

Preliminary Processing Recommendations



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|-------------------------|---|----------------------|
| Product: | PENTAMID A CV10 H black | |
| Description: | Normal viscosity, heat stabilised polyamide 66, 10% carbon fiber reinforced | Product-No: 6699.001 |
| ISO 1874/1-Designation: | PA66, MHRC, 14-90 N, CF10 | |

1. Preparation, Drying

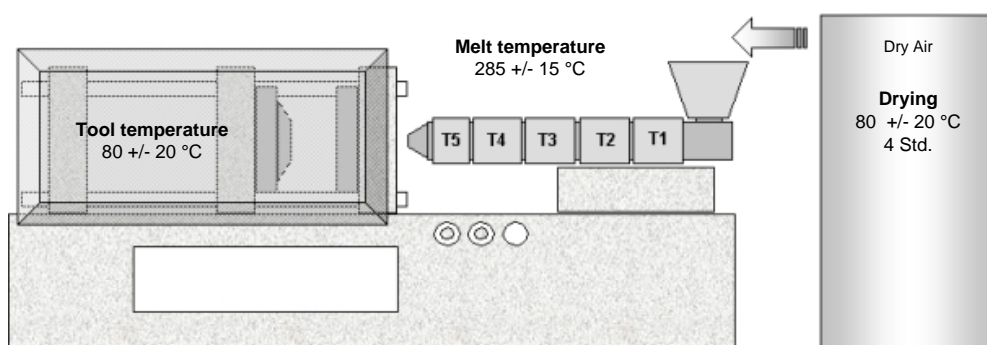
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|--------------|---|
| Preparation: | Store product 24 hours before processing at ambient temperature to avoid condensation on the pellets. |
| Drying: | Dry product before processing with a dry air dryer Recommended drying temperature 80 °C, -drying time 4 hours Recommended moisture level 0,09 +/- 0,04 % |
| Regrinds: | In general, the use of 10 - 20% regrind (runners) is possible, but needs testing in each individual case. Regrind material also needs careful drying prior to processing. |

2. Plasticising and dosing

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| General: | Polymers should always be plastisized as gentle as possible. Set screw speed at such a level, that the available cooling time is used by about 80% to allow the polymer to be molten by the heaters. |
| Dosing screw: | For processing our engineering resins, we recommend dosing screws with a compression ratio of about 1: 2,2 - 2,8. The feed zone should be relatively long (50-60% L), compression zone rather short (20-25% L) to avoid excessive wear in the compression zone itself. L/D ratio =20 +/-2. We also recommend the use of high-alloy steels which are corrosion resistant. A regular maintenance of the check-valve is recommended. PENTAC recommends the use of filter nozzles generally. |
| Dosing speed: | Recommended rotational screw speed < 200 mm/min. |

3. Recommended Processing Parameters

| | T5 | T4 | T3 | T2 | T1 | Hot runner: | |
|--------------------------|-----------|-----------|-----------|-----------|-----------|--------------------|--|
| Screw travel < 1xD: | 280 | 285 | 280 | 275 | 265 | | The hot runner should only maintain the melt at temperature. |
| Screw travel = 1-1,5 xD: | 280 | 285 | 285 | 280 | 275 | | Recommended temperature: : 285 +/- 15°C |
| Screw travel > 1,5 xD: | 290 | 290 | 295 | 300 | 290 | | Any further temperature increase should be avoided. |



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| Typical filling pressure: | 780 bar absolute +/- 25% | Back pressure: | preferably low |
| Typical holding pressure: | 60 % of filling pressure | Typical cooling time: | 2-3 sec/mm wall thickness |
| Typical holding time: | 3 +/- 1 sec/mm wall thickness | Average shrinkage: | 0,35 % flow / 0,5 % perp. |

4. Accidental release measures

Avoid spilled product, may cause slipping surfaces. Dispose of any product according to local regulations.
Do not allow product to enter drainage system, surface or ground water.

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5. Handling and storage

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|-------------|---|
| Handling: | Do not overheat material to avoid formation of potential fumes. |
| Work place: | Ensure good ventilation / exhaust at work place. |
| Storage: | Dry and cool storage, protect from humidity, water, heat and direct sunlight. |

6. Stability and reactivity

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| Melting temperature/range: | 260 °C |
| Ignition temperature: | > 400°C |

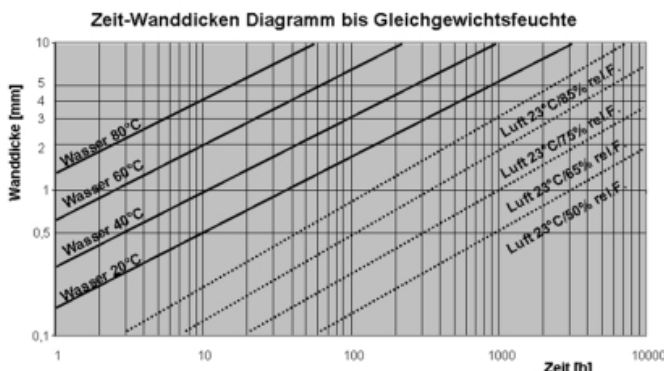
7. Shrinkage

The shrinkage of a polymer material is no constant value. Besides the formulation, the shrinkage depends on:
- wall thickness of the part, -holding pressure, -cooling time, -pressure loss in runner and part, -fiber orientation.
The values given (chapter 3) represent comparative values, that should be taken as indicative only.

Shrinkage can be reduced by:

-increase of holding pressure, -reduction of melt temperature, -increase of holding time, - increase of cooling time, - reduction of wall thickness (avoid mass accumulation). The injection speed and tool temperature may show different effects on shrinkage, this needs to be studied in each individual case. Please ensure a sufficient holding time (determination of sealing time by constant part weight)

8. Conditioning



Polyamides are changing their glass transition temperature as a function of the humidity absorbed and hence some mechanical properties. The moisture absorption is depending on the storage conditions, time and wall thickness. The diagram shall give some base values about moisture pick-up. For any accelerated conditioning, the specialists of PENTAC Polymer may give you some further advise.

Polyesters only absorb very little moisture and do not require any conditioning

Moisture pick-up at equilibrium (23°C/ 50% rel. humidity): PENTAMID A CV10 H schwarz, 2,6 (change of mass)

9.

The information herein contained describe the products based on our real knowledges. They are offered in good faith but without guarantee and can be changed without previous notice. The user shall always ensure to meet any local regulation pertaining to the product, industrial hygienic measures and working security. The recommendations given do not replace any optimisation required for each individual part and should be understood as indicative values.

Last update: 25.01.2016