SIPOL SpA
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Cap. Soc. € 600.000 i.v. – R.E.A. PV n. 225329
Reg. Imprese di Pavia PV/C.F. 01669490037
P.I. 01842120188

Technical Data Sheet

Provisional

SIPOLPRENE® S 5501

DESCRIPTION

SIPOLPRENE® S 5501 is an experimental thermoplastic copolyester (TPC) with a content of renewable resources of 25% calculatedaccording to ASTM D6866. It is developed and manufactured by Sipol, with a nominal hardness of Shore D 54, a very low modulusand a rheological behaviour, which makes it suitable for injection molding.
SIPOLPRENE® S 5501 comes in a natural colour with a standard stabilisation package, fully in compliance with American FDA andEuropean EU 10/2011 Food Contact Regulations.

THERMAL PROPERTIES

PROPERTY	TEST METHOD	M.U.	TYPICAL VALUE
Melting temperature	ISO 11357-3	°C	195
Crystallization temperature	ISO 11357-3	°C	140
Glass transition temperature	ISO 11357-2	°C	-27
Vicat A /50	ISO 306	°C	164

RHEOLOGICAL PROPERTIES

PROPERTY	TEST METHOD	M.U.	VALUE
MFI 230 °C, 2.16 Kg	ISO 1133	g/10 min	26
MVR 230 °C, 2.16 Kg	ISO 1133	cm^3/10min	22

MECHANICAL PROPERTIES

PROPERTY	TEST METHOD	M.U.	TYPICAL VALUE
Shore D hardness, instantaneous / 15 s	ISO 868	Shore D	54/50
Stress at break	ISO 527	MPa	36
Elongation at break	ISO 527	%	389
Flexural modulus	ISO 178	MPa	158
Izod impact resistance/notched (23°C)	ISO 180	J/m	No break
Izod impact resistance/notched (-40°C)	ISO 180	J/m	158
Abrasion resistance (Vertical load 5N)	ISO 4649	mm^3	32
Compression set (23°C)	ISO 815:1991	%	39
Compression set (70°C)	ISO 815:1991	%	64
Molding shrinkage (perpendicular to flow)	ISO 294-4	%	1.8

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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	A
Ethanol	14	ASTM D 543	A_B_C_NR	B
Hydraulic oil	14	ASTM D 543	A_B_C_NR	B
Mineral oil	14	ASTM D 543	A_B_C_NR	B
Soap solution	14	ASTM D 543	A_B_C_NR	B
Isododecane	14	ASTM D 543	A_B_C_NR	A

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	1,20
Water absorption (23°C x 24 h immersion)	MI 08	%	0.20
Breathability	MI 18	g/(m²x24h)	1.8
Hydrolysis resistance (Fluidity increase after 7 days immersion at 80 °C)	MI 20	%	93
Renewable source content (calculated according to ASTM D6866)	ASTM D6866	% (Bio C/Total C)	25

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
195	30 - 40	215	210	200	190

Suggested temperature profile for exstrusion

MELTING TEMPERATURE	MFI	FEEDING ZONE	COMPRESSION ZONE	METERING ZONE	HEAD/DIE
°C	g/10 min.	°C	°C	°C	°C
195	26 (230°C, 2.16 Kg)	190 - 205	205 - 215	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.