

# Santoprene™ 281-55MED

## Thermoplastic Vulcanizate

### Product Description

A soft, colorable, specialty thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. It is designed for use in medical and healthcare applications. This grade of Santoprene TPV is shear-dependent and can be processed on conventional thermoplastics equipment for injection molding or extrusion. It is polyolefin based and recyclable within the manufacturing stream.

### Key Features

- Based on a series of biocompatibility tests conducted on representative grades, this grade should meet the USP (U.S. Pharmacopeia) Class VI requirements for plastics.
- Additionally some ISO 10993 tests have been conducted.
- Each medical grade undergoes annual testing for cytotoxicity and heavy metals.
- Drug master file maintained with the FDA.

### General

|                           |  |  |  |
|---------------------------|--|--|--|
| Availability <sup>1</sup> | <ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> </ul>             | <ul style="list-style-type: none"> <li>Europe</li> <li>Latin America</li> </ul>                      | <ul style="list-style-type: none"> <li>North America</li> </ul>                              |
| Applications              | <ul style="list-style-type: none"> <li>Medical - Soft Touch Grips, USP Class VI Seals and Gaskets</li> </ul> |  |  |
| Uses                      | <ul style="list-style-type: none"> <li>Medical/Healthcare Applications</li> </ul>                            |  |  |
| Agency Ratings            | <ul style="list-style-type: none"> <li>USP Class VI</li> </ul>   |  |  |
| RoHS Compliance           | <ul style="list-style-type: none"> <li>RoHS Compliant</li> </ul>   |  |  |
| Color                     | <ul style="list-style-type: none"> <li>Natural Color</li> </ul>  |  |  |
| Form(s)                   | <ul style="list-style-type: none"> <li>Pellets</li> </ul>  |  |  |
| Processing Method         | <ul style="list-style-type: none"> <li>Coextrusion</li> <li>Extrusion</li> </ul>                             | <ul style="list-style-type: none"> <li>Injection Molding</li> <li>Multi Injection Molding</li> </ul> | <ul style="list-style-type: none"> <li>Profile Extrusion</li> <li>Sheet Extrusion</li> </ul> |
| Revision Date             | <ul style="list-style-type: none"> <li>06/20/2014</li> </ul>   |  |  |

### Physical

|                            | Typical Value (English) | Typical Value (SI)      | Test Based On |
|----------------------------|-------------------------|-------------------------|---------------|
| Density / Specific Gravity | 0.960                   | 0.960                   | ASTM D792     |
| Density                    | 0.960 g/cm <sup>3</sup> | 0.960 g/cm <sup>3</sup> | ISO 1183      |

### Hardness

|                              | Typical Value (English) | Typical Value (SI) | Test Based On |
|------------------------------|-------------------------|--------------------|---------------|
| Shore Hardness               |                         |                    | ISO 868       |
| Shore A, 15 sec, 73°F (23°C) | 60                      | 60                 |               |

### Elastomers

|   | Typical Value (English) | Typical Value (SI) | Test Based On |
|---|-------------------------|--------------------|---------------|
| Tensile Set (73°F (23°C))                             | 5 %                     | 5 %                | ASTM D412     |
| Tensile Set (73°F (23°C))                             | 5 %                     | 5 %                | ISO 2285      |
| Tensile Stress at 100% - Across Flow (73°F (23°C))    | 290 psi                 | 2.00 MPa           | ASTM D412     |
| Tensile Stress at 100% - Across Flow (73°F (23°C))    | 290 psi                 | 2.00 MPa           | ISO 37        |
| Tensile Strength at Break - Across Flow (73°F (23°C)) | 711 psi                 | 4.90 MPa           | ASTM D412     |
| Tensile Stress at Break - Across Flow (73°F (23°C))   | 711 psi                 | 4.90 MPa           | ISO 37        |
| Elongation at Break - Across Flow (73°F (23°C))       | 410 %                   | 410 %              | ASTM D412     |
| Tensile Strain at Break - Across Flow (73°F (23°C))   | 410 %                   | 410 %              | ISO 37        |
| Compression Set                                       |                         |                    | ASTM D395B    |
| 73°F (23°C), 168 hr, Type 1                           | 20 %                    | 20 %               |               |
| 212°F (100°C), 168 hr, Type 1                         | 48 %                    | 48 %               |               |
| Compression Set                                       |                         |                    | ISO 815       |
| 73°F (23°C), 168 hr, Type A                           | 20 %                    | 20 %               |               |
| 212°F (100°C), 168 hr, Type A                         | 48 %                    | 48 %               |               |

### Injection Notes

Santoprene TPV is incompatible with acetal and PVC in the molten state. For more information regarding processing and mold design, please consult our Injection Molding Guide.

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#### Extrusion Notes

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| Aging   | Typical Value (English) | Typical Value (SI) | Test Based On |
|---|-------------------------|--------------------|---------------|
| Change in Tensile Strength in Air<br>212°F (100°C), 168 hr        | 11 %                    | 11 %               | ASTM D573     |
| Change in Tensile Strength in Air<br>212°F (100°C), 168 hr        | 11 %                    | 11 %               | ISO 188       |
| Change in Ultimate Elongation in Air<br>212°F (100°C), 168 hr     | 9.0 %                   | 9.0 %              | ASTM D573     |
| Change in Tensile Strain at Break in Air<br>212°F (100°C), 168 hr | 9.0 %                   | 9.0 %              | ISO 188       |

#### Additional Information

Where applicable, test results based on fan gated, 2.0 mm injection molded plaques. Tensile strength, elongation and tensile stress are measured across the flow direction. Test results are generated by ExxonMobil test methods that may not fully conform to the ASTM and/or ISO methods. Test methods are available upon request. Compression set at 25% deflection. All products purchased directly from an ExxonMobil affiliate in Europe are REACH compliant. For products not imported into Europe by ExxonMobil, customers should assess their legal responsibilities under REACH.

#### Legal Statement

This product, including the product name, shall not be used or tested in any medical application without the prior written acknowledgement of ExxonMobil Chemical as to the intended use. For detailed Product Stewardship information, please contact Customer Service.

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#### Processing Statement

Desiccant drying for 3 hours at 80°C (180°F) is recommended. Santoprene TPV has a wide temperature processing window from 175 to 230°C (350 to 450°F) and is incompatible with acetal and PVC in the molten state. For more information, please consult our Safety Data Sheet, Injection Molding Guide and Extrusion Guide.

#### Notes

Typical properties: these are not to be construed as specifications.

<sup>1</sup> Product may not be available in one or more countries in the identified Availability regions. Please contact your Sales Representative for complete Country Availability.

For additional technical, sales and order assistance: [www.exxonmobilchemical.com/ContactUs](http://www.exxonmobilchemical.com/ContactUs)

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