

TECHNICAL DATA SHEET

# Stanyl® TW241F12

Envalior  
PA46-GF60

**Processing**

Injection molding

**Special Characteristics**

Platable, Heat stabilized or stable to heat

**Product Text**

**Product Information**

60% Glass Reinforced, Heat Stabilized, Good Flow

ISO 1043 PA46-GF60

Stanyl® TW241F12 is a high heat polyamide with superior flow that offers excellent creep resistance, strength, stiffness and fatigue resistance especially at high temperatures in combination with cycle-time advantages. TW241F12 has an excellent track-record in structural parts and gear applications

| Processing/Physical Characteristics   | Value   | Unit              | Standard        |
|---------------------------------------|---------|-------------------|-----------------|
| Molding shrinkage, parallel           | 0.4     | %                 | ISO 294-4, 2577 |
| Molding shrinkage, normal             | 0.7     | %                 | ISO 294-4, 2577 |
| Density of melt                       | 1550    | kg/m <sup>3</sup> |                 |
| Thermal conductivity of melt          | 0.43    | W/(m K)           |                 |
| Spec. heat capacity of melt           | 1450    | J/(kg K)          |                 |
| Eff. thermal diffusivity              | 1.94E-7 | m <sup>2</sup> /s |                 |
| Mechanical Properties                 | Value   | Unit              | Standard        |
| Tensile modulus                       | 20000   | MPa               | ISO 527         |
| Stress at break                       | 255     | MPa               | ISO 527         |
| Strain at break                       | 2       | %                 | ISO 527         |
| Poisson's ratio                       | 0.35    |                   | ISO 527         |
| Tensile creep modulus, 1000h          | 10500   | MPa               | ISO 899-1       |
| Charpy impact strength, +23°C         | 90      | kJ/m <sup>2</sup> | ISO 179/1eU     |
| Charpy impact strength, -30°C         | 65      | kJ/m <sup>2</sup> | ISO 179/1eU     |
| Charpy notched impact strength, +23°C | 18      | kJ/m <sup>2</sup> | ISO 179/1eA     |

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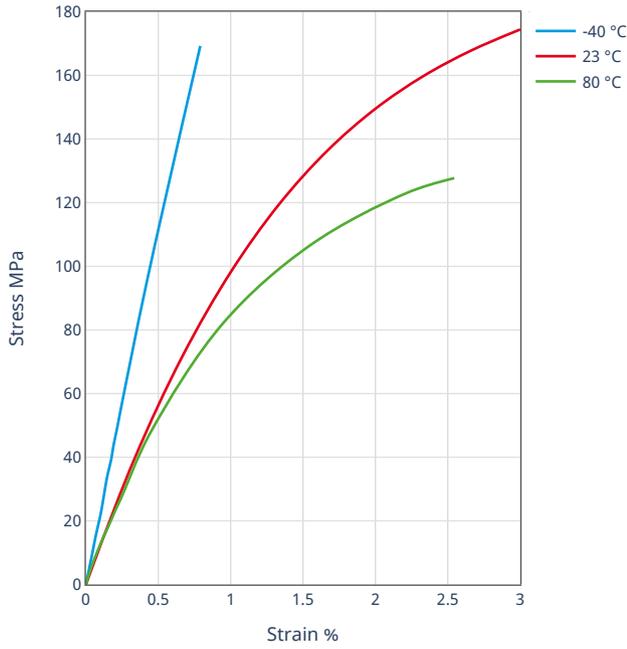
| Mechanical Properties                       | Value | Unit               | Standard            |
|---|-------|--------------------|---------------------|
| Charpy notched impact strength, -30°C       | 18    | kJ/m <sup>2</sup>  | ISO 179/1eA         |
| Thermal Properties                          | Value | Unit               | Standard            |
| Melting temperature, 10°C/min               | 295   | °C                 | ISO 11357-1/-3      |
| Glass transition temperature, 10°C/min      | 75    | °C                 | ISO 11357-1/-2      |
| Temp. of deflection under load, 1.80 MPa    | 290   | °C                 | ISO 75-1/-2         |
| Temp. of deflection under load, 0.45 MPa    | 290   | °C                 | ISO 75-1/-2         |
| Vicat softening temperature, B              | 290   | °C                 | ISO 306             |
| Coeff. of linear therm. expansion, parallel | 20    | E-6/K              | ISO 11359-1/-2      |
| Coeff. of linear therm. expansion, normal   | 35    | E-6/K              | ISO 11359-1/-2      |
| Other Properties                            | Value | Unit               | Standard            |
| Water absorption                            | 5.4   | %                  | Sim. to ISO 62      |
| Humidity absorption                         | 1.4   | %                  | Sim. to ISO 62      |
| Density                                     | 1730  | kg/m <sup>3</sup>  | ISO 1183            |
| Material Specific Properties                | Value | Unit               | Standard            |
| Viscosity number                            | 75    | cm <sup>3</sup> /g | ISO 307, 1157, 1628 |

## Diagrams

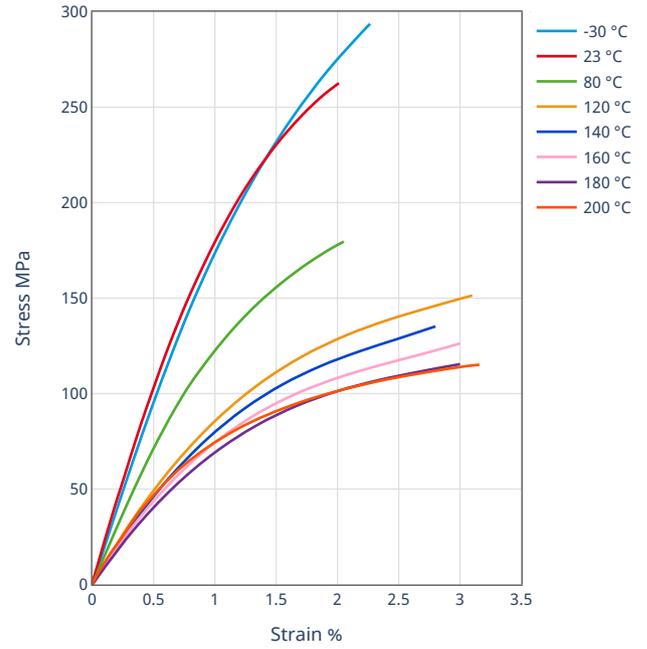
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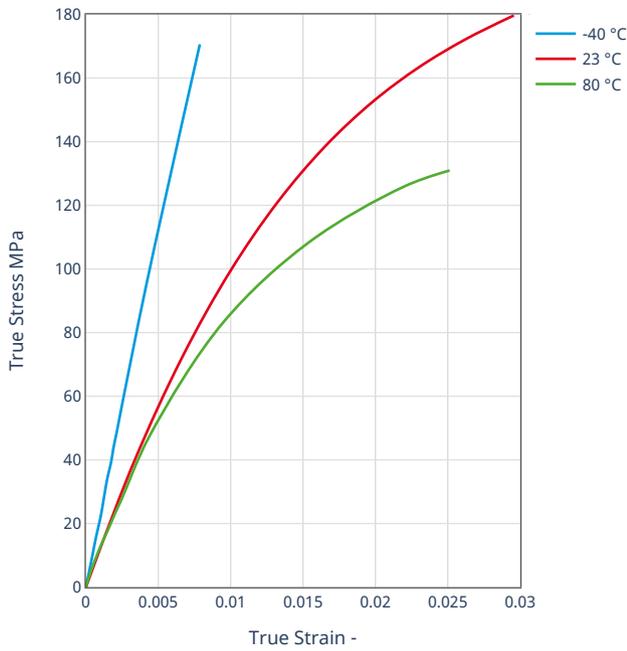
Stress-strain



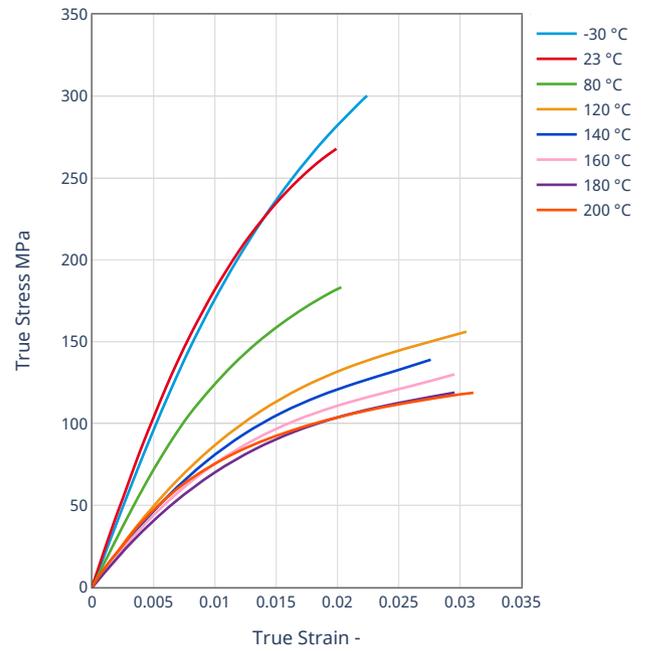
Stress-strain



True stress-true strain



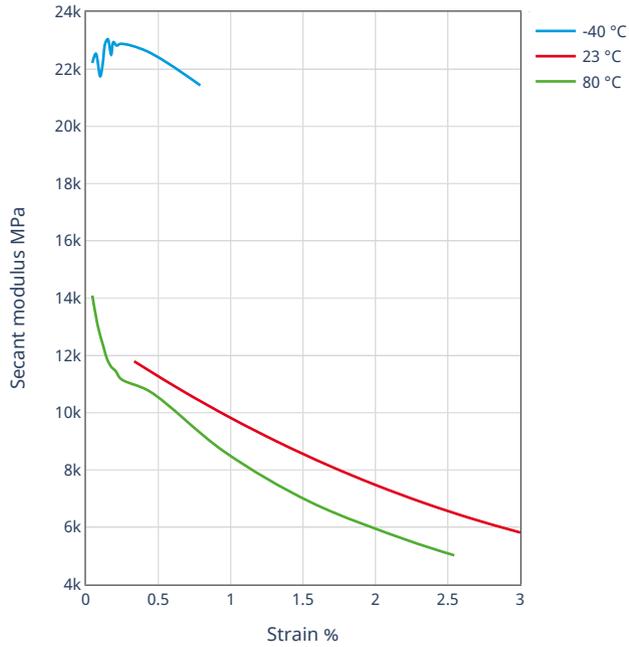
True stress-true strain



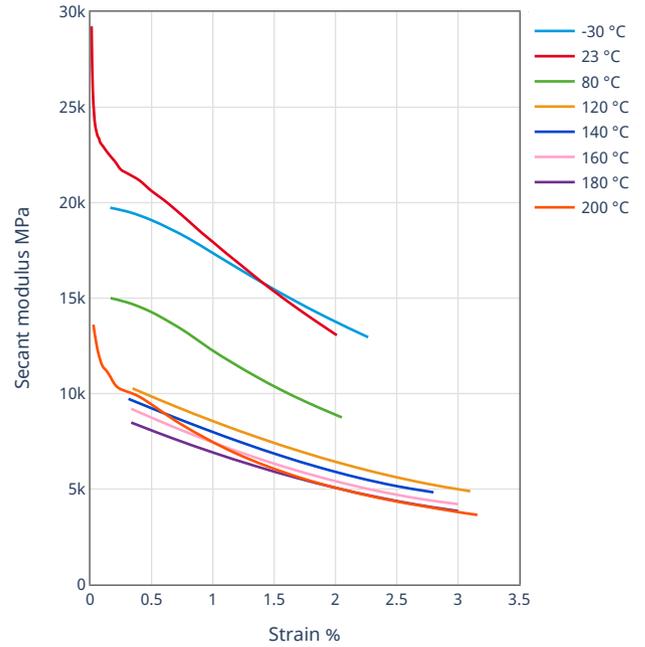
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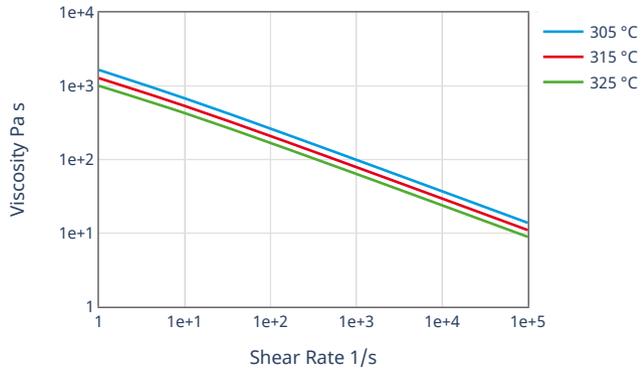
Secant modulus-strain



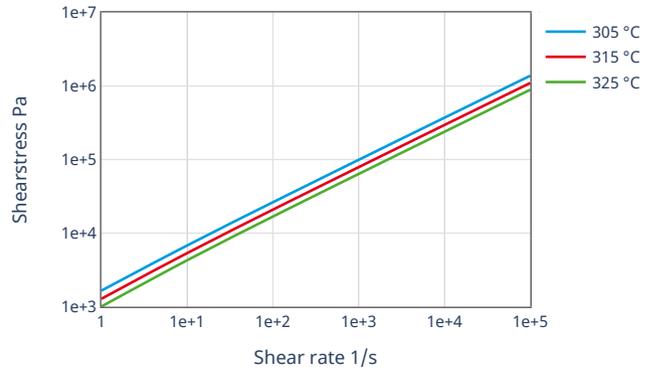
Secant modulus-strain



Viscosity-shear rate

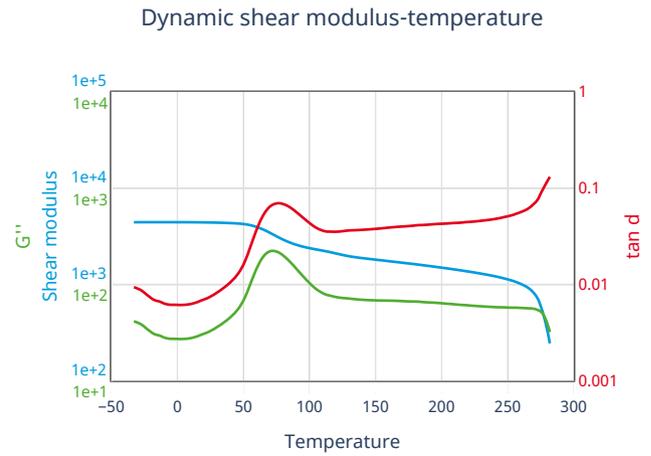
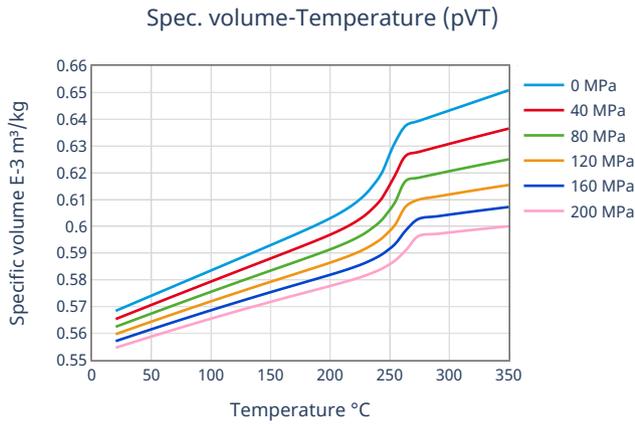


Shearstress-shear rate



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## Processing Information

### Injection molding

Injection Molding Recommendations

Hot runner recommendations for molding high heat performance Engineering Materials

Steel recommendations for molds screws and barrels

Supporting document for Stanyl quality processing

Trouble shooting guideline for injection molding