



Extrusion Blow Molding 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	310-345	155-175
Middle Compression Zone	325-340	160-170
Front Metering Zone	330-345	165-175
Die and Adapter	330-345	165-175
Melt temperature	390	200
Material Drying Temperature (4 Hours)	100-120	40-50
Mold Temperature	50-80	20-30
Screw Speed	20-100RPM'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 blow molding grades of Cereplast Compostables[®] are amorphous and drying is critical to a successful process. Cereplast Compostables[®] are hydroscopic 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 PS or PP, it might take longer to set up in the mold. Finding the optimum process conditions will insure the best quality parts at the shortest cycle times.
- Cereplast Compostables[®] have reasonable wide range for process – each process behaves slightly different. It is recommended to start at the lower settings, and work up the temperature until an optimal process behavior is achieved. Temperature profiles vary depending upon the output, melt temperature and screw speed.
- 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 the following types of blowing heads: center-fed, mandrel and spiral mandrel.
- A defined moisture content in the material should not be exceeded for processing. Excessive moisture content is indicated by streaks, a foam structure or a rough surface of the profile.
- 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 is preferred.

CEREPLAST, INC.

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

3421-3433 West El Segundo Blvd.

Hawthorne CA 90250-USA

Email: info@cereplast.com

- A streamlined die is preferred. Avoid sharp angles, corners and blunt obstructions.
- Any parison waste that is produced can be used up to 30% as long as it is kept clean and re-dried.
- Separate heating/cooling circuits may be necessary for the base, body and neck section.
- Cereplast Compostables[®] exhibit higher transport rates for water vapor, carbon dioxide, and oxygen than PP or PET. It is recommended that customers engage in internal testing for their product packaged in Cereplast Compostables[®].

Disclaimer: the technical data and suggested applications presented in this property guide are provided without charge and are believed to be reliable. Cereplast, Inc. has no control over how this material is processed and used by its customers, and therefore does not offer a guarantee, either expressed or implied, that the same results described in this publication will be obtained. Each user of this material should make his/her own test to determine the suitability of the material for the particular applications and planned disposal method. No freedom from any patent owned by Cereplast, Inc. or others is to be interfered, because use conditions and applicable laws may differ from one location to another and may change with time. Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's work place and disposal practices are in compliance with applicable laws and other governmental enactments. Cereplast, Inc. assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE ARE EXPRESSLY EXCLUDED.

CEREPLAST, INC.

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

3421-3433 West El Segundo Blvd.

Hawthorne CA 90250-USA

Email: info@cereplast.com