

Injection Molding guide for Multipro® FR

Please find below some indications to follow for injection process of Multipro® FR. Of course, this not replaces molder know-how, every mold having own specificity, but this document is useful for initial parameter choice.

Multipro® FR can be injected between their melting temperatures : 170°C to 220°C. In this temperature range, and for controlled exposure time (< 10 min.), materials are stable, above, thermal degradation occurs, resulting in yellowing and significant odor emanation.

Pre-drying

As Multipro® are not humidity sensitive, Pre-drying is not Needed. In case of "incident", pre-drying at 80-90°C during 1 to 2 hours is sufficient.

Machinery cleaning

High flow thermoplastic must be used, PEHD, PELD or PP.

Coloring

Multipro® FR are naturally white and opaque. They can be colored under request. Nevertheless, obtaining sharp and deep colors without decreasing fire resistance properties is difficult. For this reason, MULTIBASE only bring guarantee on colored ready to use Multipro® FR, and not on Multipro® FR colored at customer.

Processing parameters

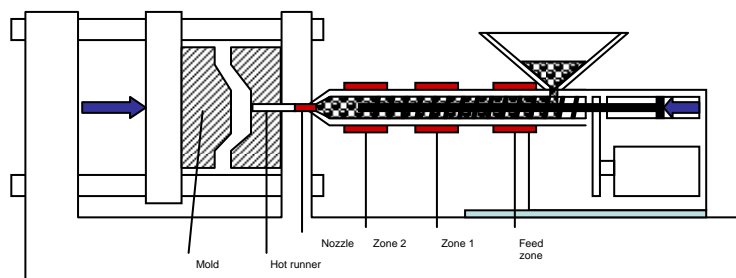
Screw:

Geometry : Standard injection machine, L/D > 20, Compression rate 2:1 to 3:1.
Screw volume must be limited to 7 shot volumes: if higher, melt material stagnation and so degradation phenomena can occurs.
Screw speed between 20 to 70% of max screw speed ensures thorough melting of the material without excessive temperature generation. Start with 120 rpm.

Back pressure

Must be between 5 and 25 bars: This will ensure a uniform melt without severe shear heating

<u>Temperatures</u> (°C) :	Feed Zone	Zone 1	Zone 2	Nozzle
	180 +/- 10	210 +/-10	230+/-10	220+/-10



Injection speed:

Injection speed and fill time are highly dependent on part geometry, complexity and gate design. Faster speeds typically result in easier mold filling while lower speeds result in better surface appearance.

Injection speed between 10 to 50% of maximum injection speed should be used initially.

Holding pressure

Start with a pressure equivalent to 30% of maximum injection pressure. Excessive holding pressure can result in distortion in the area of the gate due to elastomeric characteristics of the material

Holding time

3 second can be used to start to ensure sufficient time for gate freeze off.

Holding time can be slowly reduced until changes in part appearance or weight occur.

Mold

Temperature: from 10 to 60°C, but typically chosen in the range 25-30°C gives good results.

Use conventional mold design (venting, finish, draft)

For injection using direct sprue, Se/Ss = 0.5 to 0.75

Submarine injection is possible.

Total feeding system volume must be lower than part volume.

Hot Runners

Using hot runner is not advised, but if this solution must be used, apply a temperature of 180°C max.

Recycling

As Multipro® FR are thermo-sensitive, recycling is not allowed.

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