

**TECHNICAL DATA SHEET****Product Name: ESR CorePro™ H106 BK****Description:** Black 100% home compostable injection grade bio-composite resin.

Physical Properties	Typical Values*	Test Method
Melt Flow Index	12.0 ± 2.0 g/10min @190°C, 2.16-kg	ISO 1133
Moisture Content	≤1.0%	ASTM D6980
Density	1.26 g/cm ³	ISO 1183
Tensile Strength at Yield	25.00 MPa	ISO 527
Tensile Elongation at Yield	7.00 %	ISO 527
Tensile Elongation at Break	8.50 %	ISO 527
Flexural Modulus	1.400 GPa	ISO 178
Notched Izod Impact at 23°C	3.850 kJ/m ²	ISO 180
Oxygen Transmission Rate (OTR)	0.001 cc/ pkg/ day at 100% Oxygen and 0% RH at 23 °C	ASTM D7709
Water Vapor Transmission Rate (WVTR)	0.05 g/m ² /day at tropical conditions (38°C and 90%RH)	ASTM D3985
Mold Shrinkage	0.30%	

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% or lower at 90°C in desiccant dryer using -40°C dew point of air 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; please modify drying time as necessary 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 barrel and bring temperatures to steady state across each zone, typically employing a thermoplastic such as polypropylene or polyethylene.
2. Vacuum the feed hopper to prevent cross-contamination.
3. Introduce the resin into screw, ensuring to limit residence time, such that at no time during molding the material resides within the barrel for more than five minutes; if this has been the case, please purge before resuming molding.
4. Purge again once molding is completed with thermoplastic.

Molding Parameters

As the polymer is thermally sensitive, the residence time in the barrel should be limited, as previously indicated. The suggested processing profile and parameters are as follows:

Barrel Temperature: 163°C (325°F), consistent from hopper to injection tip

Injection Tip Temperature: 170°C (338°F) (maximum)

Hot Runner: min. 163°C (325°F) +/- 2°C

Mold Condition: keep B side (moving side) warm, approximately 51°C (124°F)

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

Holding Pressure: adjusted to avoid unfilled parts or flashing at parting line

Hold Time: 10-20% of total cycle time to avoid overfilling, and mold adhesion

Screw Rotation Speed: 70-RPM to reduce shear heat

Back Pressure: below 10% of injection pressure

Cycle Time: material responds well to a lower cycle time, e.g., 6.5-seconds, and ensure 50% - 60% is allocated to mold open/close or cooling time adjusted to ensure parts are adequately cooled

Ejector: increase travel and pressure to facilitate release

Note: It is recommended to set the holding pressure as the manipulated variable, as opposed to modifying the injection speed, which is kept at or below setpoint, to ensure adequate venting within the cavity.

