

Biocomposites by Stora Enso

Plus S40 Impact D



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
- Retail & Logistics
- Automotive
- Toys

Application areas

- Plus grades are generally suitable for replacing the following polymers:
 - PP
 - PPGF
 - PS
 - PPMF

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

Typical properties and technical data	Standard	Plus S40 Impact D	Unit
Wood content (weight)	-	40	%
Density	ISO 1183	1,06	g/cm ³
MVR (220°C/5kg)	ISO 1133	15	cm ³ /10min
Tensile strength	ISO 527-2/50	50	MPa
Tensile modulus	ISO 527-2/2	4600	MPa
Strain at break	ISO 527-2/50	3,5	%
Flexural strength	ISO 178	75	MPa
Flexural modulus	ISO 178	4400	MPa
Charpy impact strength, 23°C	ISO 179/1eU	25	kJ/m ²
Vicat B 50N	ISO 306	114	°C
HDT A 1,8MPa	ISO 75-2/A	109	°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 CO₂ 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.

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:

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

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

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

Supplier information

Address :

Stora Enso AB, Biocomposites, SE-31481, Hyltebruk, Sweden

Technical support :

Daniel Evaldsson, Technical Support Manager at Stora Enso AB, Biocomposites

Telephone: +46 7252 58706, E-mail: daniel.evaldsson@storaenso.com

Carl Ternström, Product Development Manager at Stora Enso AB, Biocomposites,

Telephone: +46 7060 79134 E-mail: carl.ternstrom@storaenso.com

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 of Biocomposites materials and should not be taken as a guarantee or be used to disregard standard safety regulations. Depending on use the process may differ.