

## PLEXIMID® TT70

PMMI

Röhm GmbH

### Productprofil:

PLEXIMID® TT70 is a highly heat distortion-resistant poly(n-methyl methacrylimide) (PMMI).

Besides showing the properties common to all PLEXIMID® molding compounds, such as

- excellent transmission and clarity,
- very high mechanical strength and rigidity,
- good weather resistance.

PLEXIMID® TT70 has the following specific characteristics:

- high stability of the optical characteristics at long-lasting thermal load,
- highest heat deflection temperature under load.

### Application:

PLEXIMID® molding compound is particularly suitable for injection molding of items meant for applications that involve maximum thermal loads.

### Example:

lenses, light guides, lighting fixtures, covers.

### Processing:

PLEXIMID® molding compound can be processed on injection molding machines with standard 3-zone general purpose screws for thermoplastics.

### Physical Form / Packaging:

PLEXIMID® is supplied as pellets of uniform size in aluminum-laminated, 25kg polyethylene bags.

| Rheological properties                    | Value | Unit                   | Test Standard  |
|-------------------------------------------|-------|------------------------|----------------|
| <b>ISO Data</b>                           |       |                        |                |
| Melt volume-flow rate, MVR                | 1.7   | cm <sup>3</sup> /10min | ISO 1133       |
| Temperature                               | 260   | °C                     | -              |
| Load                                      | 10    | kg                     | -              |
| <b>Mechanical Properties</b>              |       |                        |                |
| <b>ISO Data</b>                           |       |                        |                |
| Tensile Modulus                           | 4000  | MPa                    | ISO 527        |
| Stress at Break                           | 80    | MPa                    | ISO 527        |
| Strain at Break                           | 3     | %                      | ISO 527        |
| Impact Strength (Charpy), +23°C           | 20    | kJ/m <sup>2</sup>      | ISO 179/1eU    |
| Notched Impact Strength (Charpy), +23°C   | 1.4   | kJ/m <sup>2</sup>      | ISO 179/1eA    |
| <b>Thermal Properties</b>                 |       |                        |                |
| <b>ISO Data</b>                           |       |                        |                |
| Temp. of deflection under load (1.80 MPa) | 149   | °C                     | ISO 75-1/-2    |
| Temp. of deflection under load (0.45 MPa) | 158   | °C                     | ISO 75-1/-2    |
| Vicat softening temperature, 50°C/h 50N   | 170   | °C                     | ISO 306        |
| <b>Other Properties</b>                   |       |                        |                |
| <b>ISO Data</b>                           |       |                        |                |
| Water Absorption                          | 6     | %                      | Sim. to ISO 62 |
| Density                                   | 1210  | kg/m <sup>3</sup>      | ISO 1183       |

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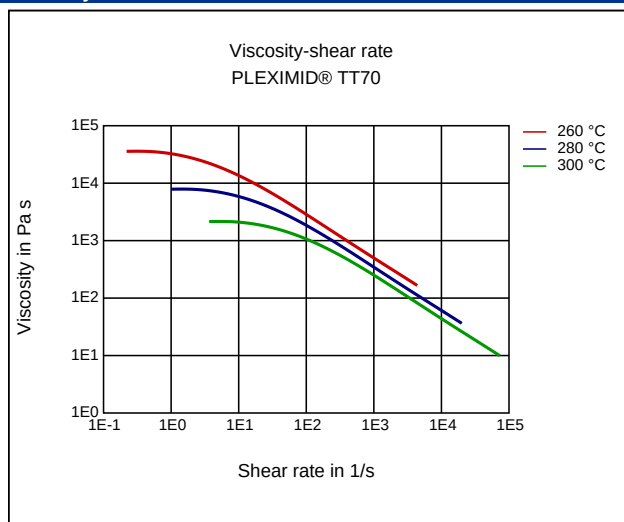
| Material Specific Properties | Value | Unit | Test Standard   |
|------------------------------|-------|------|-----------------|
| <b>ISO Data</b>              |       |      |                 |
| Luminous transmittance       | 91    | %    | ISO 13468-1, -2 |

| Rheological calculation properties | Value | Unit  | Test Standard |
|------------------------------------|-------|-------|---------------|
| <b>ISO Data</b>                    |       |       |               |
| Density of melt                    | 1150  | kg/m³ | -             |

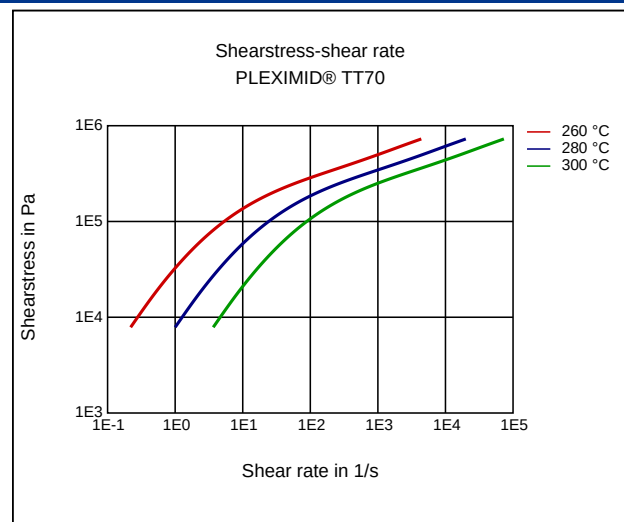
| Processing Recommendation Injection Molding | Value     | Unit | Test Standard |
|---------------------------------------------|-----------|------|---------------|
| Pre-drying - Temperature                    | 120       | °C   | -             |
| Pre-drying - Time                           | 2 - 3     | h    | -             |
| Melt temperature                            | 260 - 290 | °C   | -             |
| Mold temperature                            | 130       | °C   | -             |

## Diagrams

### Viscosity-shear rate



### Shearstress-shear rate

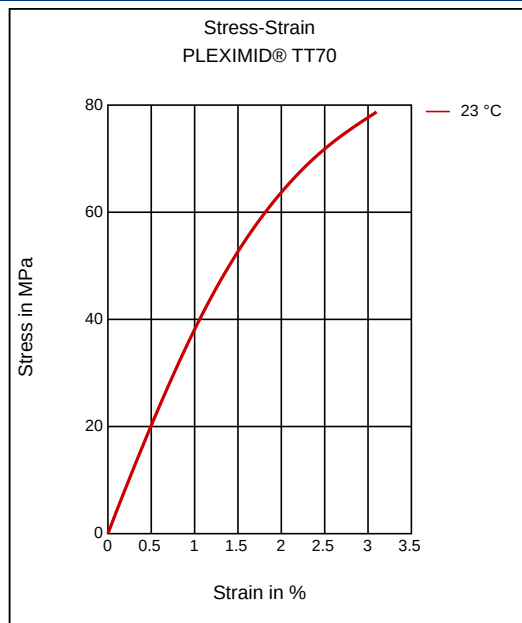


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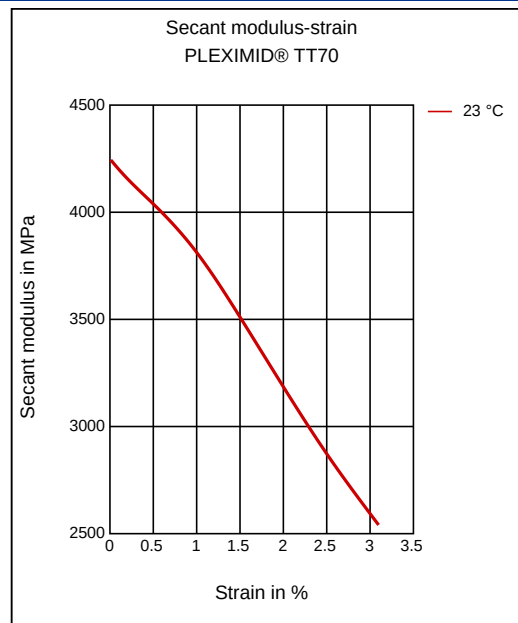
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### Stress-strain



### Secant modulus-strain



### Characteristics

#### Processing

Injection Molding

#### Delivery form

Pellets

#### Special Characteristics

Light stabilized or stable to light, UV stabilized, Heat aging stabilized, Transparent

### Injection Molding

#### PREPROCESSING

Predrying temperature: max. 120 °C

Predrying time in a desiccant-type drier: 2 - 3 h

#### PROCESSING

Melt temperature: 260 - 290 °C

Mold temperature: approx. 130 °C

### Chemical Media Resistance

#### Acids

- ✓ Acetic Acid (5% by mass) (23 °C)
- ✓ Lactic Acid (10% by mass) (23 °C)
- ✓ Sulfuric Acid (38% by mass) (23 °C)
- ✓ Sulfuric Acid (5% by mass) (23 °C)

#### Alcohols

- ✓ Isopropyl alcohol (23 °C)

#### Hydrocarbons

- ✓ n-Hexane (23 °C)

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23 °C)

### Standard Fuels

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- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)

### Other

- ✓ Water (23°C)
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