

## Conditioning of SCHULAMID® 6

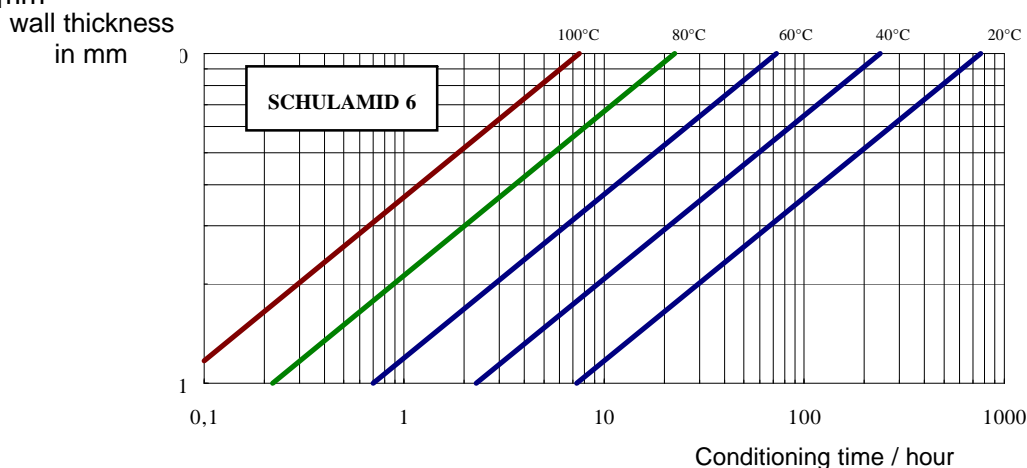
In contrast to most polymers polyamides absorb moisture. Due to it the dimensions of the article increase and the mechanical properties change to higher impact strength. Conditioning means the accelerated and defined absorption of water resp. humidity until an equilibrium moisture content. This equilibrium depends on the atmospheric temperature and relative humidity. Close to this condition the material shows its properties relevant for practice. Consequently a controlled conditioning process is recommended to complete a production of polyamide mouldings.

The absorption of water will be accelerated at elevated temperature. According to this, the articles are conditioned effectively with the following procedures (in order of decreasing conditioning quality):

- simple storage (extrem long duration)
- warm and humide climate according to ISO 1110 for test specimen (72°C, 65% rel. humidity),
- saturated steam,
- hot water (danger of white patches),
- storage in PE-bag (thickness > 100µm), which contains water with an amount of 5-10% of the article weight (danger of white patches and uneven absoption)

Usually the percentage of water absorption is measured by weight. Unfilled polyamide 6 absorp circa 2 - 2,5% till equilibrium with the atmosphere, reinforced grades about 1,2 - 2% depending on the filler content.

For your guidance conditioning time for unfilled PA 6 grades is seen below depending on the wall thickness. The required time in practice may differ form these information depending on the crystallisation rate of the article and the relation of surface and volume. A cylinder with diameter 4mm absorbs humidity more quickly than a plate with a thickness of 4mm



Absorption of humidity of SCHULAMID 6 to 2,3% depending on wall thickness and temperature of water

Conditioning of thick articles with high absorption speed i.e. in hot water may cause different swelling and herein different expansion. This stress overlaying the internal stress can lead to cracks. In this case the conditioning must be carried out more gently.

For guidance: 1 per cent absoption of humidity cause 0,2 - 0,3% linear expansion.