

TECHNICAL DATA SHEET

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Version 3.1

SULAPAC PREMIUM FLEX 40 – IM1011

MATERIAL FEATURES

Sulapac's Premium range of materials makes your products look and feel luxurious. The ceramic sound and visible wood chips' haptic touch make it stand out. It is ideal for sustainable products that aim for an air of luxury. The grade of Sulapac Premium Flex 40 is more flexible and has better impact strength.

It sets a new standard when comparing biodegradable materials to conventional plastics as it biodegrades without leaving permanent microplastics behind¹. This drop-in solution material can be mass produced with minor, or no changes, to the existing injection molding machinery. Our technical experts are available to assist with the tests and production settings.

The material is safe for both people and the planet: the ecotoxicity and threshold values for heavy metals of the raw materials have been verified to meet EN 13432 and/or ASTM D6400. The raw materials comply with the food contact requirements of the EU. They fulfil the requirements of REACH and Proposition 65 compliant and meet the framework regulation (EC) No.1223/2009 for cosmetic products. The material is non-GMO.

Sulapac Premium Flex 40 contains 87 % USDA certified biobased content². The main components are wood from industrial side streams and biopolymers. All of the raw materials are sourced according to a strict sustainability policy and the wood originates from certified forests.



Sulapac Premium Flex 40 is certified as industrially compostable by Biodegradable Products Institute BPI up to thickness of 1,24 mm. As the compostability of the end product is also dependent on the geometry of product, it is the responsibility of the manufacturer of the end product to ensure compliance with the regulations.



Sulapac Premium Flex 40 is available as FSC-certified meaning the wood is sustainably sourced. By choosing this product, you help take care of the world's forests.

Sulapac's FSC license number is FSC-C158142.



For more details, visit sulapac.com/key-features

¹ Sulapac materials within the same family of recipes show biodegradation of 26-60% at 140 days in the marine environment (30°C / 86°F) (ASTM D6691).

² USDA Certified Biobased Product label is a certification mark of the U.S. Department of Agriculture.



MECHANICAL PROPERTIES		
MATERIAL	SULAPAC PREMIUM FLEX 40	POLYPROPYLENE
TENSILE PROPERTIES (ISO 527-1)		
Tensile strength (MPa)	38	20
Tensile modulus (GPa)	4.3	1.20
Tensile strain (%)	1.4	100-600 (typical)
FLEXURAL PROPERTIES (ISO 178)		
Flexural strength (MPa)	70	25
Flexural modulus (GPa)	4.6	1.25
Flexural strain (%)	2.2	-
IMPACT PROPERTIES (Unnotched, ISO 179-1)		
Charpy impact strength (kJ/m ²)	8	165
RHEOLOGICAL PROPERTIES (ISO 1133)		
MFI (190°C/2.16 kg)	n.a*	5-35 (typical)

*Not possible to measure due to large wood particles.

PROCESSING INSTRUCTIONS FOR INJECTION MOLDING

MOISTURE AND DRYING
INSTRUCTIONS
<ul style="list-style-type: none"> • 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 to avoid the agglomeration of color masterbatch granules.

PROCESSING CONDITIONS

TEMPERATURE		GENERAL INSTRUCTIONS
Throat	40 – 60°C	<ul style="list-style-type: none"> • 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 200°C to reduce the risk of wood and polymer degradation. • The dwell time of the material inside the machine shall be reduced to a minimum to lower the risk of thermal degradation.
Feed zone	160 – 170°C	
Compression zone	170 – 185°C	
Homogenizing zone	175 – 190°C	
Machine nozzle	175 – 190°C	
Back pressure	5 – 10 bar	
Screw Speed, max	< 0,25 m/s	
Hot runner nozzle and bushing	180 – 200°C	
Tooling temperature T_{mold} ,	20 – 40°C	

PURGING INSTRUCTIONS

BEFORE PRODUCTION	DURING PRODUCTION	AFTER PRODUCTION
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.

STORAGE AND TRANSPORTATION INSTRUCTIONS

STORAGE AND TRANSPORTATION CONDITIONS

GRANULES

- It is recommended to store granules in their closed, original moisture barrier packaging at temperatures below 45°C.
- Storage in dry conditions.
- Storage in direct sunlight or in rain should be avoided.
- Temperatures during transportation and storage may not exceed 60°C at any time.
- Material shelf-life is 24 months from the manufacturing date when stored at room temperatures (23 °C). Manufacturing date can be found on the label on material packaging.

COLOUR MASTERBATCHES

SULAPAC COLOR PALETTE

MASTERBATCHES

Sulapac's colors have been inspired by Nordic nature. The Sulapac Premium Flex 40 is by default Natural Wood - colored. Sulapac has 8 food contact approved color masterbatches that can be used to color the natural Premium Material. The recommended loading percentage or dosage of the color masterbatches is 0.5-4 weight-%.

	Warm Granite	First Snow	Natural Wood					
Wild Cloudberry	Hearty Pine	Sweet Blueberry	Blooming Blackberry	Summer Strawberry	Cherry Blossom			



Sulapac is proud to be an ISO 9001 and ISO 14001 certified company

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