

PREPERM[®]

INJECTION MOLDING

PREPERM® Injection Molding

PREPERM® PPE materials are based on polyphenylene ethers, which are thermal and oxidative stable. PPE is amorphous and has high strength, high modulus, very good impact resistance and high thermal distortion resistance. PPE shows excellent hydrolytic and dimensional stability.

MACHINE SELECTION

The optimum result is obtained when the injection moulding machine has moderate to high clamping force. The total shot weight of the moulding machine should be optimised for limiting the residence time of the material in the screw. Small shot weights with a large screw can lead to too long residence time and should be avoided.

DRYING

PREPERM materials can absorb water and moisture from the atmosphere and should be dried before moulding. Moisture in the granules does not cause polymer degradation.

Use of vacuum or dry air dryer is recommended. Suggested maximum drying time or temperature should not be exceeded as it can lead to colour change of the granules and may cause a loss of physical properties.

TYPICAL MOLDING PARAMETERS

These parameters are obtained with a standard test mold at Premix. Please note, that parameters depend on part and mold design and used injection molding machine.

Processing Parameter	Unit	Low Dielectric Constant		High Dielectric Constant	
		Min	Max	Min	Max
Drying Temperature	°C	100	140	90	120
Drying Time	h	2	4	2	4
Maximum Moisture	%		0.04		0.04
Melt Temperature	°C	270	320	270	320
Nozzle	°C	300	320	300	320
Front Zone	°C	300	320	300	320
Middle Zone	°C	270	300	270	300
Rear Zone	°C	250	280	250	280
Mold Temperature	°C	80	130	80	130
Injection Speed	mm/s	20	150	40	150
Back Pressure	Bar	30	80	50	100
Screw Speed	rpm	70	120	70	120
Shot to Cylinder Size	%	30	70	30	70

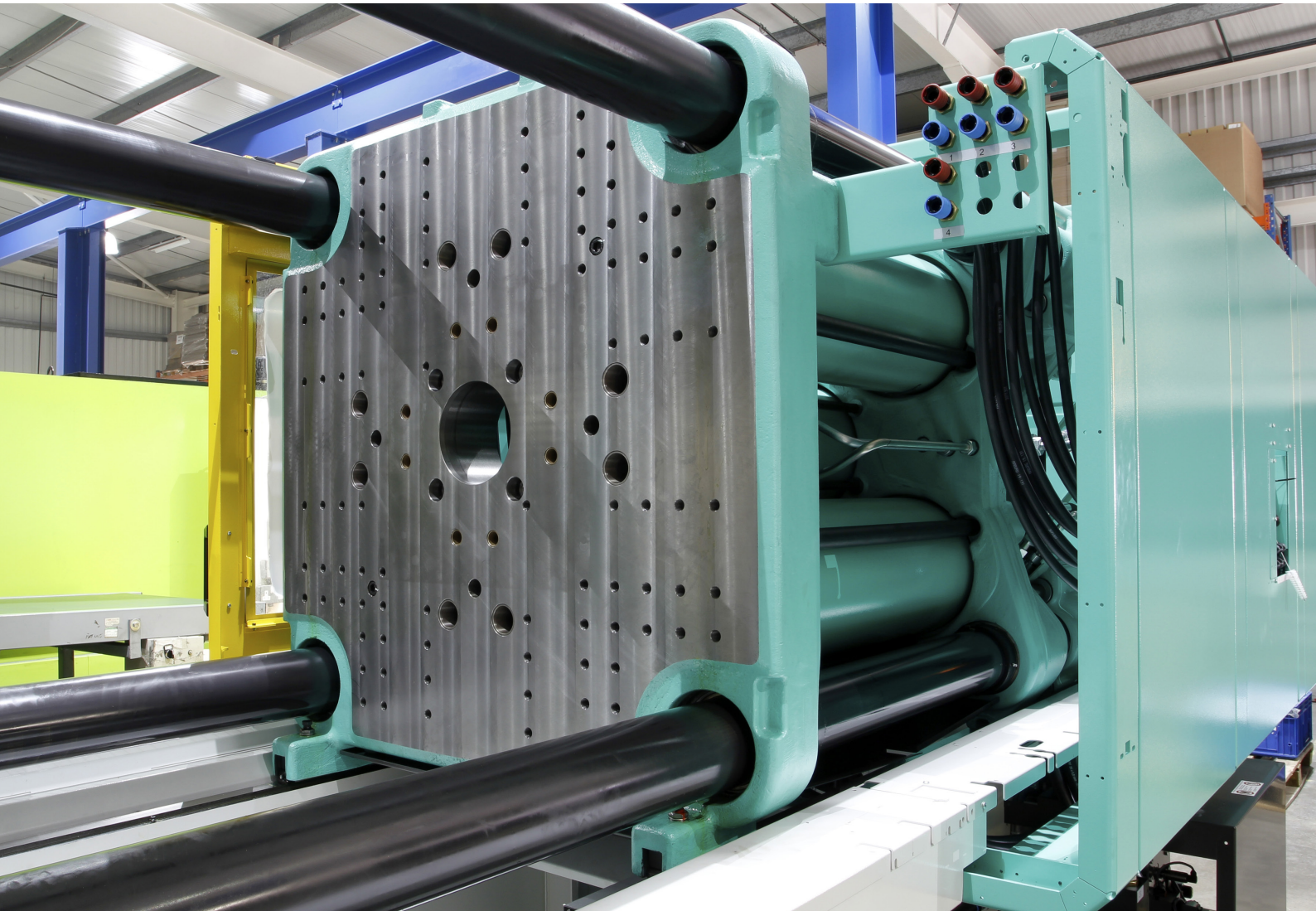
MOLDING DESIGN

Due to unique properties of PREPERM® materials, molds designed for other plastics need to be re-evaluated before testing, especially gate and runner size and position as well as mold ventilation. Molds designed for filled materials are most suitable.

To extend mold lifetime, it is recommended that mold cavity parts are made from extra hardened steel for high dielectric constant materials. In general, molds need to be suitable for high temperatures.

REGRIND

Regrind amount from 10 to 20 % can be added to the virgin material, if the application permits the use. Even 30 % of regrind can be used in some application without causing change in the product. However, the regrind should not contain any metals from the grinder.



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