# TESTING DATA REPORT

**Product Name: ESR CorePro™ I 110**

**Product Description:** ESR CorePro™ I 110 is a typical product of our industrial compostable bio-composite resin Series: CGTECH-BCR-XX-Rev 8.1-5-Series, It's intended for injection molded single use, single serve containers with Oxygen Barrier.

| Physical Properties | Typical Values* | Test Method |
|---|---|---|
| Melt Flow Index | 18-22g/10min@190°C,2.16Kg | ISO 1133 |
| New Carbon Content | Over 40% | C14 |
| Tensile Strength at Yield | 40.0 MPa | ASTM D638 |
| Tensile Elongation at Break | 2.75% | ISO 527 |
| Tensile Modulus | 2.000 GPa | ISO 527 |
| Flexural Modulus | 2.200 GPa | ISO 178 |
| Notched Izod Impact at 23℃ | 4.5 kJ/m$^2$ | ISO 180 |
| Heat Deflection Temperature | 96 ℃ | ISO 75 |
| Moisture Content | ⩽1 | ASTM D6980 |
| Mold Shrinkage | 0.13% | |
| Oxygen Transmission Rate | 0.007 cc/ pkg/ day at 100% Oxygen and 0% RH at 23 °C | ASTM D3985 |
| Water Vapor Transmission Rate (WVTR) | 0.1 g/m2/day at tropical conditions (38°C and 90%RH) | ASTM D7709 |

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

This is a BPI Certified resin. https://products.bpiworld.org/companies/competitive-green-technologies

Dincertco: No. 720018 (EN13432) https://www.dincertco.tuv.com/registrations/60152036?locale=de

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 patented formulation.

## Suggested Processing Guidelines

**Drying of Resin:**

Dry down to 0.1% at 90˚C in desiccant dryer using -40°C dew point of air possible for three to four hours based on our supplied resin at moisture content of 0.5%. (Please check incoming moisture to verify).

**Processing:**

**Barrel temperature:** 165°C at hopper going up to 185˚C (please don't exceed 190°C at injection tip point).

**Injection tip temperature:** 185˚C – 190 ˚C (maximum)

**Hot Runner:** max 220˚C +/- 2˚C.

**Back pressure:** 10% (recommended)

**Caution:**

Resin should not sit in the manifold or the barrel for more than three minutes at elevated temperatures. If any resin has sat for more than this time, please purge.

Because of resin shrinkage, being 0.13%, molding should be done in molds specifically made using the mold flow analysis (MFA) of our resin and the .UDB file. Using a mold intended for higher shrinkage resin like fossil polymer polypropylene for example, can result in an oversized part, and could pose ejection related issues.

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