Versaflex™ CL2250 Clear HM

Thermoplastic Elastomer

Key Characteristics

Product Description

Versaflex™ CL2250 is an easy processing compound designed for use in injection molding applications where FDA compliance, clarity and enhanced heat resistance are required.

- Excellent Clarity
- Overmold Adhesion to Polypropylene
- Superior Colorability
- Very Good Heat and Boil Resistance

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Latin America • North America	
Features	• Good Colorability • Good Moldability	• Good Processability • Good Processing Stability	• High Clarity
Uses	• Medical/Healthcare Applications • Overmolding	• Pacifiers • Personal Care	• Transparent or Translucent Parts
Agency Ratings	• FDA 21 CFR 177.1210 [1] • ISO 10993-4	• ISO 10993-5 • USP Class VI [2]	
RoHS Compliance	• RoHS Compliant		
Appearance	• Clear/Transparent		
Forms	• Pellets		
Processing Method	• Injection Molding		

Technical Properties [3]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / Specific Gravity	0.890	0.890	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	13 g/10 min	13 g/10 min	ASTM D1238
Molding Shrinkage - Flow	8.0E-3 to 0.012 in/in	0.80 to 1.2 %	ASTM D955
Mechanical	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Flexural Modulus	2020 psi	13.9 MPa	ASTM D790
Elastomers	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Stress [4, 5] (100% Strain, 73°F (23°C))	220 psi	1.52 MPa	ASTM D412
Tensile Stress [4, 5] (300% Strain, 73°F (23°C))	337 psi	2.32 MPa	ASTM D412
Tensile Strength [4, 5] (Break, 73°F (23°C))	827 psi	5.70 MPa	ASTM D412
Tensile Elongation [4, 5] (Break, 73°F (23°C))	770 %	770 %	ASTM D412
Tear Strength	140 lbf/in	24.5 kN/m	ASTM D624
Compression Set (73°F (23°C), 22 hr)	20 %	20 %	ASTM D395B
Hardness	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Durometer Hardness (Shore A, 10 sec)	50	50	ASTM D2240
Fill Analysis	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Apparent Viscosity			ASTM D3835
392°F (200°C), 11200 sec^-1	11.9 Pa·s	11.9 Pa·s	

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Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Suggested Max Regrind	20 %	20 %
Rear Temperature	340 to 370 °F	171 to 188 °C
Middle Temperature	380 to 430 °F	193 to 221 °C
Front Temperature	380 to 440 °F	193 to 227 °C
Nozzle Temperature	410 to 440 °F	210 to 227 °C
Processing (Melt) Temp	410 to 430 °F	210 to 221 °C
Mold Temperature	55 to 100 °F	13 to 38 °C
Back Pressure	0.00 to 80.0 psi	0.00 to 0.552 MPa
Screw Speed	25 to 75 rpm	25 to 75 rpm

Injection Notes

Color concentrates based on polypropylene (PP), ethylene vinyl acetate (EVA), or low density polyethylene (LDPE) are most suitable for coloring Versaflex™ CL2250. Improved color dispersion can be achieved by using higher melt flow concentrates (with a melt flow from 25-40 g/10 min). Typical loadings for color concentrates are 1% to 5% by weight. Liquid color can be used, but mineral oil based carriers may have a significant effect on the final hardness value. Concentrates based on PVC should not be used. A high color match consistency can be obtained by the use of precolored compounds available from GLS. 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™ CL2250 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.

Versaflex™ CL2250 has excellent 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 8 - 10 minutes or longer.

Drying is not Required

Injection Speed: 0.5 to 2 in/sec
1st Stage - Boost Pressure: 100 to 800 psi
2nd Stage - Hold Pressure: 30% of Boost
Hold Time (Thick Part): 4 to 10 sec
Hold Time (Thin Part): 1 to 3 sec

Notes

[1] Please contact GLS Thermoplastic Elastomers for a copy of the FDA compliance letter.

[2] Please contact PolyOne GLS Thermoplastic Elastomers for a complete copy of the GLS Healthcare Policy.
1. The Customer must notify GLS of any FDA Class I and/or European Union Class I medical devices for each specific product and application.
2. The Customer shall not knowingly manufacture, use, sell or otherwise supply, directly or indirectly products or compounds made from GLS products in any of the following without prior written approval by GLS for each specific product or application:
a. Cosmetics
b. Drugs and other Pharmaceuticals
c. Temporary or permanent implantation in the human body, regardless of the intended duration of implantation
d. Class II and Class III Medical Devices as defined in 21 CFR 860.3 ("Medical Devices")
e. Class IIa, IIb and III as defined in Directive 93/42/EEC

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

[4] Die C

[5] 2 hr

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