



## Application Note

## MF-LCP-115 Guideline

Date: 10/17/2022

*This application guideline provides general instructions for use for MF-LCP-115.*

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## Overview

MF-LCP-115 is a magnetic loaded injection moldable absorber grade based on Liquid Crystal Polymer (LCP). Benefit from LCP resin system, MF-LCP-115 has good high temperature resistance, high dimension stability and low coefficient of thermal expansion. MF-LCP-115 is single pellet and processed by injection molding. Eccosorb MF-LCP series is an alternative of Eccosorb MF series for medium to high volume, 3D dimensional applications.



Figure 1

## Shipping and Storage

**Shelf Life:** Shelf life for MF-LCP-115 is currently set at 5 years from date of shipment.

**Storage Conditions:** Recommended storage conditions are up to 35°C, up to 50% relative humidity. MF-LCP-115 should be stored in original product packaging until ready for use.

## Processing Parameters

Processing Conditions	Typical Vale	Unit	Remark
Nozzle Temp.	295~305	°C	300°C is recommended
Front Temp.	290~310	°C	295°C is recommended
Middle Temp.	285~300	°C	290°C is recommended
Rear Temp.	280~290	°C	285°C is recommended
Feed zone Temp.	50~70	°C	60°C is recommended

Mold Temp.	80~120	°C	100°C is recommended
Drying Temperature	140~160	°C	150°C is recommended
Drying Time	4~8	h	4h is recommended

### **Injection molding equipment configuration:**

Ma600iis / 130A injection molding machine. Screw: MA600II SA-07H all hard steel.

Barrel: PA600A-06SJ double alloy. Maximum temperature: 450 °C

## **Processing Guidelines**

1. There are no special requirements for the nozzle, LCP-115 can perform with a standard nozzle.
2. Hot runner system with valve gate is not recommended.
3. Avoid the material staying in the high-temperature barrel for a long time. Residence time in the barrel should be kept as short as possible. Be careful that the screw is held by carbonized material under high temperature for a long time.
4. Short fill times are recommended. Fast fill speeds will provide longer flow, fill thinner wall sections.
5. Before injecting new materials, the materials in the injection molding machine shall be emptied. Please clean the equipment with raw LCP or similar materials.
6. Because of filled with inorganic filler, the storage shear and friction are greater ordinary LCP. The storage speed is recommended to be 100rpm, and storage pressure should not be too high.
7. Avoid using excessive compression ratio screws, and the recommended screw compression ratio is less than or equal to 2.2.

## **Mold Making Suggestions**

### **Recommended for non-stressed functional parts**

The mechanical performance of MF-LCP-115 is not good enough to be used as a structural member. Used as stressed parts is not recommended.

## Molding shrinkage

Parallel (flow) and transverse of molding shrinkage is 0.15% and 0.3%. The draft angle of the mold needs to be considered.

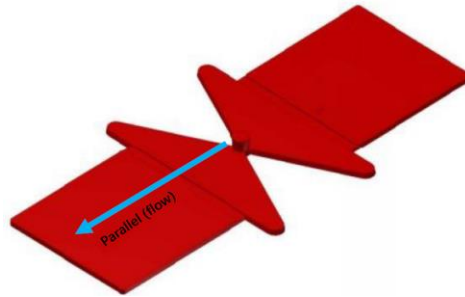


Figure 2

## Runner and injection point design

The thinnest part of the product is better greater than 0.3mm. Melt flow rate of MF-LCP-115 is around 30 cm<sup>3</sup>/10min and far lower than pure LCP resin. Figure 3 shows, the maximum mold length is 59 centimeters in spiral mold (5.5x2mm).

Injection point preferably in the center of the part: more uniform distribution/properties and the shortest flow lengths. For thin-walled products, it is recommended to use multiple injection points, as shown in Figure 4.



Figure 3



Figure 4

## Insert injection molding

The parallel and transverse coefficient of thermal (CTE) of MF-LCP-115 are 20 and 70 E-6/°C at 20°C. Insert injection molding is suitable.

## **Surface Mount Technology**

The melting point of MF-LCP-115 is more than 270 degrees Centigrade and can meet most SMT processing conditions.