extrudate as it cools may be employed. These include complete encapsulative support, vacuum forming and the use of fixtures to maintain shape and tolerance. While most profiles will utilize a takeoff puller, in some cases the puller can be used to impart

back pressure to help build die pressure and densify the profile. This will usually be the case in large cross section profiles. Consideration of control of the cooling rate should be given for large profiles to prevent stress cracks. The cooling rate may be controlled by the use of heated forming fixtures. Blow Molding: - Standard practices for blow molding should be followed. The temperature profile noted below should be used as a starting point and adjusted to achieve optimum parison quality. Process Setup: - Machine Conditions - Starting point temperatures for extrusion or blow molding - Extruder temperatures -- Barrel, Rear: 428°F (220°C) -- Middle: 465°F (235°C) -- Front: 480°F (250°C) -- Adapter: 470°F (245°C) -- Die: 460°F (240°C) - The above temperatures may need to be adjusted to achieve optimum extrudate appearance and extrusion rates. Avoid temperatures above 525°F (275°C). - Sheet and film take off roll temperatures: Minimum 225°F(107°C) Shutdown and Purging Instructions: - It is recommended that the machine be purged of Ixef resin at the end of a run. This can be accomplished by running the extruder dry and then adding an appropriate purge compound to the feed hopper and running the screw until the extrudate is clear of any Ixef resin. If a purge compound is not available, fractional melt flow (extrusion grade) polyethylene will be an acceptable purge. - Once all the Ixef resin has been purged from the machine, reduce the barrel temperatures. It is strongly suggested that any heads or dies be removed and cleaned while still warm. Information provided by Solvay Specialty Polymers.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Solvay-Specialty-Polymers-Ixef-BXT-20000203-Polyarylamide-PARA-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Ixef-BXT-20000203-Polyarylamide-PARA-nbspUnverified-Data.php)

Physical Properties	Metric	English	Comments
Density	1.12 g/cc	0.0405 lb/in <sup>3</sup>	ISO 1183
Apparent Bulk Density	0.700 g/cc	0.0253 lb/in <sup>3</sup>	ASTM D1895B
Melt Flow	6.0 g/10 min @Temperature 240 °C	6.0 g/10 min @Temperature 464 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	39.9 MPa	5790 psi	ASTM D638
Tensile Strength, Yield	63.4 MPa	9200 psi	ASTM D638
	63.8 MPa	9250 psi	ISO 527-2
Elongation at Break	44 %	44 %	ASTM D638
	77 %	77 %	Nominal; ISO 527-2
Elongation at Yield	3.7 %	3.7 %	ISO 527-2
	4.0 %	4.0 %	ASTM D638
Modulus of Elasticity	2.48 GPa	360 ksi	ASTM D638
Tensile Modulus	2.47 GPa	358 ksi	ISO 527-2
Izod Impact, Notched	3.50 J/cm	6.56 ft-lb/in	ASTM D256
	NB	NB	ASTM D4812

Izod Impact, Notched (ISO) Mechanical Properties	15.0 kJ/m <sup>2</sup> Metric	7.14 ft-lb/in <sup>2</sup> English	ISO 180 Comments
Izod Impact, Unnotched (ISO)	190 kJ/m <sup>2</sup>	90.4 ft-lb/in <sup>2</sup>	ISO 180

Thermal Properties	Metric	English	Comments
Melting Point	230 °C	446 °F	
Deflection Temperature at 1.8 MPa (264 psi)	82.0 °C	180 °F	Unannealed; ISO 75-2/A

Processing Properties	Metric	English	Comments
Zone 1	220 °C	428 °F	
Zone 2	235 °C	455 °F	
Zone 3	250 °C	482 °F	
Adapter Temperature	250 °C	482 °F	
Die Temperature	250 °C	482 °F	
Drying Temperature	85.0 °C	185 °F	
Dry Time	4.00 - 8.00 hour	4.00 - 8.00 hour	

Descriptive Properties	Value	Comments
Appearance	Natural Color	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	North America	
	South America	
Features	Barrier Resin	
	Fuel Resistant	
	Good Chemical Resistance	
	Good Creep Resistance	
	Good Dimensional Stability	
	High Flow	

Descriptive Properties	Low Moisture Absorption Value	Comments
	Outstanding Surface Finish	
Forms	Pellets	
Generic	PARA	
Permeation	0.83 g·mm/m <sup>2</sup> /atm/24 hr	CE 10 Fuel; 60°C; SAE J2659
Processing Method	Blow Molding	
	Extrusion	
Take-Off Roll	107°C	
Uses	Blow Molding Applications	
	Film	
	Piping	
	Sheet	
	Tubing	

## Contact Songhan Plastic Technology Co.,Ltd.

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