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Celanese
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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[1]	MPa	ISO 37
Tensile stress at break, perpendicular	6.9[1]	MPa	ISO 527-1/-2 or ISO 37
Elongation at break, perpendicular	400[1]	%	ISO 527-1/-2 or ISO 37
Shore A hardness, 15s	84		ISO 48-4 / ISO 868
Compression set, 23°C, 24h	34[2]	%	ISO 815
Compression set, 70°C, 24h	64[2]	%	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 refere 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, runnergate 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