Biocomposites by Stora Enso

Prime S40 Impact I

Technical Data Sheet Issued 2022-06-09

Description

- Biocomposites for injection moulding
- Consists of a wood fiber reinforced polymer matrix
- Available with biobased or fossil based polymer (Eco-version)
- Can be colored with using standard masterbatches, see separate document *Masterbatch & dilution guidelines.*

Typical applications

- Automotive
- Safety products
- Casing & components
- Industrial components
- Retail & Logistics

Application areas

- Prime grades are generally suitable for replacing the following polymers:
  - PPGF
  - ABS
  - PA
  - PC

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	Prime S40 Impact I	Unit
Wood content (weight)	-	40	%
Density	ISO 1183	1,06	g/cm³
MVR (220°C/5kg)	ISO 1133	6,0	cm³/10min
Tensile strength	ISO 527-2/50	68	MPa
Tensile modulus	ISO 527-2/2	4900	MPa
Strain at break	ISO 527-2/50	6,0	%
Flexural strength	ISO 178	91	MPa
Flexural modulus	ISO 178	4500	MPa
Charpy impact strength, 23°C	ISO 179/1eU	48	kJ/m2
Charpy notched impact, 23°C	ISO 179/1eA	10	kJ/m2
HDT A 1,8 MPa	ISO 75-2/A	105	°C

When choosing an Eco grade (Eco Prime S40 Impact I)

Our grades are available with ISCC+ certified polymer 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.

Stora Enso batch #: 102530

Prime 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 90°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

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