TER HELL PLASTIC GMBH

General processing guideline
TEREZ® Polyamide

TEREZ® Polyamide can be processed on standard plastic processing equipment. Typically, general purpose screw designs and non-return valve is suitable. The L/D ratio should be 18-24 D. The use of hot runner systems is possible.

TEREZ® Polyamide should be process at the following temperatures: (according to modification)

Product	unreinforced	GF, GK, HY, GF/MF	GF, FL, HF	FL, HF	AM	HT, GF / HT, GF, FL
PA 6	230-270℃	240-280℃	230-260℃	230-260℃	240-270℃	---
PA 66	260-290℃	260-290℃	260-290℃	260-290℃	270-290℃	275-295℃
PA 66/6	260–280℃	260–280℃	260–280℃	260–280℃	260–280℃	---
PPA	310-330℃	310-330℃	310-330℃	---	---	---
PA 6.10 ECO	240-260℃	240-270℃	---	---	---	---
PA 10.10 ECO	230-250℃	240-280℃	---	---	---	---

PA6, PA66, PA66/6, PA 6.10 ECO, PA 10.10 ECO
Higher temperatures should be avoided in order to prevent discoloration and thermal degradation of the material. Cadmium-free, luminous coloured grades have to process up to 300 ℃.

PPA
For PPA it is not allowed to exceed the maximum residence time of 8 minutes at 320℃.

For mould temperature we recommend:

Produkt	unreinforced	GF, GK, HY, GF/MF *	GF, FL, HF *	FL, HF	AM	HT, GF *
PA 6	20-80℃	20-80℃	20-80℃	20-80℃	20-80℃	---
PA 66	20-90℃*	20-80℃	20-80℃	20-80℃	20-80℃	20-80℃
PA 66/6	20-80℃	20-80℃	20-80℃	20-80℃	20-80℃	---
PPA	80-120℃	80-120℃	80-120℃	80-120℃	---	---
PA 6.10 ECO	20-80℃	20-80℃	---	---	---	---
PA 10.10 ECO	20-80℃	20-80℃	---	---	---	---

** in exception up to 120℃*

High mould temperatures result in low-strain injection moulding parts, better surface, better embedded glass fibre and/or glass beads, higher degree of crystallinity and lower after-shrinkage.

Pre-Drying:

PA6, PA66, PA66/6, PA 6.10 ECO, PA 10.10 ECO
For production of injection moulded parts with proper mechanical and optical properties, we avoid a pre-drying at 80℃ for 4 hours. If the hopper is not closed or if the product is furnish, it should be dried longer than 2 to 4 hours. Suitable dryer are desiccant air dryer with vacuum or desiccant air dryer.
For excellent surface quality parts we recommended to work with a residual moisture content </= 0,05%

PPA
For production of injection moulded parts with proper mechanical and optical properties, we avoid a pre-drying at 120° for 4 to 6 hours. If the hopper is not closed or if the product is furnish, it should be dried longer than 4 to 6 hours. Suitable dryer are desiccant air dryer with vacuum or desiccant air dryer.

The processing temperatures for unreinforced Polyamide are also valid for nanomodified Polyamides.

Bochumer Str. 229 • 44625 Herne • Telefon: +49(0)2323-941-0 • Fax: 02323-941-248 • e-mail: zentrale@terhell.de • www.terhell.de

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General processing guideline
TEREZ® Polyamide TF (PTFE-modified)

TEREZ® polyamides can be processed on standard plastic processing equipment. Typically, general purpose screw designs (i.e. compression ratios of about 2,5:1) and sliding check rings work best. For unreinforced grades, reverse taper nozzles work well, while reinforced grades typically do better with general purpose nozzles. These tend to reduce shear and provide better mechanical properties and, since the reinforcement inhibits drool, the reverse taper of a polyamide nozzle doesn´t add much benefit. The use of hot runner systems is possible.

Processing: guideline for cylinder temperatures:

Product	TF
PA 6	240-270°C
PA 66	270-290°C
PA 46	305–320°C
PPA	310-330°C

Keep in mind that these can vary depending on the specific type and size of the moulding machine.
The max residence time of 5 minutes should not be exceeded in order to prevent discolouration and material degradation.
Maximum circumferential velocity of screw is 0,3 m/s.
For PPA it is not allowed to exceed the maximum residence time of 8 minutes at 320°C.

Mould temperature:

Product	TF
PA 6	40-80°C
PA 66	40-80°C
PA 46	60-120°C
PPA	80-120°C

Higher mould temperature result in low-stress parts, improved surface, a better covered of glass fibre and/or glass beads and PTFE, reduction of after-shrinkage and higher degree of crystallinity.

Drying: (generally a desiccant air dryer should be used)

Polyamide 6 and Polyamide 66:

For production of injection moulded parts with proper mechanical and optical properties, we avoid a pre-drying at 80°C for 6 hours. If the hopper is not closed or if the product is furnish, it should be dried longer than 6 hours. Suitable dryer are desiccant air dryer with vacuum or desiccant air dryer.
For excellent surface quality parts we recommended to work with a residual moisture content </= 0,05%

Polyamid 46:

residual moisture content	time	temperature
0,05 – 0,2 %	4 h	80 °C
0,2 – 0,5 %	8 h	80 °C
> 0,5 %	</= 100 h	80 °C
	or 24 h	105 °C

PPA
For production of injection moulded parts with proper mechanical and optical properties, we avoid a pre-drying at 120° for 6 hours. If the hopper is not closed or if the product is furnish, it should be dried longer than 6 hours.

Advice for cleaning of units of machinery:
Machine parts/aggregates/nozzles et cetera, which are contaminated with a bigger allotment of PTFE-containing material are not allowed to be burned out. We recommend to clean the machine parts or aggregates with polyamide or purging compound after processing or to clean the metal parts by mechanically.

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