SULAPAC

TECHNICAL DATA SHEET

SULAPAC SOLID

Updated 17.3.2022

Version 1.3

SULAPAC SOLID – IM1019

MATERIAL FEATURES

Now you can replace ceramics and conventional plastics with a bio-based alternative. Sulapac Solid is hard-wearing, and it has high impact strength. This sustainable material has low carbon footprint, and a beautiful ceramic look and feel. It is dishwasher and microwave safe and can be processed with existing plastic product machinery. To reach the high performance, material is injection molded with hot (100°C) mold.

The material is 100% bio-based and certified according to ASTM D6866 under the USDA BioPreferred® program. Most importantly, Sulapac Solid doesn't leave permanent microplastics behind.

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MECHANICAL PROPERTIES		
MATERIAL	SULAPAC SOLID	POLYPROPYLENE
PHYSICAL PROPERTIES		
Hardness (Shore D)	n.d.	55-75
Material density (g/cm^3)	1.38	0.9
Shrinkage (%)	< 0.5	1 … 2
Heat deflection temperature (HDT-B) (°C)	130	
TENSILE PROPERTIES (ISO 527-1)		
Tensile strength (MPa)	59	20
Tensile modulus (GPa)	8.5	1.20
Tensile strain (%)	1.2	100-600 (typical)
FLEXURAL PROPERTIES (ISO 178)		
Flexural strength (MPa)	83	23
Flexural modulus (GPa)	8.5	1.25
Flexural strain (%)	1.3	-
IMPACT PROPERTIES (Unnotched, ISO 179-1)		
Charpy impact strength (kJ/m^2)	14	165
RHEOLOGICAL PROPERTIES (ISO 1133)		
MFI (190°C/2.16 kg)	3-6 g/10 min	5-35 (typical)

PROCESSING INSTRUCTIONS FOR INJECTION MOLDING

MOISTURE AND DRYING
INSTRUCtIONS

- Before processing, the granules should be dried using a dehumidifying or vacuum dryer.
- If a dehumidifying dryer is used, the granules should be dried for at least 4 hours at 100°C.
- If a vacuum drying system is used, the granules should be first dried for at least 20 minutes at 100°C and then kept in the vacuum for at least 40 minutes.
- Avoid exposing the material to ambient conditions after drying.
- Moisture content can lead to hydrolysis.
- Dried granules should be mixed with the color masterbatch after the granules have cooled down in order to avoid the agglomeration of color masterbatch granules.

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PROCESSING CONDITIONS		
	TEMPERATURE	**GENERAL INSTRUCTIONS**
Throat	40-60°C	• Typical settings may require optimization. • Both cold and hot runner systems are suitable for this material. • Valve gate systems can be used. • Avoid using temperatures above 210°C in order to lower the risk of polymer degradation. • The dwell time of the material inside the machine shall be reduced to minimum in order to lower the risk of thermal degradation.
Feed zone	150-165°C	
Compression zone	180-200°C	
Homogenizing zone	185-200°C	
Machine nozzle	185-210°C	
Back pressure	5-10 bar	
Screw speed, max	< 0,25 m/s	
Hot runner nozzle and pushing	180-210°C	
Tooling temperature Tmold	**100°C**	

PURGING INSTRUCTIONS		
BEFORE PRODUCTION	**DURING PRODUCTION**	**AFTER PRODUCTION**
• Purge the plasticization unit and the hot runner with PE (or PP). • To purge the plasticization unit and hot runner from residual PE (or PP) or previous production recipes, at least 10 cycles should be produced from Sulapac material before starting the actual production.	• The material has a tendency to degrade and therefore needs a constant melt flow. • The condition of the mold should be regularly monitored and, if necessary, the mold should be cleaned using e.g. a glass fiber brush or mold cleaning agents. • If an extensive amount of burned material starts to appear in the products, try lowering processing temperature	• Purge the plasticization unit and the hot runner with PE (or PP). • Clean up the mold after production. The temperature of the mold is recommended to be elevated to 70°C. Generally used mold cleaning agents can be utilized.

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STORAGE AND TRANSPORTATION INSTRUCTIONS

STORAGE AND TRANSPORTATION CONDITIONS

GRANUELS

- It is recommended to store granules in their closed, original moisture barrier packaging.
- Storage in direct sunlight or in rain should be avoided.
- Storage time of unopened bags at room temperature (23 °C) may not surpass 12 months.
- Temperatures during transportation and storage may not exceed 60°C at any time.

SULAPAC COLOR PALETTE

GRANUELS

- Sulapac color masterbatches for Sulapac Solid are currently under development.

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