CJ BIOMATERIALS

Sustainable Biopolymers for Thermoforming

Masterbatch: MA1250P-2

Compound: PHACT™ CA1680P and CA1690P

Target Applications

Markets
- Food & Beverage
- Food Service ware

End Products
- Rigid packaging (food)
- Food trays/Cold cups/Lids

Bring a New Wave PHACT

MASTERBATCH

PHACT MA1250P-2 is the masterbatch product composed of polylactic acid (PLA) and amorphous PHA (aPHA) known as PHACT A1000P. PHACT MA1250P-2 grade contains 45% aPHA and is easier to handle than aPHA neat resin. Specifically, the aPHA used is PHACT A1000P grade from CJ Biomaterials and the PLA used is Ingeo 4032D from NatureWorks. It can be added as a dry blend during the conversion of PLA-based products. PHACT MA1250P-2 grade is designed to facilitate the inclusion of aPHA at desired levels by the converter, with final performance dictating the relative amount of masterbatch blended in.

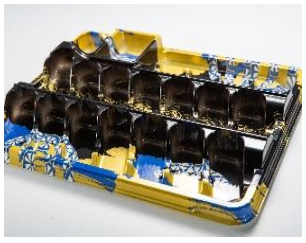
- PHACT MA1250P-2 is a general-purpose masterbatch product that may be used in general plastic converting processes when increased toughness and/or flexibility are needed in PLA, such as sheet/ thermoforming, injection molding, and film applications. It may also be included, by itself, in the core layers of multi-layered film structures.

PHACT MA1250P-2 Features

- 100% bio content
- Addable as dry blending, easy to customize
- Significant impact toughening
- FDA-approved for food contact(1)
  1) US FDA FCN2281
- Faster composting rate *(potential for home composting)*
- Improves flexibility and film handling capability of PLA
- Maintains the bio-based carbon content and clarity of PLA







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Mechanical Properties

Masterbatch			
Properties	Units	ASTM	MA1250P-2
Forms	-	-	Pellet
Biobased Carbon Content	%	D6866	100
Specific Gravity	-	D792	1.22
Melt Flow Rate (190 ° C, 2.16 kg)	g/10 min	D1238	5 ~ 8
Melting Point(1)	° C	D3418	150 ~ 170
Glass Transition Temperature(1)	° C	D3418	-17, 60

1) PLA and aPHA are not miscible and the masterbatch will reveal two distinct glass transition temperatures. The values reported are based on DSC re-heat scan at 10 ° C/min after cooling from 200 ℃ at 10 ℃/min.

For further technical information, please access the TDS documents. [DOWNLOAD]

Sustainable Biopolymers for Thermoforming

Masterbatch: MA1250P-2

Compound: PHACT™ CA1680P and CA1690P

COMPOUND

PHACT CA1680P and PHACT CA1690P are environmentally friendly semi-crystalline biopolymer compounds that improve functional performance and enable faster composting relative to polylactic acid (PLA).
These grades are compounded resins based on PLA and amorphous PHA (aPHA) known as PHACT A1000P. The addition of aPHA to PLA increases flexibility and impact strength limiting breakage during production and distribution. These blends can also improve productivity during the thermoforming process. Compared to PLA, these compounds can reduce the thickness of final products by 12-15%, resulting in cost savings. PHACT CA1680P is suitable for semi-transparent applications. PHACT CA1690P is more transparent, and the aPHA content portion is lower than other compound grades. CA1690P grade is beneficial for cost reduction and ideal for food trays and stationery.

PHACT CA1680P & CA1690P Features *Currently available only for APAC Region

- 100% bio content
- Industrial compostable
- High stability during distribution and storage
- FDA-approved for food contact(1)

1) US FDA FCN2281

- Relative to PLA:
  - Increased flexibility and impact strength
  - Improved processability and productivity
  - Reduction of the total input material

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Sustainable Biopolymers for Thermoforming

Masterbatch: MA1250P-2

Compound: PHACT™ CA1680P and CA1690P

Mechanical Properties

Compound Grades for Thermoforming				
Properties	Units	ASTM	CA1680P	CA1690P
Forms	-	-	Pellet	Pellet
Specific Gravity	-	D792	1.23	1.23
Hardness (Max /15s)	Shore D	D2240	81 / 79	90 / 88
Tensile Strength at Peak(1)	MPa	D638	57	62
Elongation at Break(1)	%	D638	25	11
Flexural Strength	MPa	D790	-	-
IZOD Impact Strength (Unnotched, RT)	kJ/m^2	D256	29	24
IZOD Impact Strength (Unnotched, -20 ° C)	kJ/m^2	D256	-	-
Heat Deflection Temperature / 0.455 MPa	° C	D648	53	56
Melting Point(2)	° C	D3418	150	150
Glass Transition Temperature(2)	° C	D3418	-15, 57	-15, 57
Melt Flow Rate (190 ° C, 2.16 kg)	g/10 min	D1238	4 ~ 5	4 ~ 5
Mold Shrinkage(3)	%	-	0.3	0.3

1) Injection specimens conform to ASTM D638. Crosshead speed 50 mm/min for tensile strength.
2) Differential Scanning Calorimeter (DSC), the peak of endotherm. Heating rate 10 ℃/ min.
3) Injection mold temperature was 25 ℃.

For further technical information, please access the TDS documents. [DOWNLOAD]

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For additional information or specific recommendations for your intended applications, please contact us.

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