

# ForTii® F12

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This quick start instruction gives an indication of the key settings for processing ForTii® F12 to ensure best crystallization and prevent material degradation as a result of hydrolysis or thermal load. It is a summary of the Injection Molding Recommendations which can be found in our Plastics Finder at <https://envalior.plasticsfinder.com>. Our online guidelines are recommendations to help with material processing and/or to evaluate and resolve potential processing issues.

## MATERIAL HANDLING

### Drying

ForTii® grades are hygroscopic and absorb moisture from the air relatively quickly. Moisture absorption is fully reversible under the following drying conditions without compromising material quality. Preferred driers are de-humidified driers with dew points maintained between  $-30$  and  $-40^{\circ}\text{C}$  /  $-22$  and  $-40^{\circ}\text{F}$ . Vacuum driers with  $\text{N}_2$  purge can also be used. Hot air ovens or hopper driers are not suitable for pre-drying ForTii® grades; the use of such driers may result in non-optimum performance.

Moisture content	Time	Temperature	
[%]	[h]	[°C]	[°F]
0.1 – 0.2 and as delivered	2	100	212
0.2 – 0.5	4 – 8	100	212
>0.5	<100 or 24 or 4	100	212
		110	230
		120	248

## TEMPERATURE SETTINGS

### Barrel temperature

Due to the high melting point of ForTii® this temperature should be set high enough to provide a homogeneous melt without getting too near to the degradation temperature of  $350^{\circ}\text{C}$  /  $662^{\circ}\text{F}$ . A flat or rising temperature profile is recommended. Optimal settings are governed by barrel size and residence time. Furthermore, the temperature settings for small parts/machines can typically be  $5$ – $10^{\circ}\text{C}$  lower to avoid excessive outgassing/mold deposit.

Mold/Tool	Measured melt	Nozzle	Front	Center	Rear	
80 – 150°C 176 – 302°F	330–340°C 626–644°F	330–335°C 626–635°F	330–335°C 626–635°F	325–335°C 617–635°F	320–330°C 608–626°F	

Given barrel temperature settings are for shot weights  $> 2$  grams. For smaller shot weights ( $< 2$  grams) barrel temperature settings are typically  $5$ – $10^{\circ}\text{C}$  lower.

## MELT RESIDENCE TIME

The optimal Melt Residence Time (MRT) for ForTii® F12 is  $\leq 2$  minutes with preferably at least 50% of the maximal shot volume used. The MRT should not exceed 4 minutes. A full self-service MRT calculation can be done using the following [link](#).

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