

## TECHNICAL DATA SHEET

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Version 2.1

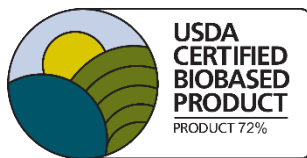
# SULAPAC FLOW 1.7 – EX1013

## MATERIAL FEATURES

Sulapac Flow 1.7 is a sustainable extrusion material with outstanding functional properties and a unique, natural look and feel. It is ideal for thin-walled structures like straws. Sulapac Flow 1.7 contains 72% USDA certified biobased content. The main components are wood from industrial side streams and bio-based biodegradable polymers.

Sulapac Flow 1.7 is safe for both people and the planet: the material is certified as industrially compostable by BPI and Seedling<sup>1</sup> and leaves no permanent microplastics or toxic load behind<sup>2</sup>. Sulapac Flow 1.7 meets the EU and US FDA requirements for food contact materials<sup>3</sup>.

For further information, visit [sulapac.com/key-features/](https://sulapac.com/key-features/)



<sup>1</sup> The compostability has been tested up to the thickness of 910  $\mu\text{m}$  according to BPI (ASTM D6400) and 270  $\mu\text{m}$  according to Seedling (EN13423 & ASTM D6400). As the compostability of an 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.

<sup>2</sup> Relative biodegradation of 75,5% in 420 days in simulated marine environment test (ASTM D6691, 86 °F / 30 °C) using natural sea water. Not considered biodegradable in California.

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

**MECHANICAL PROPERTIES – SULAPAC FLOW 1.7**

| PROPERTY                                  | METRIC UNIT       | TYPICAL VALUE |
|---|-------------------|---------------|
| <b>RHEOLOGICAL PROPERTIES</b>             |                   |               |
| MFI (190°C/2.16 kg)                       | g/10min           | 1 – 4         |
| <b>TENSILE PROPERTIES (ISO 527-1)</b>     |                   |               |
| Tensile strength                          | MPa               | 33            |
| Tensile modulus                           | MPa               | 2300          |
| Tensile strain                            | %                 | 11            |
| <b>THERMAL PROPERTIES - DSC, 10°C/min</b> |                   |               |
| Melting point                             | °C                | 151           |
| Glass transition temperature              | °C                | 58            |
| <b>OTHER PHYSICAL PROPERTIES</b>          |                   |               |
| Material density                          | g/cm <sup>3</sup> | 1.26          |
| Bulk density                              | g/cm <sup>3</sup> | 0.72          |
| Flexural modulus (ISO 178)                | MPa               | 3000          |
| Impact strength (ISO 179, unnotched)      | kJ/m <sup>2</sup> | 34            |
| Hardness (Shore D)                        | NA                | 84            |

**PROCESSING INSTRUCTIONS FOR EXTRUSION**

**MOISTURE AND DRYING**

**INSTRUCTIONS**

- Before processing the granules should be dried using a dehumidifying dryer or vacuum dryer
- If a dehumidifying dryer is used, the granules should be dried for at least 4-6 hours at 75°C
- If a vacuum dryer is used, the granules should be dried for at least 20 min at 75°C and when kept in the vacuum for at least 40 minutes.
- The best end result will be achieved if the residual moisture of the granules is < 0,2 %.
- Avoid exposing the material to the ambient conditions after drying.
- Excessive moisture content can lead to degradation of binders via hydrolysis during processing.
- 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.

| PROCESSING CONDITIONS     |             |  |
|---------------------------|-------------|--|
|                           | TEMPERATURE | GENERAL INSTRUCTIONS   |
| Feed Zone                 | RT - 180°C  | <ul style="list-style-type: none"> <li>• Typical settings may require optimization.</li> <li>• Avoid using temperatures above 200°C to lower the risk of wood and binder degradation.</li> <li>• The dwell time of the material inside the machine shall be reduced to a minimum to lower the risk of thermal degradation. Degradation products may cause corrosion of equipment.</li> <li>• Decreasing temperature profile is recommended.</li> </ul> |
| Melt Zone                 | 155 - 180°C |  |
| Mixing and conveying zone | 155 - 180°C |  |
| Die                       | 155 - 180°C |  |

## STORAGE AND TRANSPORTATION INSTRUCTIONS

| STORAGE AND TRANSPORTATION   |
|--|
| <p><b>INSTRUCTIONS</b></p> <ul style="list-style-type: none"> <li>• It is recommended to store the granules in their closed, original moisture barrier packaging at room temperature (23°C).</li> <li>• Storage in direct sunlight or in rain should be avoided.</li> <li>• Temperatures during transportation and storage may not exceed 60°C at any time.</li> <li>• 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.</li> </ul> |



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

The information provided in this safety data sheet is based on our current knowledge and experience at the date of its publication and describe the material only with regards to safety requirements. 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