Versaflex™ CL2000X

Thermoplastic Elastomer

Key Characteristics

Product Description

Versaflex™ CL2000X is an ultra-soft TPE designed for use in injection molding applications where exceptional clarity and an extremely soft feel are desired.

- Tactile Feel
- Ultra-Soft
- Water Clarity

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Latin America • North America	
Features	• High Clarity	• Soft	
Uses	• Artificial Skin • Consumer Applications	• Footwear • Personal Care	• Toys • Transparent or Translucent Parts
Agency Ratings	• FDA		
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent		
Forms	• Pellets		
Processing Method	• Injection Molding		

Technical Properties [1]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / Specific Gravity	0.870	0.870	ASTM D792
Molding Shrinkage - Flow	0.036 to 0.040 in/in	3.6 to 4.0 %	ASTM D955
Elastomers	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Stress [2, 3] (100% Strain, 73°F (23°C))	14.9 psi	0.103 MPa	ASTM D412
Tensile Stress [2, 3] (300% Strain, 73°F (23°C))	35.0 psi	0.241 MPa	ASTM D412
Tensile Strength [2, 3] (Break, 73°F (23°C))	300 psi	2.07 MPa	ASTM D412
Tensile Elongation [2, 3] (Break, 73°F (23°C))	1100 %	1100 %	ASTM D412
Tear Strength	50.0 lbf/in	8.76 kN/m	ASTM D624
Compression Set (73°F (23°C), 22 hr)	23 %	23 %	ASTM D395
Hardness	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Durometer Hardness			ASTM D2240
Shore A, 10 sec, 73°F (23°C)	3	3	
Fill Analysis	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Apparent Viscosity			ASTM D3835
392°F (200°C), 11200 sec^-1	2.20 Pa·s	2.20 Pa·s	

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Suggested Max Regrind	20 %	20 %
Rear Temperature	241 to 300 °F	116 to 149 °C

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Injection	Typical Value (English)	Typical Value (SI)
Middle Temperature	280 to 360 °F	138 to 182 °C
Front Temperature	309 to 370 °F	154 to 188 °C
Nozzle Temperature	320 to 379 °F	160 to 193 °C
Processing (Melt) Temp	290 to 340 °F	143 to 171 °C
Mold Temperature	55 to 90 °F	13 to 32 °C
Back Pressure	0.00 to 80.1 psi	0.00 to 0.552 MPa
Screw Speed	15 to 75 rpm	15 to 75 rpm

Injection Notes

Color concentrates with Versaflex™ CL2000X as the carrier are most suitable for coloring this product. If a Versaflex™ CL2000X color concentrate carrier is desired, it is important that the chosen color house have underwater pelletization capabilities. Typical loadings for color concentrates are from 1% to 5% by weight. Liquid color (pigment, not dye) can be used; white oil carriers are recommended. A high color match consistency can be obtained by using precolored compounds available from GLS. Polypropylene (PP) based color concentrates are not recommended because they lead to poor dispersion and can significantly change the hardness of the material. Concentrates based on PVC should not be used. The final determination of color concentrate suitability should be determined by customer trials.

Purge thoroughly before and after use of this product with a low flow (0.5 - 2.5 MFR) polyethylene (PE) or polypropylene (PP).

Regrind levels up to 20% can be used with Versaflex™ CL2000X with minimal property loss, provided that the regrind is free of contamination. To minimize losses during molding, the melt temperature should remain as low as possible. The final determination of regrind effectiveness should be determined by the customer.

The Versaflex™ CL2000X has good melt stability. Maximum residence times may vary, depending on the size of the barrel. Generally, the barrel should be emptied if it is idle for periods of 5 - 8 minutes or longer.

Drying is not Required

Injection Speed: 0.5 to 2 in/sec
1st Stage - Boost Pressure: 80 to 300 psi
2nd Stage - Hold Pressure: 30% of Boost
Hold Time (Thick Part): 3 to 10 sec
Hold Time (Thin Part): 1 to 3 sec

Notes

[1] Typical values are not to be construed as specifications.

[2] Die C

[3] 2 hr

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