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P.I. 01842120188

# **Technical Data Sheet**

**Provisional** 

# SIPOLPRENE® S 6312

#### DESCRIPTION

SIPOLPRENE® S 6312 is an experimental thermoplastic copolyester (TPC) with a content of renewable resources of 46% calculated according to ASTM D6866. It is developed and manufactured by Sipol, with a nominal hardness of Shore D 63, a very low modulusand a rheological behaviour, which makes it suitable for injection molding.

SIPOLPRENE ® S 6312 comes in a natural colour with a standard stabilisation package, fully in compliance with American FDA and European EU 10/2011 Food Contact Regulations.

#### THERMAL PROPERTIES

PROPERTY	TEST METHOD	M.U.	TYPICAL VALUE
Melting temperature	ISO 11357-3	°C	209
Crystallization temperature	ISO 11357-3	°C	163
Glass transition temperature	ISO 11357-2	°C	-4
Vicat A /50	ISO 306	°C	192

#### RHEOLOGICAL PROPERTIES

	PROPERTY	TEST METHOD	M.U.	VALUE
MFI	230 °C, 2.16 Kg	ISO 1133	g/10 min	22
MVR	230 °C, 2.16 Kg	ISO 1133	cm <sup>3</sup> /10min	18

## **MECHANICAL PROPERTIES**

PROPERTY	TEST METHOD	M.U.	TYPICAL VALUE
Shore D hardness, instantaneous / 15 s	ISO 868	Shore D	63/60
Stress at break	ISO 527	MPa	40
Elongation at break	ISO 527	%	370
Flexural modulus	ISO 178	MPa	291
Abrasion resistance (Vertical load 5N)	ISO 4649	mm³	33
Izod impact resistance/notched (23°C)	ISO 180	J/m	121
Izod impact resistance/notched (-40°C)	ISO 180	J/m	40
Compression set (23°C)	ISO 815:1991	%	43
Compression set (70°C)	ISO 815:1991	%	67
Molding shrinkage (perpendicular to flow)	ISO 294-4	%	2.0

Revision date: 05/09/2022 Revision n° O

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# **CHEMICAL RESISTANCE**

CHEMICAL AGENTS	EXPOSURE (Days, RT)	TEST METHODS	U.M.	VALUE
Antifreeze	14	ASTM D 543	A_B_C_NR	А
Ethanol	14	ASTM D 543	A_B_C_NR	A
Hydraulic oil	14	ASTM D 543	A_B_C_NR	В
Mineral oil	14	ASTM D 543	A_B_C_NR	A
Soap solution	14	ASTM D 543	A_B_C_NR	В
Isododecane	14	ASTM D 543	A_B_C_NR	Α

A: excellent resistance; B: good resistance; C: Poor resistance; NR: not resistance

### OTHER PROPERTIES

PROPERTY	TEST METHOD	M.U.	TYPICAL VALUE
Density	ISO 1183	g/cm³	1,21
Water absorption (23°C x 24 h immersion)	MI 08	%	0.20
Breathability	MI 18	g/(m²x24h)	0.8
Hydrolysis resistance (Fluidity increase after 7 days immersion at 80 °C)	MI 20	%	110
Renewable source content (calculated according to ASTM D6866)	ASTM D6866	% (Bio C/Total C)	46

## PROCESSING CONDITIONS

Suggested temperature profile for injection molding

MELTING TEMPERATURE	MOLD TEMPERATURE	NOZZLE	FRONT ZONE 3	CENTER ZONE 2	REAR ZONE 1
°C	°C	°C	°C	°C	°C
209	30 - 40	225	220	210	200

## Suggested temperature profile for extrusion

MELTING TEMPERATURE	MFI	FEEDING ZONE	COMPRESSION ZONE	METERING ZONE	HEAD/DIE
°C	g/10 min.	°C	°C	°C	°C
209	22 (230°C, 2.16 Kg)	195 - 210	210 - 220	210 - 225	210 - 225

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#### DRYING CONDITIONS

Drying recommended = Yes
Drying temperature = 90 °C
Drying time, dehumidifier dryer = 2-3 h
Processing moisture content = 0,15%

### **PACKAGING**

25 kg bags equipped with an aluminum film barrier against moisture action. 500 kg cardboard octabins equipped with an inner PE liner. 500 Kg and 1000 Kg big bags.

### STORAGE

Product is stable for 12 months when stored unopened in its original packaging, kept in a cool and dry place and protected from light. When stocked around 5 – 10°C or below, it is recommended to keep it at 15 – 20°C for at least for 24 hours before using it.

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