Versalloy™ HC 9220-90

Thermoplastic Elastomer

Key Characteristics

Product Description

Versalloy™ HC 9220-90 is a TPV alloy targeted for extrusion and injection molding healthcare applications such as medical tubing, disposable medical items and soft-touch overmolding for surgical grips.

* Excellent Extrudability
* Good Flow for Injection Molding
* Exceptional Colorability
* Overmold Adhesion to Polypropylene
* Superior Surface Aesthetics

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Latin America • North America	
Features	• Good Colorability • Good Processability	• Good Surface Finish • Non-Phthalate Plasticizer	• Recyclable Material
Uses	• Flexible Grips • Medical/Healthcare Applications	• Overmolding • Soft Touch Applications	• Tubing
Agency Ratings	• ISO 10993-4	• ISO 10993-5	
RoHS Compliance	• RoHS Compliant		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

Technical Properties [1]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / Specific Gravity	0.935	0.935	ASTM D792
Molding Shrinkage			ISO 294-4
Across Flow	1.9 %	1.9 %	
Flow	2.1 %	2.1 %	
Elastomers	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Stress [2]			ASTM D412
Across Flow : 100% Strain, 70°F (21°C)	1030 psi	7.10 MPa	
Flow : 100% Strain, 70°F (21°C) [3]	1330 psi	9.16 MPa	
Tensile Stress [3, 2]			ASTM D412
Flow : 300% Strain, 70°F (21°C)	1520 psi	10.5 MPa	
Across Flow : 300% Strain, 73°F (23°C)	1180 psi	8.16 MPa	
Tensile Strength [3, 2]			ASTM D412
Flow : Break, 70°F (21°C)	1880 psi	13.0 MPa	
Across Flow : Break, 73°F (23°C)	2010 psi	13.9 MPa	
Tensile Elongation [3, 2]			ASTM D412
Across Flow : Break, 73°F (23°C)	700 %	700 %	
Flow : Break, 70°F (21°C)	540 %	540 %	

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Elastomers	Typical Value (English)	Typical Value (SI)	Test Method
Tear Strength			ASTM D624
Across Flow	385 lbf/in	67.4 kN/m	
Flow	414 lbf/in	72.4 kN/m	
Compression Set			ASTM D395B
73°F (23°C), 22 hr	25 %	25 %	
73°F (23°C), 168 hr	25 %	25 %	
158°F (70°C), 22 hr	41 %	41 %	
158°F (70°C), 168 hr	59 %	59 %	
212°F (100°C), 22 hr	55 %	55 %	
212°F (100°C), 168 hr	69 %	69 %	
Hardness	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Durometer Hardness (Shore A, 10 sec)	90	90	ASTM D2240
Fill Analysis	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Apparent Viscosity			ASTM D3835
392°F (200°C), 11200 sec^-1	28.6 Pa·s	28.6 Pa·s	

Additional Information

Versalloy™ HC 9220-90 can be recycled as a filler or impact modifier for polyolefins, or can be recycled by grinding and reintroduction to the molding process. Similar to PP or PE recycling process, if separated appropriately, it can be recycled many times.

Municipality waste stream recycle code is "7" which is designated for "Other".

Please contact GLS Thermoplastic Elastomers for a copy of our Recyclability Compliance letter.

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	176 °F	80 °C
Drying Time	3.0 hr	3.0 hr
Suggested Max Regrind	20 %	20 %
Rear Temperature	350 to 380 °F	177 to 193 °C
Middle Temperature	360 to 425 °F	182 to 218 °C
Front Temperature	380 to 425 °F	193 to 218 °C
Nozzle Temperature	380 to 435 °F	193 to 224 °C
Mold Temperature	60 to 80 °F	16 to 27 °C
Back Pressure	0.00 to 100 psi	0.00 to 0.689 MPa
Screw Speed	50 to 100 rpm	50 to 100 rpm

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Injection Notes

Color concentrates with polypropylene (PP) carrier are most suitable for coloring Versalloy™ HC 9220-90. 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. 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 Versalloy™ HC 9220-90 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.

Versalloy™ HC 9220-90 has good melt stability. Empty the barrel for idle periods of fifteen (15) minutes or longer.

Injection Speed: 1 to 5 in/sec
1st Stage - Boost Pressure: 300 to 700 psi
2nd Stage - Hold Pressure: 30% of Boost
Hold Time (Thick Part): 4 to 10 sec
Hold Time (Thin Part): 1 to 3 sec

Extrusion	Typical Value (English)	Typical Value (SI)
Drying Temperature	176 °F	80 °C
Drying Time	3.0 hr	3.0 hr
Cylinder Zone 1 Temp.	330 to 360 °F	166 to 182 °C
Cylinder Zone 2 Temp.	350 to 400 °F	177 to 204 °C
Cylinder Zone 3 Temp.	360 to 420 °F	182 to 216 °C
Die Temperature	360 to 410 °F	182 to 210 °C

Notes

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

[2] 2 hr

[3] Die C

CONTACT INFORMATION

North America
Avon Lake, United States
33587 Walker Road
Avon Lake, OH, United States , 44012
+1 440 930 1000
+1 844 4AVIENT

South America
Sao Paulo, Brazil
Av. Francisco Nakasato, 1700
13295-000 Itupeva
Sao Paulo, Brazil
+55 11 4593 9200

Asia
Shanghai, China
2F, Block C
200 Jinsu Road
Pudong, 201206
Shanghai, China
+86 (0) 21 6028 4888

Europe
Pommerloch, Luxembourg
19 Route de Bastogne
Pommerloch, Luxembourg , L-9638
+352 269 050 35

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