

TECHNICAL DATA SHEET

21.02.2023

Version 1.3

SULAPAC UNIVERSAL FLEX 30 HIGH FLOW – IM1015

MATERIAL FEATURES

Sulapac Universal Flex 30 High Flow is a beautiful and functional material for injection molding. It contains 79% USDA certified biobased content¹, including sustainably sourced biodegradable biopolymers and side stream wood.

With ideal flexural strain and impact strength, and excellent processability the material is well suited for complicated designs like knives and forks. It can be used for both single-use and reusable cutlery.

Sulapac Universal Flex 30 High Flow is safe for people and the planet: It is industrially compostable certified (BPI, Seedling) and leaves no permanent microplastic² or toxic load behind. It meets the requirements for food contact materials by EU and FDA³.

Read more about the material features and their validation at sulapac.com/key-features

¹ The USDA Certified Biobased Product label is a certification mark of the U.S. Department of Agriculture.

² Relative biodegradation of 57.6 % in 462 days in the marine environment (30°C / 86°F) (ASTM D6691) as tested in a third-party laboratory. Not considered degradable in California.

³ Restrictions and specifications of use apply, please refer to relevant Declaration of Compliance for further information.



MECHANICAL PROPERTIES		
MATERIAL	SULAPAC UNIVESAL FLEX 30 HIGH FLOW	POLYPROPYLENE
PHYSICAL PROPERTIES		
Material density (g/cm ³)	1.27	0.90
Shrinkage (%)	0.3 ...0.4	1 ...2
TENSILE PROPERTIES (ISO 527-1)		
Tensile strength (MPa)	33	20
Tensile modulus (GPa)	3.0	1.20
Tensile strain (%)	2.9	100 - 600 (typical)
FLEXURAL PROPERTIES (ISO 178)		
Flexural strength (MPa)	56	25
Flexural modulus (GPa)	3.4	1.25
Flexural strain (%)	2.6	-
IMPACT PROPERTIES (Unnotched, ISO 179-1)		
Charpy impact strength (kJ/m ²)	12	165
RHEOLOGICAL PROPERTIES (ISO 1133)		
MFI (190°C/2.16 kg)	12 g / 10min	5 - 35 (typical)

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 105°C. • If a vacuum drying system is used, the granules should be first dried for at least 20 minutes at 105°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. • If color masterbatch is added, the granules should be cooled down to 50°C in order 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	150 – 165 °C	
Compression zone	160 – 175 °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 18 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.