

# SANTOPRENE® 191-85 PA (PRELIMINARY)

## SANTOPRENE®

A hard, black, thermoplastic vulcanizate (TPV) in the thermoplastic elastomer (TPE) family. This material is specially formulated to bond to polyamides (PA6 and PA66) through a **2K injection molding process**. This grade is not recommended for cold insert process.

This grade of Santoprene® TPV is shear-dependent and can be processed on conventional thermoplastics equipment for injection molding. It is polyolefin based and recyclable within the manufacturing stream.

Key Features Adheres to polyamide 6 and 6.6 compounds while keeping the excellent fatigue performances of Santoprene TPV and UV resistance making this grade suitable for outdoor applications (passed typical f1 weathering requirements).

### Product information

Resin Identification	TPV	ISO 1043
Part Marking Code	>TPV<	ISO 11469

### Typical mechanical properties

Tensile stress at 100% elongation, perpendicular	4.2 <sup>[1]</sup> MPa	ISO 37
Tensile stress at break, perpendicular	6.9 <sup>[1]</sup> MPa	ISO 527-1/-2 or ISO 37
Elongation at break, perpendicular	400 <sup>[1]</sup> %	ISO 527-1/-2 or ISO 37
Shore A hardness, 15s	84	ISO 48-4 / ISO 868
Compression set, 23 °C, 24h	34 <sup>[2]</sup> %	ISO 815
Compression set, 70 °C, 24h	64 <sup>[2]</sup> %	ISO 815
Compression set, 125 °C, 70h	62 %	ISO 815

[1]: ISO 37

[2]: TypeB test-piece, 15% compression

### Injection

Drying Recommended	yes
Drying Temperature	80 °C
Drying Time, Dehumidified Dryer	≥3 h
Processing Moisture Content	≤0.03 %
Melt Temperature Optimum	270 °C
Min. melt temperature	260 °C
Max. melt temperature	280 °C
Mold Temperature Optimum	70 °C
Min. mould temperature	60 °C
Max. mould temperature	80 °C

### Characteristics

Processing	Injection Moulding, Coextrusion
Delivery form	Pellets

### Additional information

Injection molding

### Preprocessing

Please refer to our Santoprene processing guide in order to find the injection molding pre-start-up as well as Quick process start-up.

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### Processing

For 2K over-molding, use a machine which has a general purpose polyolefinic screw with a compression ratio of 2:1 to 2.5:1 and a length to diameter ratio between 16:1 and 22:1 is sufficient.

The best practice for any injection molding is to utilize 40 to 80% of the barrel capacity for each shot. This typically translates to 1.3 to 3 shots in the barrel to avoid long residence time in the barrel.

We recommend a small cushion, typically 3 to 6 mm (0.125 to 0.250") for good cavity packing.

For optimum adhesion, a fast injection time is recommended to reach typical filling time between 0.5 and 2 seconds depending on part volume, runner gate style and size, cavity location and injection pressure.

We recommend a high screw RPM to be applied between 100 and 200 rpm with back pressure between 3.5 and 7 bars.

Adhesion to polyamide will be heavily driven by the melt temperature as below:

- Adhesion to polyamide 6.6 compounds: 280C
- Adhesion to polyamide 6 compounds: 270 - 280C

The above data are preliminary and are subject to change as additional data are developed on subsequent lots.

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

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