Plant Clips and Sticks

Biobased and Compostable Solutions for the Agricultural Industry

Product Description

The Natur-Tec® XF3029 is a biobased and compostable injection mold grade resin series engineered for products commonly used in the agricultural, horticultural, and viticultural industries. Intended to provide an alternative solution to conventional plastics that persist in the environment. Natur-Tec® resins are designed for high performance and can be easily processed on conventional manufacturing equipment.

Product Features

- Developed for a balance of durability and flexibility
- Clips retain structural integrity and functionality, when flexed during use, ensuring reliable performance
- Designed to be processable in complex geometries while maintaining high output speeds
- Provides faster cycle times comparable to traditional fossil-based polymers
- Efficiently processes on conventional injection mold manufacturing equipment
- Formulation can be optimized to meet application performance requirements
- Engineered for soil degradability and industrial compostability
- Made with biobased content up to 50%

Applications

The Natur-Tec® XF3029 resin system can be optimized to be used in various applications such as label sticks, label rings, and clips commonly used in the agricultural, horticultural, and viticultural industries.

XF3029-J Technical Data			
Resin Properites			
Property	Unit	Test Method	Value
Density (ρ)	gm/cm³	ASTM D792	1.32
Melt Flow Rate (MFR) 190°C, 2.16 kg	gm/10 min	ASTM D1238	3.84
Melting Temperature (T_m)	°C	Internal - DSC	110-120
Decomposition Temperature (T_{dec})	°C	Internal - TGA	411
Appearance	Color	Internal	white
Material Properties			
Property	Unit	Test Method	Value
Tensile Strength	MPa	ASTM D882	No Break*
Elongation	%	ASTM D882	No Break*
Tensile Modulus	MPa	ASTM D882	503
Flex Modulus	MPa	ASTM D790	640
Max Flex Force	N	ASTM D790	43
Max Flex Stress	MPa	ASTM D790	26

*If the material did not fail within the ASTM testing conditions, the value is reported as "No Break". This is indicative of a material which is highly extensible over the entire duration of testing.

XF3029-K Technical Data			
Resin Properites			
Property	Unit	Test Method	Value
Density (ρ)	gm/cm³	ASTM D792	1.28
Melt Flow Rate (MFR) 190°C, 2.16 kg	gm/10 min	ASTM D1238	5.42
Melting Temperature (T_m)	°C	Internal - DSC	60-70, 150-160
Decomposition Temperature (T_{dec})	°C	Internal - TGA	363
Appearance	Color	Internal	white
Material Properties			
Property	Unit	Test Method	Value
Tensile Strength	MPa	ASTM D882	22
Elongation	%	ASTM D882	60
Tensile Modulus	MPa	ASTM D882	1830
Flex Modulus	MPa	ASTM D790	2098
Max Flex Force	N	ASTM D790	87
Max Flex Stress	MPa	ASTM D790	52

Note: XF3029-K is designed to be stiffer with higher modulus and lower elongation for applications like the stake while the -J formulation is more flexible and can be utilized in applications such as clips.

Storage and Handling: *For optimum performance and product life, store in a cool dry place out of direct sunlight. Refer to the Safety Data Sheet and the Processing Guide for specific handling and processing instructions.*