



Blown Film Process Guide For Cereplast Compostables®

Cereplast Compostables® resins are renewable, ecologically sound substitutes for petroleum-based plastic product, replacing nearly 100% of the petroleum-based additives used in traditional plastics. Cereplast Compostables® resins use polymer and additives derived from starch and other renewable resources chemistry. These components are carefully blended together in state-of-the-art compounding equipments.

All Cereplast Compostables® resins are certified as biodegradable and compostable in the United States and Europe, meeting BPI (Biodegradable Products Institute www.bpiworld.com) standards for compostability (ASTM6400D99, ASTM6868) and European Bioplastics Standards (EN13432).

PROCESSING INFORMATION

Cereplast Compostables® can be processed on conventional equipment. The material is stable in the molten state, providing that the drying procedures are followed. It is recommended to start with a clean machine.

Extrusion Processing Parameters	Fahrenheit	Celsius
Feed Throat	290-325	145-160
Feed Zone	345-370	175-185
Middle Compression Zone	360-380	180-195
Front Metering Zone	370-390	185-200
Die and Adapter	380-400	195-205
Melt Temperature	380-400	195-205
Material Drying Temperature	100-120	40-50
Drying Time	4 hours	
Screw Speed	50-200RPM's	

(These are recommended starting parameters and may need to be optimized)

Cereplast Compostables® are true thermoplastic, meaning that processing needs to be done below decomposition temperature, which will occur about 250°C (480°F) and above. Avoid temperatures above 220°C (425°F) (unless needed to effect processing).

Start with “clean machine” – using either general purpose polystyrene or polyethylene as purge compound- before and after extrusion processing

DRYING

Some extrusion grades of Cereplast Compostables® are amorphous and drying is critical to a successful process. Cereplast Compostables® are hygroscopic and will absorb a small amount of moisture from the atmosphere. The amount absorbed will depend on the environmental conditions, and the temperature and humidity of the storage area. In-line drying is recommended with Cereplast Compostables®. Standard closed loop desiccant based column driers work best. A moisture content of less than (400 ppm) is recommended to prevent viscosity and property degradation. The dew point of the air at the input of the hopper should be -40 °F or lower.

MACHINE CONFIGURATION:

Cereplast Compostables® will process on conventional equipment. A general purpose screw designed to minimize residence time and shear works well

- Cereplast Compostables® process readily if the proper equipment, streamlined tooling and recommended running conditions are used. Since PLA has a lower glass transition temperature than PP or PE. Finding the optimum process conditions will insure the fastest rates.
- Cereplast Compostables® have reasonable wide range for process – each process behaves slightly different. Recommend starting at the lower settings then working up on temperature until optimal process behavior is achieved. Temperature profiles vary depending upon the output, melt temperature and screw speed. Material build-up at the die lip and a rough film surface usually means that the melt temperature is too low.
- Providing that the flow channels do not have any dead spots in which the melt can stagnate and suffer thermal degradation, Cereplast Compostables® can be processed with standard film dies.
- A blow ratio of 2/1-3/1 is typical with this material.
- A variety of screw designs can be used. Low compression screw with 24/1 or greater L/D run best. A screw tip designed to minimize melt inventory and avoid stagnation are preferred.
- A streamlined die is preferred. Avoid sharp angles, corners and blunt obstructions.
- Cereplast Compostables® exhibit higher transport rates for water vapor, carbon dioxide, and oxygen than PP, PE or PET. It is recommended that customers engage in internal testing for their product packaged in Cereplast Compostables®.

CEREPLAST, INC.

Tel: (310) 676 5000 – Fax: (310) 676 5003

3421-3433 West El Segundo Blvd.

Hawthorne CA 90250-USA

Email: info@cereplast.com

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3421-3433 West El Segundo Blvd.

Hawthorne CA 90250-USA

Email: info@cereplast.com