

## DSM Biomedical CarboSil® 20 55D 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-20-55D-Thermoplastic-Silicone-Polycarbonate-Polyurethane-TSPCU.php](http://www.lookpolymers.com/polymer_DSM-Biomedical-CarboSil-20-55D-Thermoplastic-Silicone-Polycarbonate-Polyurethane-TSPCU.php)

| Physical Properties | Metric  | English   | Comments   |
|---------------------|---|---|------------|
| Specific Gravity    | 1.18 g/cc   | 1.18 g/cc   | ASTM D792  |
| Melt Flow           | 17 g/10 min<br>@Load 2.16 kg,<br>Temperature 224 °C | 17 g/10 min<br>@Load 4.76 lb,<br>Temperature 435 °F | ASTM D1238 |

| Mechanical Properties      | Metric                      | English                    | Comments   |
|----------------------------|-----------------------------|----------------------------|------------|
| Hardness, Shore D          | 55                          | 55                         | ASTM D2240 |
| Tensile Strength, Ultimate | 42.58 MPa                   | 6175 psi                   | ASTM D1708 |
| Tensile Strength, Yield    | 13.33 MPa<br>@Strain 50.0 % | 1934 psi<br>@Strain 50.0 % | ASTM D1708 |
|                            | 17.04 MPa<br>@Strain 100 %  | 2472 psi<br>@Strain 100 %  | ASTM D1708 |
|                            | 37.88 MPa<br>@Strain 300 %  | 5494 psi<br>@Strain 300 %  | ASTM D1708 |

| Elongation at Break<br>Mechanical Properties | 344 %<br>Metric | 344 %<br>English | ASTM D1708<br>Comments |
|--|-----------------|------------------|------------------------|
|--|-----------------|------------------|------------------------|

| Thermal Properties | Metric | English | Comments |
|--------------------|--------|---------|----------|
|--------------------|--------|---------|----------|

|                           |         |         |  |
|---------------------------|---------|---------|--|
| Glass Transition Temp, Tg | 5.00 °C | 41.0 °F |  |
|---------------------------|---------|---------|--|

| Processing Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
|-----------------------|--------|---------|----------|

|                        |              |              |  |
|------------------------|--------------|--------------|--|
| Processing Temperature | 190 - 210 °C | 374 - 410 °F |  |
|------------------------|--------------|--------------|--|

| 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 |  |
|-------------------|---------------|--|

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215, Fengxian District, Shanghai City, China