Datasheet 28th December, 2023

FibraQ®
by Biofiber Tech

ABS01-20W
Acrylonitrile butadiene styrene FibraQ compound with 20% wood fibres

Description:

Compounded formulation comprising 20 wt% FibraQ mixed with Acrylonitrile butadiene styrene using a twin-screw extruder. The material also includes 2% coupling agent, UV stabilizer, flowability aids and 1.5% white masterbatch. No further additives were used such as impact modifier, though they could be used to further improve some of the properties.

FibraQ is Biofiber Tech´s product, consisting of surface-modified wood fibres with better processability and dispersibility within polymer matrices.

General

Feature	Info
Processing Method	Injection moulding
Forms	Granule
Filler	Surface modified wood fibre, 20% filler by weight
Density	Ca. 1.09 g/cm^3
Renewable FibraQ content	20 wt%
Code name	ABS01-20W

Typical properties:

Feature	Method	Unit	Values
Tensile strength at Break	ISO 527-2:2012	MPa	46.5
Tensile modulus	ISO 527-2:2012	MPa	3750
Ultimate tensile strength	ISO 527-2:2012	MPa	46.6
Strain at Ultimate tensile strength	ISO 527-2:2012	%	1.79
Elongation at Break	ISO 527-2:2012	%	1.83
Flexural modulus	ISO 178-1:2010	MPa	3443
Flexural strength	ISO 178-1:2010	MPa	73.8
Impact strength (Charpy unnotched; 23°C)	ISO 179-1:2010	kJ/m^2	10.9
Impact strength (Charpy notched; 23°C)	ISO 179-1:2010	kJ/m^2	2.6
MFI (220°C, 10kg)	ISO 1133-1:2012	g/10 min	11.49
Vicat (B120) (120K/min)	ISO 306:2004	°C	92.4
Head deflection temperature (A120)	ISO 75	°C	83.6
Shrinkage rate	ISO 294-4	%	0.11

Biofiber Tech Sweden AB
NORRSKEN HOUSE
Birger Jarlsgatan 57 C
SE-113 56 Stockholm, Sweden

info@biofibertech.com
www.biofibertech.com
www.fibra-q.com

Injection moulding recommendations

1. **Drying the granulates:**
   To ensure optimal results, the compounded granulates should be dried prior to injection moulding. The recommended drying conditions are 4 h at 90°C. The recommended drying time may vary depending on storage conditions of the compounded granulate.

2. **Temperature:**
   The injection should be done at temperatures lower than 200°C to avoid fibre burning.

Matrix	Mould Temperature	Rear Barrel Temperature	Middle Barrel Temperature	Front Barrel Temperature	Nozzle Temperature
PP	20-50°C	160-175°C	175-185°C	180-185°C	180-190°C
PLA	25-55°C	160-175°C	170-185°C	175-190°C	180°C
ABS	40-80°C	180-200°C	190-205°C	200-210°C	205°C
PA11	20-70°C	180-200°C	190-200°C	200°C	200-205°C
rPE	50-60°C	165-175°C	170-180°C	175-185°C	175°C

3. **Continuous processing:**
   To avoid risk of material degradation, the dwell time of the material inside the injection moulding machine should be minimized. So continuous operation is highly recommended.

4. **Purge:**
   After production, it is very important to purge/rinse the injection moulding machine and tooling with neat PP (or whatever polymer matrix is being used) or a purging compound. In case there is still remaining material on the metal mould after purging, citric acid solution (10% in water) can be used to clean the surface.

Further remarks:
Regarding the other processing parameters, we advise to use, as a start, similar processing parameters to the neat polymer (PP, HDPE or other chosen matrix), as they are dependent on the injection moulding machine and dimensions of the injected parts. Changes in pressure, temperature or time can be then carried out, to find the optimum injection parameters with the composites.

Biofiber Tech Sweden AB
NORRSKEN HOUSE
Birger Jarlsgatan 57 C
SE-113 56 Stockholm, Sweden

info@biofibertech.com
www.biofibertech.com
www.fibra-q.com