

GEHR PPA[®]

Product Pilot: Round rods made of high temperature resistant polyamide

We developed the product GEHR PPA[®] in cooperation with BASF and have already extruded round rods with a diameter of 50 mm. We will present the product at the K 2019 trade fair.



Properties:

- Low water absorption of approx. 2%; moisture absorption of approx. 1%
- Excellent mechanics up to 125 °C
- Approximately 40 % enhancement in strength at 120 °C compared to other engineering plastics
- High glass transition temperature $T_g = 125$ °C when freshly extruded; 95 °C after conditioning
- High chemical resistance to oils, coolants, aggressive fuels, acids, de-icers...
- Excellent wear behaviour and abrasion resistance, even at higher temperatures
- Low weight
- Very high toughness
- Constant coefficient of expansion (up to 100 °C)

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This new polyphthalamide PPA material from BASF SE has long alkyl chains and partially aromatic groups. This explains its low water absorption and high thermal and chemical resistance. Based on its high hydrophobic properties, this plastic material also has an unexpectedly high dimensional stability compared to other polyamides. Due to the low tendency to water absorption, the mechanical properties remain constant over a wide range. Its wear behaviour and toughness also open up numerous areas of application.

Scope:

- **Transportation industry** (constant mechanics in humid and dry conditions in a temperature range between -40 and +85 °C; high resistance to aggressive chemicals)
- **Automotive industry** (high chemical resistance to antifreeze agents (up to +135 °C) and de-icing agents (CaCl₂ and ZnCl₂), acetic acid and mixtures of hydrochloric acid, nitric acid and sulphuric acid, ...)
- **Thermostat housings and kitchen appliances** (high hydrolytic stability and rigidity)
- **Mechanical components** such as gear wheels (high wear and abrasion resistance; dimensional stability; high T_g and melting point permit small component assemblies at high operating temperatures) or pump bodies (high hydrolysis stability and chemical resistance to engine and transmission oils with good dimensional stability at higher temperatures at the same time), ...

