DSM Biomedical CarboSil® 5 Thermoplastic Silicone Polycarbonate Polyurethane (TSPCU)

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polyurethane, TP , Silicone Polyurethane, Polycarbonate Based

Material Notes:

A ground-breaking copolymer that combines the biocompatibility and biostability of conventional silicone elastomers with the processability and toughness of thermoplastic polycarbonate-urethanes The silicone portion of CarboSil® TSPCU works synergistically with the polycarbonate component to improve stability. This medical grade polymer is highly biocompatible and well suited to be used in many types of medical devices. Flexible CarboSil® TSPCU is comparable in tensile strength to traditional polycarbonate urethanes and derives additional biostability from the silicone portion. The material is adaptable to various fabrication techniques to accommodate many different device shapes. It can be extruded, injection or compression molded, solvent bonded, dipped coated and sprayed. Widely Used Because of its tensile strength, biocompatibility and flexibility, CarboSil® TSPCU is used in a wide range of medical applications, including cardiovascular and nervous system electrostimulation, continuous glucose monitoring, drug eluting and orthopedic implants. Tailor Made CarboSil® TSPCU can be enhanced with SME® technology to incorporate end groups that can address the needs of specific device applications (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 Thromboresistant Enhanced with SME® technology 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-CarboSil-5-Thermoplastic-Silicone-Polycarbonate-Polyurethane-TSPCU.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.20 g/cc	1.20 g/cc	ASTM D792
Melt Flow	18 g/10 min @Load 1.20 kg, Temperature 224 °C	18 g/10 min @Load 2.65 lb, Temperature 435 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	90	90	ASTM D2240
Tensile Strength, Ultimate	54.15 MPa	7854 psi	ASTM D1708
Tensile Strength, Yield	8.301 MPa @Strain 50.0 %	1204 psi @Strain 50.0 %	ASTM D1708
	11.20 MPa @Strain 100 %	1624 psi @Strain 100 %	ASTM D1708
	33.57 MPa @Strain 300 %	4869 psi @Strain 300 %	ASTM D1708
Elongation at Break	435 %	435 %	ASTM D1708

Mechanical Properties	Metric	English	Comments
Processing Properties	**Metric**	**English**	**Comments**
Processing Temperature	190 - 210 °C	374 - 410 °F	Optimum Extrusion Conditions

Descriptive Properties	Value	Comments
26 week Carcinogenicity Study in the Transgenic ras H2 Mouse Model	No increase in induced tumor formation	
Chronic Toxicity, Subcutaneous Implant	No evidence of systemic toxicity	
Color	Clear to Amber Pellets	
Cytotoxicity	No evidence of causing cell lysis or toxicity	
Genotoxicity: Bacterial Reverse Mutation (95% ethanol extract)	Non-mutagenic	
Genotoxicity: Bacterial Reverse Mutation (saline extract)	Non-mutagenic	
Genotoxicity: In Vitro Chromosomal Aberration	Non-genotoxic	
Hemolysis	Non-hemolytic	
ISO Intracutaneous Irritation	No evidence of significant irritation	
ISO Maximization Sensitization	No evidence of causing delayed dermal contact sensitization	
Mouse Bone Marrow Micronucleus	Non-genotoxic	
Muscle Implantation, 12 weeks	Non-irritant	
Muscle Implantation, 2 weeks	Non-irritant	
USP and ISO Systemic Toxicity	No evidence of systemic toxicity	
USP Pyrogen Study	Non-pyrogenic	

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