

# Sustainable Biopolymer, Semi-crystalline PHA

Neat Resin: PHACT™ S1000P

Bring a New Wave  
**PHACT**

## PHA Neat Resin

**PHACT S1000P** is an environment-friendly semi-crystalline PHA biopolymer. Unlike amorphous PHA (PHACT A1000P), PHACT S1000P is a more rigid variety of PHA and is more suitable for applications that require high heat stability. It is TUV OK certified home and industrial compostable and marine and soil biodegradable. It can be processed using various conversion technologies, such as injection molding, thermoforming, film, sheet, and fiber. In addition to being TUV OK-certified, PHACT S1000P is also included on the U.S. Food & Drug Administration Inventory of Effective Food Contact Substances (FCS). Ideal market applications include rigid and flexible packaging for food & beverage, food serviceware, personal care, agriculture, and consumer goods where functional biodegradation is desired.

## PHACT S1000P Features

- 100% Bio content
- FDA approved for food contact
- TUV Certified home and industrial compostable
- TUV Certified marine and soil biodegradable
- Higher HDT (heat distortion temperature) relative to other biopolymers
- Anti-hydrolysis properties compared to typical biodegradable polymer



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## Certifications

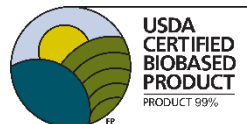
### • Biobased Certificate



OK Biobased by TÜV  
Class4, 80%≤



Biobased Product by DinCertco  
(8C266)



BioPreferred by USDA  
(ID# 11346)

### • Biodegradability Certificate



OK Compost Industrial



OK Compost Home



OK Biodegradable Soil



OK Biodegradable Marine



BPI Compostable



Seedling by EUBP



Industrial compostable by DinCertco



JBPA (A46002)

### • Food contact and Packaging Compliance

- US FDA Food Contact Substance (FCN2330)
- Ministry of Food and Drug Safety of the Republic of Korea: Registered the list of Food Utensils, Containers, and Packages (registered as HBP (hydroxybutyl polyester))
- The Chinese Ministry of Health: Registered the list of National Food Safety Standard Food Contact Plastic Resin (GB 4806.6-2016)
- BRCGS Packaging Materials
- Kosher Certification (KLBD65399)
- Indonesia Halal Certification (ID00410000464030322)

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## Mechanical Properties

PHA Neat Resin			
Properties	Units	ASTM	S1000P
Forms	-	-	Pellet
Specific Gravity	-	D792	1.23
Hardness (Max)	Shore D	D2240	< 90
Tensile Strength at Peak <sup>(1)</sup>	MPa	D638	30 ~ 35
Elongation at Break <sup>(1)</sup>	%	D638	< 60
IZOD Impact strength (notched)	J/M	D256-23e1	28 <
Flexural strength <sup>(2)</sup>	MPa	D790-17	60 ~ 70
Flexural modulus <sup>(2)</sup>	MPa	D790-17	2000 <
Heat Deflection Temperature / 0.455 Mpa	°C	D648	130 <
Melting point <sup>(3)</sup>	°C	D3418	150 ~ 170
Glass Transition Temperature <sup>(3)</sup>	°C	D3418	-6 ~ 0
Melt Flow Rate (180 °C, 2.16 kg)	g/10 min	D1238	< 4

(1) Injection specimens conform to ASTM D638. Crosshead speed 50 mm/min.

(2) Flexural strength test speed: 2.8mm/min, Flexural modulus test speed: 2mm/min.

(3) Differential Scanning Calorimeter (DSC), peak of endotherm. Heating rate 10 °C/min.

## Recommended Processing Conditions

For General Purpose	
Dry Temperature	80 °C X 5 hrs.
Feed Temperature	120 ~ 130 °C
Melt Temperature	145 ~ 175 °C
Compression Section	145 ~ 175 °C
Nozzle	145 ~ 175 °C
Screw Speed	80 ~ 150 rpm

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## Storage Conditions

- Avoid direct sunlight, heat or fire, and store it in a dry ventilated cool place.
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## Drying Process Conditions

- Biodegradable materials are highly hygroscopic. Store in a dry condition.
  - PHACT S1000P is supplied in foil-lined boxes or bags dried to < 500 ppm.
  - Consume all the products with an open bag if possible, and if there is a residual unavoidably, seal them completely and keep them in a dry place and avoid storing them for a long time.
  - It is recommended to dry PHACT from packaging for 5 hrs at 80 °C.
  - It is preferable to dry with air below -40 °C dew point.
  - In case resins are exposed to moisture in the air, they must be dried in the dehumidifying dryer before use.
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For additional information or specific recommendations for your intended applications, please contact us.

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