DSM Biomedical PurSil® AL 20 Aliphatic Thermoplastic Silicone Polyether Urethane (discontinued **)

Category : Polymer , Thermoplastic , Polyurethane, TP , Silicone Polyurethane, Ether Based

Material Notes:

PurSil® AL is a family of aliphatic, thermoplastic silicone polyether urethane copolymers. These polymers are formed by the incorporation of silicone in the polymer backbone together with polyether soft segments, and the use of Surface-Modifying End Groups™ (SME) to terminate the polymer chain. The biocompatibility of conventional silicones has been combined with the processability and toughness of thermoplastic polyurethanes. In related aromatic polyether urethanes the covalently bonded silicone seems to protect the polyether soft segment from oxidative degradation in vivo. Although less than 1% silicone can give silicone-like surface properties, higher silicone contents are useful in obtaining silicone-like bulk properties such as gas permeability or reduced water absorption. In the PurSil® AL family there are three currently available polymers with different silicone contents: 5%, 10% and 20% by weight. Depending on silicone content, modulus can be as low as that of natural rubber. The range of silicone content provides the device developer with the opportunity to select a particular formulation for a specific application. Optical transparency is possible over the range of silicone contents. These polymers have an unusual combination of high strength and high elongation with very low modulus values. This makes them attractive as high-performance thermoplastic silicone-polyurethanes that are potential alternatives to conventional thermo-set silicone rubber in both disposable and short term implantable biomedical devices. They are also used in applications that require good stability with exposure to visible light*.Non-cytotoxic, non-hemolytic

Order this product through the following link:
http://www.lookpolymers.com/polymer_DSM-Biomedical-PurSil-AL-20-Aliphatic-Thermoplastic-Silicone-Polyether-Urethane-nbspdiscontinued-.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.07 g/cc	1.07 g/cc	ASTM D792
Linear Mold Shrinkage	0.032 cm/cm	0.032 in/in	4.0 inch Disk; ASTM D955
Melt Flow	2.0 g/10 min @Temperature 224 °C	2.0 g/10 min @Temperature 435 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	80	80	ASTM D2240
Tensile Strength, Ultimate	35.45 MPa	5141 psi	ASTM D1708
Tensile Strength, Yield	2.47 MPa @Strain 50.0 %	358 psi @Strain 50.0 %	ASTM D1708
	3.85 MPa @Strain 100 %	559 psi @Strain 100 %	ASTM D1708
	12.84 MPa	1862 psi	ASTM D1708

Mechanical Properties	Metric	English	Comments
	@Strain 300 %	@Strain 300 %	
Elongation at Break	524 %	524 %	ASTM D1708
Tear Strength	36.8 kN/m	210 pli	Die 'C'; ASTM D624
Taber Abrasion, mg/1000 Cycles	7.3	7.3	H-18 Wheel; ASTM D1044
Compression Set	18 % @Temperature 25.0 °C	18 % @Temperature 77.0 °F	22 hours; ASTM D395

Thermal Properties	Metric	English	Comments
CTE, linear	191 µm/m-°C @Temperature 20.0 °C	106 µin/in-°F @Temperature 68.0 °F	ASTM E-831

Electrical Properties	Metric	English	Comments
Dielectric Constant	5.7 @Frequency 60 Hz	5.7 @Frequency 60 Hz	ASTM D150
Dielectric Strength	12.8 kV/mm	325 kV/in	ASTM D149

Processing Properties	Metric	English	Comments
Processing Temperature	182 - 204 °C	360 - 399 °F	
Drying Temperature	82.0 - 104 °C	180 - 219 °F	
Dry Time	4 - 6 hour	4 - 6 hour	to moisture < 0.01%

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