

## DSM Biomedical PurSil® 20 Thermoplastic Silicone Polyether Polyurethane (TSPU)

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

### Material Notes:

A novel copolymer that is strong yet flexible with proven biocompatibility and biostability Combining the benefits of both silicone elastomers and polyether urethanes, PurSil® TSPU has exceptional stability. Flexible PurSil® TSPU is comparable in tensile strength to traditional polyether urethanes with added biostability from the silicone component. It is adaptable to various fabrication techniques to accommodate many different device shapes and can be extruded, injection or compression molded, solvent bonded, dipped coated and sprayed. This highly flexible polymer is available in aromatic and aliphatic versions. Widely Used Because of its outstanding flexibility, oxidative stability and thromboresistance, PurSil® TSPU is used in a wide range of medical devices, including ophthalmic, anastomotic, and continuous glucose monitoring. Tailor Made PurSil® TSPU can be enhanced with SME® technology to incorporate end groups such as fluorocarbon and/or polyethylene oxide (silicone end groups are standard). This eliminates the need for additional surface processing steps after the device component is fabricated. Summary of Product Benefits Biostable and biocompatible Adaptable to many different processing techniques Excellent mechanical properties relative to conventional silicone elastomers Thromboresistant Enhanced with SME® technology utilizing various surface modifying end groups Comprehensive FDA Master File Grade denotes silicone content (%) Information provided by DSM Biomedical.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_DSM-Biomedical-PurSil-20-Thermoplastic-Silicone-Polyether-Polyurethane-TSPU.php](http://www.lookpolymers.com/polymer_DSM-Biomedical-PurSil-20-Thermoplastic-Silicone-Polyether-Polyurethane-TSPU.php)

Physical Properties	Metric	English	Comments
Specific Gravity	1.11 g/cc	1.11 g/cc	ASTM D792
Linear Mold Shrinkage	0.011 cm/cm	0.011 in/in	4.0 inch Disk; ASTM D955
Linear Mold Shrinkage, Transverse	0.0080 - 0.023 cm/cm	0.0080 - 0.023 in/in	Flame Bar; ASTM D955
Melt Flow	30 g/10 min @Load 1.20 kg, Temperature 224 °C	30 g/10 min @Load 2.65 lb, Temperature 435 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	80	80	ASTM D2240
Tensile Strength, Ultimate	32.19 MPa	4669 psi	ASTM D1708
Tensile Strength, Yield	4.73 MPa @Strain 50.0 %	686 psi @Strain 50.0 %	ASTM D1708
	6.18 MPa @Strain 100 %	897 psi @Strain 100 %	ASTM D1708
	12.73 MPa	1846 psi	ASTM D1708

Mechanical Properties	@Strain 300 % Metric	@Strain 300 % English	Comments
Elongation at Break	565 %	565 %	ASTM D1708
Flexural Strength	1.52 MPa	220 psi	at 5% deflection; ASTM D790
Flexural Modulus	0.0383 GPa	5.55 ksi	1% Secant Modulus; ASTM D790
Tear Strength	68.4 kN/m	390 pli	Die 'C'; ASTM D624
Taber Abrasion, mg/1000 Cycles	26	26	H-18 Wheel; ASTM D1044
Compression Set	28 % @Temperature 25.0 °C	28 % @Temperature 77.0 °F	22 hours; ASTM D395

Thermal Properties	Metric	English	Comments
CTE, linear	189 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 20.0 °C	105 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 68.0 °F	ASTM E-831
Vicat Softening Point	73.0 °C	163 °F	ASTM D1525
Glass Transition Temp, Tg	-27.0 °C	-16.6 °F	ASTM D3418

Electrical Properties	Metric	English	Comments
Dielectric Constant	6.7 @Frequency 60 Hz	6.7 @Frequency 60 Hz	ASTM D150
Dielectric Strength	13.8 kV/mm	350 kV/in	ASTM D149

Processing Properties	Metric	English	Comments
Processing Temperature	182 - 204 °C	360 - 399 °F	Optimum Extrusion Conditions

Descriptive Properties	Value	Comments
Color	Clear to Amber Pellets	
Cytotoxicity (1X MEM Elution)	Non-cytotoxic	
Genotoxicity: Bacterial Reverse	Non-mutagenic	
Genotoxicity: in vitro	Non-genotoxic	
In Vitro Hemolysis Study	Non-hemolytic	
ISO Intracutaneous	No evidence of significant irritation from	
ISO Maximization Sensitization	No evidence of causing delayed dermal	

ISO Rabbit Pyrogen Descriptive Properties	Non-pyrogenic Value	Comments
Mouse Bone Marrow	No evidence of cellular toxicity	
Plasma Recalcification Time	No significant effect on recalcification time	
Subchronic Intravenous Toxicity	No significant evidence of systemic	
USP and ISO Systemic Toxicity	No mortality or evidence of significant	

## Contact Songhan Plastic Technology Co.,Ltd.

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