

## TECHNICAL DATA SHEET

6.3.2023

Version 1.1

# SULAPAC LUXE – IM1025

## MATERIAL FEATURES

Sulapac Luxe is a bio-based (~80%) material for injection molding made of sustainably sourced biodegradable biopolymers and wood flour. It is safe for people and the planet: it leaves no permanent microplastic or toxic load behind. The material is recyclable and can also be made with recycled content. Sulapac Luxe is resistant to temperature fluctuations, has a ceramic feel and sound, and enables a glossy, smooth surface for a product, making it ideal for caps and lids of premium cosmetics packaging, for example.

MECHANICAL PROPERTIES	
MATERIAL	SULAPAC LUXE (IM1025)
<b>PHYSICAL PROPERTIES</b>	
Material density (g/cm <sup>3</sup> )	1.27
Shrinkage (%)	0.3
<b>TENSILE PROPERTIES (ISO 527-1)</b>	
Tensile strength (MPa)	50
Tensile modulus (GPa)	3.6
Tensile strain (%)	2
<b>FLEXURAL PROPERTIES (ISO 178)</b>	
Flexural strength (MPa)	75
Flexural modulus (GPa)	3.7
Flexural strain (%)	2.7
<b>IMPACT PROPERTIES (Unnotched, ISO 179-1)</b>	
Charpy impact strength (kJ/m <sup>2</sup> )	15
<b>RHEOLOGICAL PROPERTIES (ISO 1133)</b>	
MFI (190 °C/2.16 kg)	14 – 16



## PROCESSING INSTRUCTIONS FOR INJECTION MOLDING

MOISTURE AND DRYING	
<b>INSTRUCTIONS</b>	
<ul style="list-style-type: none"> <li>• Before processing, the granules should be dried using a dehumidifying dryer or a vacuum dryer.</li> <li>• If a dehumidifying dryer is used, the granules should be dried for at least 4 hours at 80 °C.</li> <li>• If a vacuum drying system is used, the granules should be first dried for at least 20 minutes at 60 °C and then kept in the vacuum for at least 40 minutes.</li> <li>• Avoid exposing the granules to ambient conditions after drying.</li> <li>• Moisture content can lead to hydrolysis.</li> <li>• If color masterbatch is added, the granules should be cooled down in order to avoid the agglomeration of color masterbatch granules.</li> </ul>	

PROCESSING CONDITIONS		
	TEMPERATURE	GENERAL INSTRUCTIONS
Throat	40 – 60 °C	<ul style="list-style-type: none"> <li>• Typical settings may require optimization.</li> <li>• Both cold and hot runner systems are suitable for this material.</li> <li>• Valve gate systems can be used.</li> <li>• Avoid using temperatures above 200 °C in order to lower the risk of material degradation.</li> <li>• The dwell time of the material inside the machine shall be reduced to a minimum in order to lower the risk of thermal degradation.</li> </ul>
Feed zone	150 – 170 °C	
Compression zone	160 – 180 °C	
Homogenizing zone	175 – 200 °C	
Machine nozzle	175 – 200 °C	
Back pressure	50 – 100 bar	
Screw speed, max	< 0.2 m/s	
Hot runner nozzle and bushing	190 – 220 °C	
Tool temperature T <sub>mold</sub>	20 – 40 °C	

### PURGING INSTRUCTIONS

BEFORE PRODUCTION	DURING PRODUCTION	AFTER PRODUCTION
<ul style="list-style-type: none"> <li>Purge the plasticization unit and the hot runner with PP or PE.</li> <li>To purge the plasticization unit and hot runner from residual PP, PE or previous production recipes, at least 10 cycles should be produced from Sulapac material before starting the actual production.</li> </ul>	<ul style="list-style-type: none"> <li>The material has a tendency to degrade and therefore needs a constant melt flow.</li> <li>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 agent.</li> <li>If an extensive amount of burned material starts to appear in the products, try lowering processing temperature.</li> </ul>	<ul style="list-style-type: none"> <li>Purge the plasticization unit and hot runner with PP or PE.</li> <li>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.</li> </ul>

## STORAGE AND TRANSPORTATION INSTRUCTIONS

### STORAGE AND TRANSPORTATION CONDITIONS

#### GRANUELS

- It is recommended to store the granules in their closed, original moisture barrier packaging at temperatures below 45 °C.
- Storage in dry conditions.
- Storage in direct sunlight should be avoided.
- Temperatures during transportation may not exceed 60 °C.
- Material shelf-life is 12 months from the manufacturing date when stored at room temperatures (23 °C). Manufacturing date can be found on the label on material packaging.



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

The information provided in this technical data sheet is based on our current knowledge and experience at the date of its publication. In view of the individual factors that may affect processing and application, this data does not relieve users from the responsibility of carrying out their own tests and experiments. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition, or application. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.