



Sorona® EP thermoplastic polymer resins are polytrimethylene terephthalate resins made from Bio-PDO™, which is derived from corn. Sorona® EP resins can be processed on conventional injection molding machines using standard industry practices. However, specific attention to processing details will enhance quality and productivity. For additional information on safety, health, and environmental concerns, refer to the MSDS or contact your local DuPont representative.

<b>Drying Considerations</b>	<b>Melt Temperatures</b>	<b>Mold Temperatures</b>
<p>For both virgin resin and rework, hopper driers sized to afford the following conditions are strongly recommended:</p> <ul style="list-style-type: none"> <li>Moisture content must be below 0.02%.</li> <li>Dry for 2-4 hr at 120°C (250°F) or longer as needed.</li> <li>Drier dew point must remain below -20°C (-4°F).</li> <li>Air flow of at least 1 cfm/lb/hr minimum.</li> </ul>	<p>Cylinder temperature settings to obtain the typical melt temperatures of 250-270°C (480-520°F) depend on many factors, including shot size, screw design, cycle time, etc. Typically, parts molded with a long residence time should use an increasing temperature profile and a melt temperature at the low end of the recommended range, while parts molded with a short residence time should use a decreasing profile and a melt temperature at the high end of the range.</p>	<p>In order to obtain maximum dimensional stability, surface appearance and cycle time, mold temperatures of 80-110°C (175-230°F) are recommended for Sorona® resins. Mold temperatures below 80°C (175°F) are not recommended, particularly for parts with wall thicknesses less than 2-3 mm (0.08-0.12 in).</p> <p>Note: When mold temperatures less than 80°C (175°F) are used, initial shrinkage and/or warpage will be lower, but surface appearance will be less glossy and dimensional change will be greater when the parts are exposed to temperatures above 80°C (175°F).</p>
<b>Operating Conditions</b>	<b>Shrinkage Considerations</b>	<b>Safety Considerations</b>
<ul style="list-style-type: none"> <li>Faster injection speeds will normally provide the highest gloss, but slower speeds may be used to obtain a matte finish.</li> <li>Injection pressure will vary depending on part geometry, gate size and location, and mold and melt temperatures.</li> <li>Minimum screw speed should be used so that the screw retraction time is about 75% of the available mold closed time.</li> <li>Little to no back pressure (&lt; 0.3 MPa [50 psi]) is normally used to minimize machine wear and glass fiber breakage when molding glass reinforced grades.</li> </ul>	<p>Shrinkage in semi crystalline resins such as Sorona® is from:</p> <ul style="list-style-type: none"> <li>Crystallization of the polymer.</li> <li>Thermal contraction of the part as it cools to room temperature.</li> </ul> <p>Causes of part distortion include:</p> <ul style="list-style-type: none"> <li>Poor mold temperature uniformity.</li> <li>Large changes in part wall thickness.</li> <li>A high level of glass fiber orientation (with glass reinforced grades).</li> </ul> <p>Note: High mold temperatures and thick part sections may increase shrinkage. Shrinkage in glass reinforced resins is controlled by glass fiber orientation, which results in different shrinkage rates parallel to and perpendicular to the direction of flow.</p>	<p>While processing Sorona®, all of the potential hazards associated with molding thermoplastic polyester resins must be anticipated and either eliminated or guarded against by following established industry procedures. Hazards include:</p> <ul style="list-style-type: none"> <li>Thermal burns resulting from exposure to hot molten polymer.</li> <li>Fumes generated during drying, processing, and regrind operations.</li> <li>Formation of gaseous and liquid degradation products.</li> </ul> <p>MSDSs include such information as hazardous components, health hazards, emergency and first aid procedures, disposal procedures, and storage information.</p> <p>Note: Adequate ventilation and proper protective equipment should be used during all aspects of the molding process. Refer to the DuPont Ventilation Guide for more detailed information.</p>

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K22007  
05/2009