

PHACT™ A1000P

PHACT A1000P is an environment-friendly amorphous biopolymer.

It has excellent biodegradability under anaerobic, aerobic, aquatic and compost conditions.

PHACT A1000P is suitable for general compounding with other polymers.

PHACT A1000P is used for producing various products including but not limited to film and sheet extrusion, injection molding, fiber and nonwoven processes.

PROPERTIES OF PHACT A1000P

Properties	Units	ASTM No	A1000P
Forms	-		Pellet
Specific Gravity	-	D792	1.23
Hardness ¹⁾	Shore A	D2240	
- Max			< 80
- 15s			< 70
Tensile Strength at Break ¹⁾	MPa	D638	< 2.2
Elongation at Break ¹⁾	%	D638	500 <
Glass Transition Temperature ²⁾	°C	D3418	-17 ~ -14
Melt Flow Rate (165 °C, 5 kg)	g/10 min	D1238	< 5
Haze ³⁾	%	E313-73	8.9 <
Transmittance ³⁾	%		< 93

1) Injection specimens conform to ASTM D638 and D2240. Crosshead speed 200 mm/min for tensile strength.

Tensile strength and Hardness Data were collected after the injected specimens were stored for 24 hours at room temperature.

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

3) Film thickness 90 µm.

PROCESSING CONDITION FOR GENERAL PURPOSES

Dry Temperature	50 °C X 5 hrs.	Compression Section	130 ~ 165 °C
Feed Temperature	40 °C	Nozzle	130 ~ 165 °C
Melt Temperature	135 ~ 175 °C	Screw Speed	80 ~ 150 rpm

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GENERAL STORAGE AND DRYING PROCESS CONDITION

Storage Condition

PHACT A1000P is an amorphous polymer that is aggregated easily when exposed to 60 °C with humid condition. Avoid direct sunlight, heat or fire, and store at a dry ventilated cool place.

Drying Process Condition

PHACT A1000P is supplied in foil-lined boxes or bags dried to < 500 ppm.

Recommended to use all once opened. If an opened bag must be stored for reuse, seal completely, avoid air exposal, and store at a dry, well-ventilated condition/place/location. Avoid long-term storing.

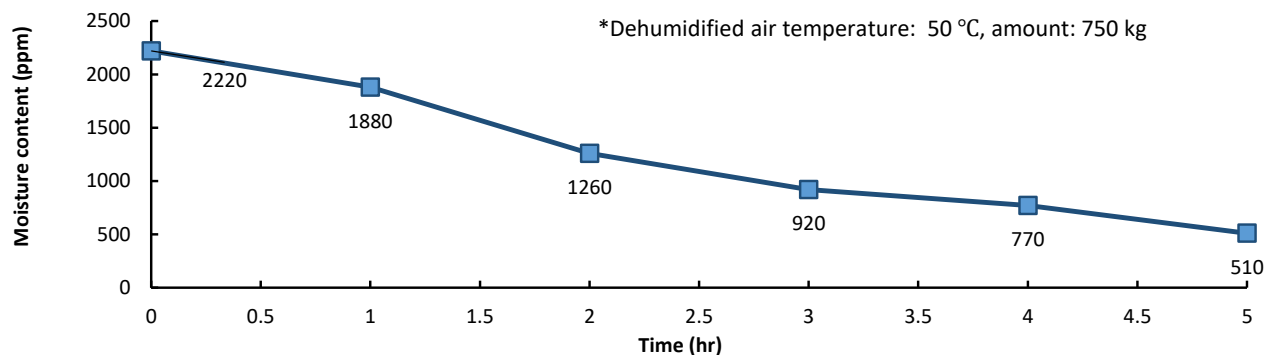
Recommended to dry PHACT A1000P from packaging under 50 °C for 4~6 hrs.

It is preferable to dry with air below -40 °C dew point.

For the drying process, the paddle-type dehumidifying dryer is recommended to prevent aggregation during drying.

[Figure 1 - Moisture content of PHA in Paddle Dryer]

The moisture content of PHA reached 500 ppm after 5 hrs in the paddle-type dryer at 50 °C.



GENERAL COMPOUNDING CONDITION

PHACT A1000P is suitable for compounding with PLA.

However, due to the high heat-sensitive properties of PHA, the extrusion temperature condition should be mild for reducing degradation of PHA during the process.

[Figure 2 - Extrusion temperature profile]

An example of the extrusion temperature profile for PHA/PLA compounding.

Screw RPM	b1	b2	b3	b4	b5	b6	b7	b8	b9	b10	b11	DA	head
120-150	40	80	155	165	165	165	170	175	165	165	165	165	165
	Feeding zone	Heating zone			Melting zone			Mixing zone		Compression zone			

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