

# Biocomposites by Stora Enso

## Pure S50



storaenso

Technical Data Sheet

Issued 2022-05-11

### Description

- Biocomposites for injection moulding
- Consists of a wood-fiber reinforced polymer matrix
- Available with visible fibers to enhance the natural look and feel
- Can be colored with using standard masterbatches, see separate document *Masterbatch & dilution guidelines*.

### Typical applications

- Furniture
- Kitchen utensils
- Food service packaging
- Industrial components
- Toys

### Application areas

- Pure grades are generally suitable for replacing the following polymers:
  - HDPE
  - GPPS
  - PP
  - PPGF

### Certifications & Compliance

- The grade(s) are in compliance with below regulation(s)\*, as amended up to the date of issue.
  - EN 71-3, Safety for Toys
  - EU Legislation 1935/2004
  - EU Legislation 2023/2006
  - Plastic regulation EU/10/2011

Typical properties and technical data	Standard	Pure S50	Unit
<b>Wood content (weight)</b>	-	50	%
<b>Density</b>	ISO 1183	1,10	g/cm <sup>3</sup>
<b>MVR (220°C/5kg)</b>	ISO 1133	8,0	cm <sup>3</sup> /10min
<b>Tensile strength</b>	ISO 527-2/50	49	MPa
<b>Tensile modulus</b>	ISO 527-2/2	5700	MPa
<b>Strain at break</b>	ISO 527-2/50	1,8	%
<b>Flexural strength</b>	ISO 178	74	MPa
<b>Flexural modulus</b>	ISO 178	5300	MPa
<b>Charpy impact strength, 23°C</b>	ISO 179/1eU	16	kJ/m <sup>2</sup>
<b>Vicat B 50N</b>	ISO 306	127	°C
<b>HDT A 1,8MPa</b>	ISO 75-2/A	130	°C

### When choosing an Eco-PP grade ( ISCC+ certified polypropylene )

Our grades are available with ISCC+ certified polypropylene which guarantees that the fossil feedstock is replaced by renewable content. The renewable feedstock contains waste and residues from vegetable oil refining and cooking oil. The certification encompasses the entire value chain, including traceability to point of origin.

### Environmentally friendly and Recyclable

All of our grades can be mechanically recycled. In general, it's preferred to separate Biocomposites from other materials to be fully re-manufactured. Biocomposites can be separated for recycling in various ways, including density-based and NIR-based methods. It has been tested that Biocomposites will not negatively effect a plastic waste stream. If instead incinerated, less fossil CO<sub>2</sub> will be released into the atmosphere, compared to a conventional polymer.

\*Please note that restrictions may apply, contact your sales representative for more information.

#### Disclaimer

All information is based on Stora Enso's testing and experience and is accurate to the best of our knowledge at the date of publication. This document is designed to act as a help for safe and efficient processing Biocomposites and should not be taken as a guarantee or be used to disregard standard safety regulations. Depending on use the process and properties may differ.

# Pure materials

## Process Instructions



Revised 2022-04-25 Ver 2022-04

### Safety instructions

#### *Avoid high temperatures & long residence times*

If the material is processed above the recommended temperatures the fibers will degrade resulting in a pressure buildup in the cylinder and gas formation. In case this occurs stay clear of formed gas and empty the cylinder of the injection moulding machine.

#### *Avoid large piles of purged material*

Purged reject can start to smolder, avoid piles of rejected material.

Keep the reject in an area clear of flammable materials and let cool for example with water before disposal.

#### *Injection Moulding*

Biocomposites is sensitive to prolonged exposure to temperatures above 180°C.

Avoid unnecessary heating and residence time.

Do not set any zones above **205°C**.

### Material Preparation

Your biocomposites material arrives dried and ready for injection molding. However, biocomposites can absorb moisture from the air so it should always be kept in sealed bags when not in use.

Therefore, additional drying may be required. Drying at 105°C for 2 hours or to a moisture content less than 0.2% of weight is recommended.

### Injection moulding settings

*Set injection molding machine within the following processing windows:*

<b>Nozzle tempering :</b>	<b>180°C-205°C</b>
<b>Zones used :</b>	<b>180°C-200°C</b>
<b>Zones unused :</b>	<b>150°C-180°C</b>
<b>Hot runner :</b>	<b>180°C-205°C</b>
<b>Mould tempering :</b>	<b>40°C - 100°C</b>

The below recommendations may vary on different machine and for different parts, due to mold design, flow lengths, machine specific shear forces and other parameters

<b>Injection speed :</b>	Start slow and increase speed to what needed to fill the mold.
<b>Holding pressure :</b>	At least 50% of injection pressure
<b>Holding time :</b>	Until gate freeze or lower
<b>Cooling time :</b>	Approximately 2 s/mm wall thickness.
<b>Shot size :</b>	25-75% of machine capacity. If changing from an unfilled polymer, increase shot size by approximately 10%.

### Supplier information

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