

**TECHNICAL DATA SHEET****Product Name: ESR™ CarbonLite A113 (HMS3040)****Description:** The properties below are typical of bio-carbon reinforced high flex and stiffness polypropylene bio-composite compounded resin that **substitutes 20, 30 & 40% Talc Filled Polypropylene.**

Physical Properties	Typical Values*	Test Method
Melt Flow Index	12 g/10min @230°C, 2.16-kg	ISO 1133
New Carbon Content	20.0 %	C14
Moisture Content	≤1.0%	ASTM D6980
Density	1.01 g/cm ³	ISO 1183
Tensile Strength at Yield	55.0 MPa	ISO 527
Tensile Elongation at Yield	4.60 %	ISO 527
Tensile Elongation at Break	6.20 %	ISO 527
Flexural strength	74MPa	ISO 178
Flexural Modulus	3.30 GPa	ISO 178
Unnotched impact at 23°C	20 kJ/m ²	ISO 179/1eA, Specimen D
Notched Izod Impact at 23°C	3.50 kJ/m ²	ISO 179/1eA, Specimen D
Mold Shrinkage	1.5 % (0.014 –0.016 cm/cm)	ASTM D955
Fogging #	99.1	SAE J1756

Notes: *Values provided are typical and should not be interpreted as product specification.

The results reported are typical with the caveat that due to variable processing methods and conditions, no guarantees or warranties are expressed or implied, including expressions of fitness for purpose or merchantability. This is a patent pending formulation.





Suggested Processing Guidelines

Preconditioning

Dry down to 0.05% at 90°C in desiccant dryer using 40°C dew point of air possible for three to four hours. The resin is typically supplied in or around a moisture content of 0.5%. Please check incoming moisture to verify; if found to be above specification, please increase drying time to reduce moisture content equal to or below 0.05%. Please ensure the air temperature found within the desiccant dryer does not exceed 90°C.

Purging Sequence

At start-up and shutdown, it is recommended that the system be thoroughly purged to avoid cross-contamination. The following guidelines should be followed:

1. Clean the extruder and bring temperatures to steady state across each zone. Typically employing a low melt thermoplastic such as polypropylene or polyethylene.
2. Vacuum hopper to prevent cross-contamination.
3. Introduce the resin into screw.
4. Purge again once processing is completed with thermoplastic as above in point one.

Molding Parameters

The following processing conditions are recommended to optimize mold flow, and physical characteristics. The suggested processing profile and parameters are as follows:

Polymer Melt Temperature: 147°C (296.6°F) (maximum).

Barrel Temperature: 160°C (320°F) at hopper, increasing linearly to 246°C (475°F) at injection tip point.

Injection Tip Temperature: 260°C (500°F) (maximum).

Hot Runner: max. 273°C (524°F) +/- 2°C. Injection speed range: 0.5 – 1 mm/sec.

Mold Temperature: Keep B side (moving side) at room temperature (no chiller), approximately 35°C (95°F).

Injection Speed: 20-30% of maximum, based on venting, and reducing backpressure.

Back Pressure: Below 10% of injection pressure.

***Note:** Cooling cycle reduction advantage may not be fully realized when using our resin in a mold not designed with MFA.*

