



## TECHNICAL DATA SHEET

**Product Name:** ESR CorePro™ H101 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	1.35 g/cm <sup>3</sup>	ISO 1183
Tensile Strength at Yield	24.00 MPa	ISO 527
Tensile Elongation at Break	4.70 %	ISO 527
Flexural Modulus	1.700 GPa	ISO 178
Notched Izod Impact at 23°C	4.900 kJ/m <sup>2</sup>	ISO 180
Oxygen Transmission Rate	0.06 cc-mil/ pkg/ day at 0% RH at 23 °C	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% at 90°C in desiccant dryer using 40°C dew point of air possible for two to three 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, 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 high viscosity or low melt 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) at approximately 52°C (126°F), to encourage part release.

**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:** below 90% of max torque, minimize screw 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, where 50% - 60% is allocated towards mold transition 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.*

