



Tips for defect-free injection molding of TPU

在注塑成型中的異常處理

TPU的成型工藝有多種方法，其中以注塑為常用。注塑前需注意以下幾點：

- 1.TPU易吸濕，加工前必須充分乾燥。
- 2.根據材料的收縮率來設計模具結構。
- 3.回收料的合理配比及機臺停機時的清潔處理。

There are many TPU processing methods, in which injection molding is commonly used. Pay attention to the following points before injection molding:

- 1.TPU is easy to absorb moisture when exposed to atmospheric humidity and must be fully dried prior to the processing.
- 2.Design the mold structure according to the shrinkage rate of the material.
- 3.Reasonable ratio of recycled materials and fully cleaning when the machine is shut down.

不良現象	解決方法	Defect	Remedies
匯交線	<ol style="list-style-type: none"> 1.增加注塑機的壓力 2.增加熔料溫度或噴嘴溫度 3.增加澆口尺寸或改變位置 4.改善排氣孔 	Weld lines	<ol style="list-style-type: none"> 1.Increase injection pressure 2.Increase melting temperature or nozzle temperature 3.Increase sprue cross-sections or change its position 4.Optimize mold venting
韌性不夠	<ol style="list-style-type: none"> 1.熔料溫度太低或過熱 2.降低回收料比例 3.材料充分乾燥 4.加大澆口尺寸 	Fractures	<ol style="list-style-type: none"> 1.Melting temperature is too low or too high 2.Reduce the proportion of recycled materials 3.Check material drying 4.Increase sprue cross-sections
成品焦化	<ol style="list-style-type: none"> 1.降低熔料溫度 2.降低回收料比例 3.模具排氣不暢 4.重新清洗螺桿、噴嘴、料筒 	Black (overheating) marks	<ol style="list-style-type: none"> 1.Reduce melting temperature 2.Reduce the proportion of recycled materials 3.Optimize mold venting, check venting channels 4.Clean screw, nozzle and barrel
毛邊現象	<ol style="list-style-type: none"> 1.降低注塑壓力 2.降低熔膠溫度 3.提高合模壓力與機臺噸位 4.改善模具缺陷 	Flash	<ol style="list-style-type: none"> 1.Reduce injection pressure 2.Reduce melting temperature 3.Increase clamping force 4.Adjust the defect of mold

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成品有凹陷	<ol style="list-style-type: none"> 1.增加注塑壓力與機臺噸位 2.檢查逆止閥 3.加強排氣 4.降低熔料溫度或注塑速度 5.增加保壓壓力或時間 (交口附近凹陷) 	Hollows	<ol style="list-style-type: none"> 1.Increase holding pressure 2.Check the check valve 3.Optimize mold venting 4.Reduce molding temperature or injection speed 5.Extend holding pressure or holding time (Near the gate)
螺桿打滑	<ol style="list-style-type: none"> 1.降低螺桿入料口溫度 2.降低回料回收比率 3.降低料缸溫度 4.排除螺桿進料段故障 5.確認添加擴散油是否過量 	Screw slip	<ol style="list-style-type: none"> 1.Reduce the temperature of feeding section 2.Decrease the recycle ratio 3.Reduce barrel temperature 4.Check the defect of feeding section 5.Check the dispersed oil amount
成品有氣泡	<ol style="list-style-type: none"> 1.材料充分乾燥 2.改善模具設計 3.增加注塑機的背壓 4.降低料筒溫度 	Bubbles	<ol style="list-style-type: none"> 1.Material is too moist, fully dry the material 2.Check the mold design 3.Increase the back pressure 4.Reduce the barrel temperature
表面噴紋	<ol style="list-style-type: none"> 1.模具型腔損傷 2.降低注塑速度或溫度 3.加大澆口尺寸與溫度 4.材料充分乾燥. 	Streaks	<ol style="list-style-type: none"> 1.Mold cavity 2.Reduce injection speed and injection temperature 3.Increase the cross-sections and temperature of gate 4.Check drying process (fully dry)
成品翹曲	<ol style="list-style-type: none"> 1.降低模具溫度 2.增加注塑壓力 3.改善澆口位置 4.降低注塑速度 5.增加保壓時間 	Warpage	<ol style="list-style-type: none"> 1.Reduce mold temperature 2.Increase holding pressure 3.Optimize gate position 4.Reduce injection speed 5.Increase holding time
成品脫模困難	<ol style="list-style-type: none"> 1.降低注塑壓力 2.降低保壓時間 3.增加滑劑或噴脫膜劑 4.改善模具缺陷 5.改變澆口位置與尺寸 6.增大模具拔模角度 	Poor demolding behavior	<ol style="list-style-type: none"> 1.Reduce injection pressure 2.Reduce holding time 3.Use release agent 4.Optimize mold defect 5.Optimize sprue position and size 6.Increase the draft angle of mold