

TECHNICAL DATA SHEET

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Version 1.1

SULAPAC UNIVERSAL 30 HIGH FLOW – IM1015

SULAPAC UNIVERSAL 30 LOW FLOW – IM1016

MATERIAL FEATURES

The Universal Flex 30 is ideal for single-use and reusable cutlery that ensures easy mass-manufacturing and outstanding usability. Beautiful and sustainable option for injection molding. Ideal flexural strain and impact strength for complicated designs like knives and forks. Food contact approved to use with all kinds of foods in short term from 70 °C up to 100 °C for both single- and repeated use¹.

This bio-based (78%) material biodegrades without leaving permanent microplastics behind². The preferred recycling method is industrial composting³.

¹Sulapac Universal and Universal Flex 30 materials meet the EU and US FDA requirements for food contact materials in the described specifications for use and with the specified restrictions

²Sulapac materials within the same family of recipes show biodegradation of 57,6% at 462 days in the marine environment (30°C / 86°F) (ASTM D6691), 28% at 153 days when tested according to ASTM 5511 (99 °F) accelerated biodegradation in the landfill.

³The materials have been tested at third party laboratory and/or industrial composting facility and shown to meet the requirements of EN13432 and ASTM D6400 for industrial compostability. Seeding certification in process. Check your local municipal recycling website to see if composting services are offered in your community

CERTIFICATES

Sulapac Universal 30 High Flow – IM1015



The material is 79% bio-based and certified according to ASTM D6866 under the USDA BioPreferred® program.



Sulapac Universal 30 Low Flow – IM1016



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compostable
7W0496

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MECHANICAL PROPERTIES			
MATERIAL	SULAPAC UNIVERSAL 30 HIGH FLOW	SULAPAC UNIVERSAL 30 LOW FLOW	POLYPROPYLENE
PHYSICAL PROPERTIES			
Material density (g/cm ³)	1.27	1.27	0.90
Shrinkage (%)	0.3 ...0.4	0.3 ...0.4	1 ...2
TENSILE PROPERTIES (ISO 527-1)			
Tensile strength (MPa)	33	35	20
Tensile modulus (GPa)	3.0	2.8	1.20
Tensile strain (%)	2.9	3.3	100-600 (typical)
FLEXURAL PROPERTIES (ISO 178)			
Flexural strength (MPa)	56	59	25
Flexural modulus (GPa)	3.4	3.3	1.25
Flexural strain (%)	2.6	3.0	-
IMPACT PROPERTIES (Unnotched, ISO 179-1)			
Charpy impact strength (kJ/m ²)	12	16	165
RHEOLOGICAL PROPERTIES (ISO 1133)			
MFI (190°C/2.16 kg)	12g / 10min	2g / 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.
- 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.