Natur-Tec®

# Technical Data Sheet BM3002HT
# Injection Molding Resin
# 技术数据表BF3002HT
# 注塑成型树脂

## Product Description产品描述

Natur-Tec™ BM3002HT is a bio-based and compostable, impact modified, highly filled polymer masterbatch made with Ingeo™. It is intended for injection molded PLA applications that require high heat. BM3002HT is designed to be blended with virgin Ingeo™ grades where the final blend is molded either in (1) a single-step using in-mold crystallization at much reduced cycle times and minimum part warpage (BF3002IM) or (2) in a two-step economical process where parts are crystallized in a secondary oven (BF3002HT).

A key advantage of this blend is that the resin going through two heat histories is limited to the percent (%) masterbatch letdown (typically 15-50%). This helps maintain the molecular weight, resulting in improved mechanical strength for the final part, as compared to a part manufactured with the 100% fully-compounded resin.

Natur-Tec resins are engineered for high performance. Please refer to the Material Safety Data Sheet and the Processing Guide for specific handling and processing instructions.

Natur-Tec ™ BM3002HT是一种生物基、可堆肥、冲击改性、高填充度的聚合物母料，由Ingeo™制成。它适用于需要高热的注塑成型聚乳酸应用。BM3002HT设计与原始Ingeo™ 混合，最终混合物以两种方式模压成型在（1）单步骤中模压成型，使用模内结晶，循环时间大大缩短，零件翘曲最小（BF3002IM）或（2）在双步骤的更经济的工艺中模压成型，零件在二次烘箱（BF3002HT）中结晶。

这种混合物的一个关键优点是，经过两次热处理的树脂仅限于母料的一部分（通常为15-50%）。和用100%全复合树脂制造的零件相比，这有助于保持分子量，从而提高最终零件的机械强度。

Natur-Tec树脂的设计宗旨是高性能。具体操作和加工说明请参阅材料安全数据表和加工指南。

## Applications应用

Natur-Tec® BM3002HT when blended with Ingeo™ at 15-50% can be used for injection molded plastic applications requiring high heat performance such as cutlery and coffee stir sticks.

Natur-Tec®BM3002HT，与Ingeo™以15-50%的比例混合时，可用于需要高耐热性能的注塑塑料应用，如餐具和咖啡搅拌棒等。

## Properties性质

| Physical Properties物理性质 | | | BM3002HT | |
|---|---|---|---|---|
| Property<br>性质 | Unit<br>单位 | Test Method<br>测试方法 | Value<br>值 | |
| Specific Gravity比重 | g/cm³ | ASTM D792 | 1.7 – 1.9 | |
| **Physical Properties物理性质** | | | **BF3002IM*** | **BF3002HT**** |
| **Property性质** | **Unit单位** | **Test Method 测试方法** | **Value值** | **Value值** |
| Specific Gravity比重 | g/cm³ | ASTM D792 | 1.3 – 1.4 | 1.4 – 1.5 |
| Melt Flow Rate (190 °C with 2.16 kg)<br>熔体流动速率（190°C，2.16 kg） | g/10 min | ASTM D1238 | 6 – 9 | 5 – 8 |
| Mold Shrinkage成型收缩率 | % | ASTM D955 | Perpendicular to Flow: 1.1 – 1.3<br>垂直于流动方向：1.1–1.3<br>Parallel to Flow: 0.6 – 0.7<br>平行于流动方向：0.6 – 0.7<br>*(when molded at 100 °C<br>在100°C下成型时)* | Perpendicular to Flow: < 0.1<br>Parallel to Flow: 0.2 – 0.3<br>垂直于流动方向：< 0.1<br>平行于流动方向：0.2 – 0.3 |
| **Mechanical Properties机械性质** | | | **BF3002IM*** | **BF3002HT**** |
| **Property** | **Unit** | **Test Method** | **Value** | **Value** |

| 性质 | 单位 | 测试方法 | 值 | 值 |
|---|---|---|---|---|
| Tensile Strength at Break断裂时抗拉强度 | MPa | ASTM D638 | 56 | 64 |
| Tensile Elongation at Break断裂时延伸率 | % | ASTM D638 | 9 | 7 |
| Tensile Modulus拉伸模量 | MPa | ASTM D638 | 2350 | 2629 |
| Flexural Modulus弯曲模量 | MPa | ASTM D790 | 6300 | 7436 |
| Notched Izod Impact Strength 缺口冲击强度 | J/m | ASTM D256 | 35 | 34.8 |
| **Thermal Properties热性质** | | | **BF3002IM*** | **BF3002HT**** |
| **Property 性质** | **Unit 单位** | **Test Method 测试方法** | **Value 值** | **Value 值** |
| Heat Deflection Temperature (Un-annealed) | °C | ASTM D648 (0.455 MPa) | 56 | 60 |
| Heat Deflection Temperature (Annealed) | °C | ASTM D648 (0.455 MPa) | 97 | 125 |

* Data obtained from standard test bars molded at 100°C with 25/75 blend of Natur-Tec ® BM3002HT masterbatch and Ingeo™ 3100HP

*从100°C下用25/75 Natur-Tec®BM3002HT母料和Ingeo™ 3100HP混合模制的标准测试棒获得的数据。

** Data obtained from standard annealed test bars molded with 50/50 blend of Natur-Tec ® BM3002HT masterbatch and Ingeo™ 3001D

**从用50：50 Natur-Tec®BM3002HT母料和Ingeo™ 3001D混合模制的标准测试棒退火前后获得的数据。

The property values listed above are calculated under standard temperature and humidity conditions. These property values should be viewed as guidelines only, and may vary based on processing conditions. No warranties of any kind, either expressed or implied are made regarding products described or regarding designs, data or information set forth.

注：

上述属性值是在标准温度和湿度条件下计算的。这些属性值应仅视为参考标准，并可能根据处理条件而有所不同。对于所描述的产品或所述的设计、数据或信息，不作任何形式的明示或默示保证。

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