

# CAMPUS® Datasheet

Stanyl® TW441 - PA46  
Envalior

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## Product Texts

High Viscosity, Heat Stabilized, Lubricated

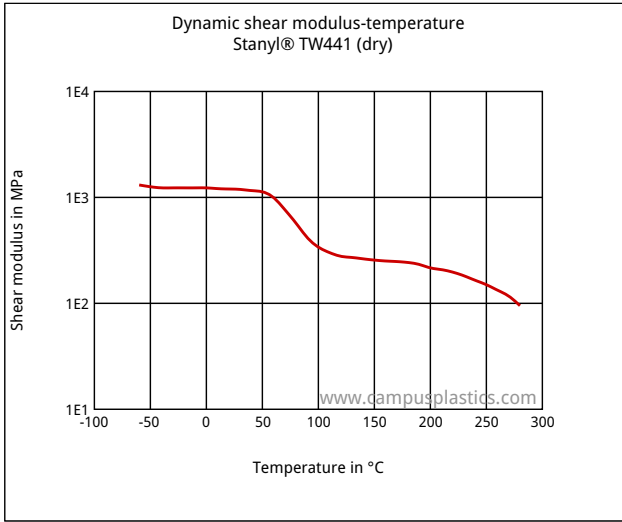
ISO 1043 PA46

Stanyl® TW441 is a non-reinforced high heat polyamide that offers excellent wear & friction properties in combination with outstanding creep resistance, strength, stiffness and fatigue resistance especially at high temperatures in combination with cycle-time advantages and excellent flow.

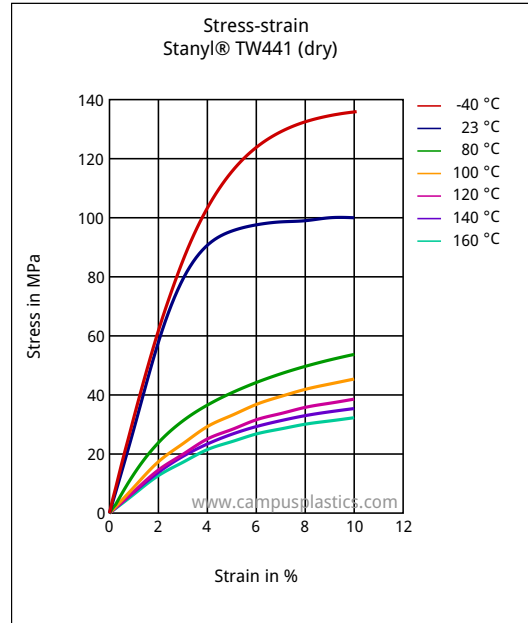
Mechanical properties	dry / cond	Unit	Test Standard
Tensile modulus	3300 / 1000	MPa	ISO 527-1/-2
Yield stress	100 / 55	MPa	ISO 527-1/-2
Yield strain	10 / 20	%	ISO 527-1/-2
Nominal strain at break	35 / >50	%	ISO 527-1/-2
Tensile creep modulus, 1000h	* / 550	MPa	ISO 899-1
Charpy impact strength, +23°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, +23°C	12 / 45	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	5 / 3	kJ/m <sup>2</sup>	ISO 179/1eA
Thermal properties	dry / cond	Unit	Test 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	190 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	280 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	290 / *	°C	ISO 306
Coeff. of linear therm. expansion, parallel	85 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	110 / *	E-6/K	ISO 11359-1/-2
Oxygen index	27 / *	%	ISO 4589-1/-2
Electrical properties	dry / cond	Unit	Test Standard
Relative permittivity, 100Hz	3.9 / 22	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.6 / 4.5	-	IEC 62631-2-1
Dissipation factor, 100Hz	70 / 8700	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	260 / 1200	E-4	IEC 62631-2-1
Volume resistivity	1E13 / 1E7	Ohm*m	IEC 62631-3-1
Surface resistivity	* / 1E13	Ohm	IEC 62631-3-2
Electric strength	25 / 15	kV/mm	IEC 60243-1
Comparative tracking index	400 / -	-	IEC 60112
Other properties	dry / cond	Unit	Test Standard
Water absorption	13.5 / *	%	Sim. to ISO 62
Humidity absorption	3.7 / *	%	Sim. to ISO 62
Density	1180 / -	kg/m <sup>3</sup>	ISO 1183
Material specific properties	dry / cond	Unit	Test Standard
Viscosity number	220 / *	cm <sup>3</sup> /g	ISO 307, 1157, 1628

**Diagrams**

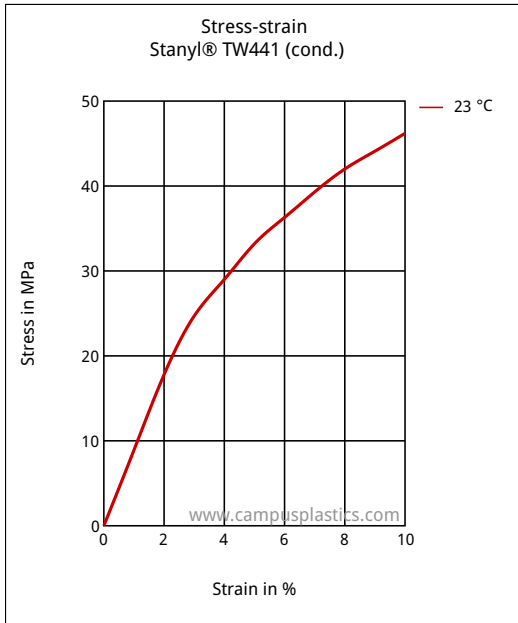
**Dynamic shear modulus-temperature**



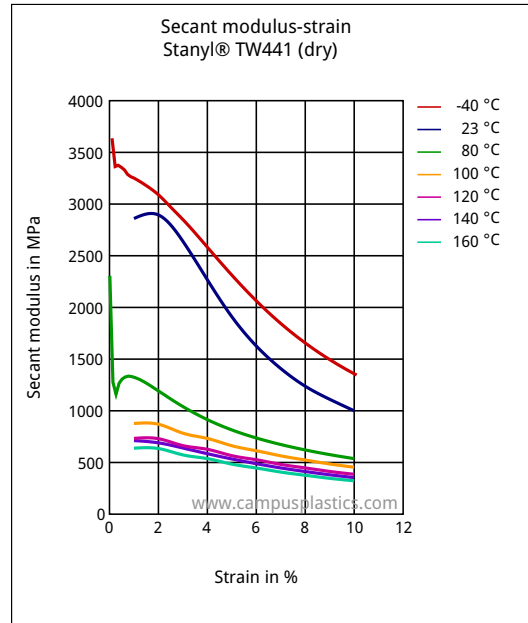
**Stress-strain**



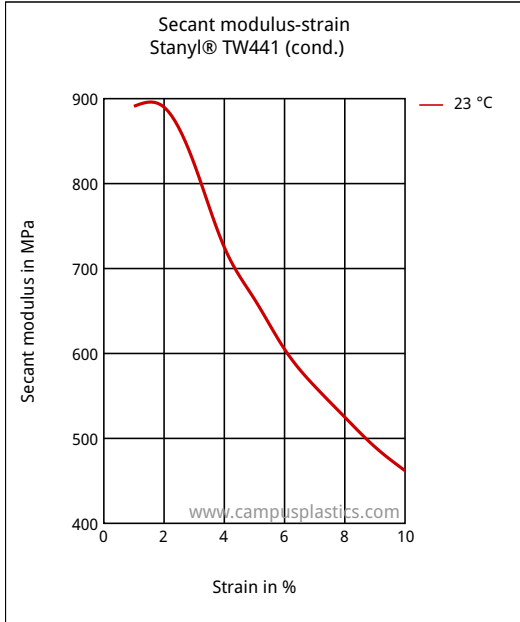
**Stress-strain**



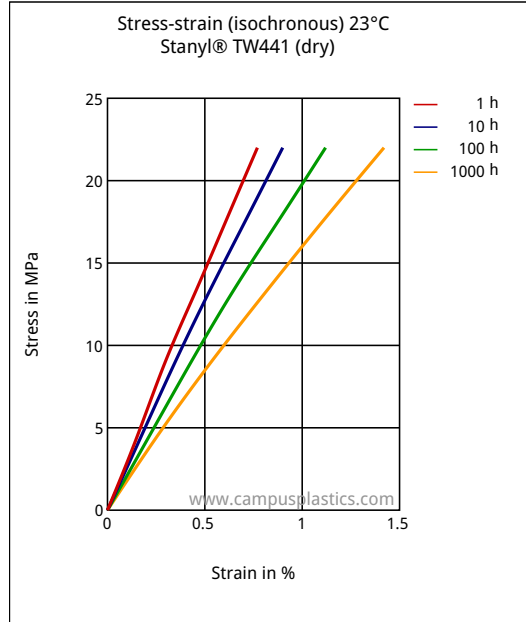
**Secant modulus-strain**



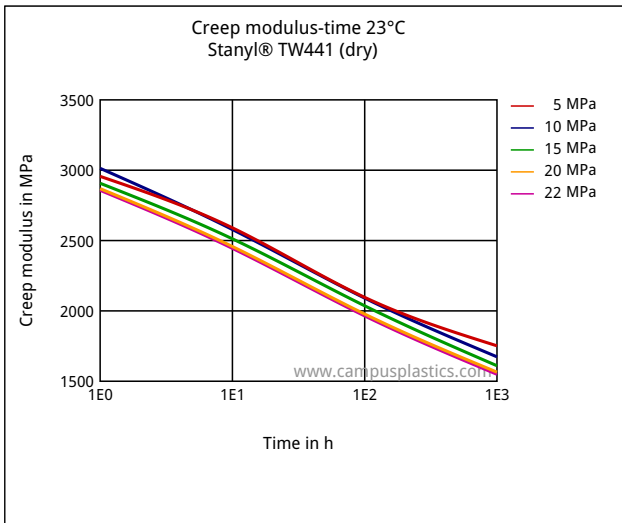
**Secant modulus-strain**



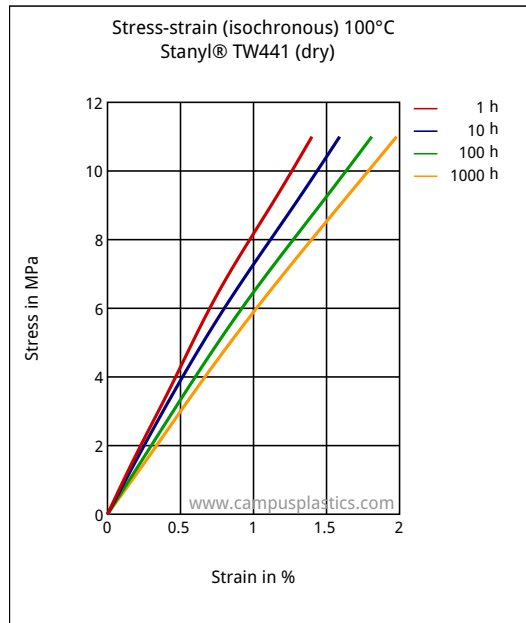
**Stress-strain (isochronous) 23°C**



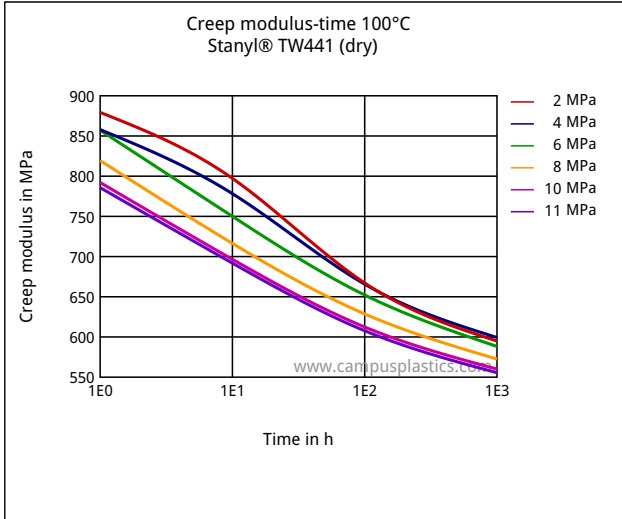
**Creep modulus-time 23°C**



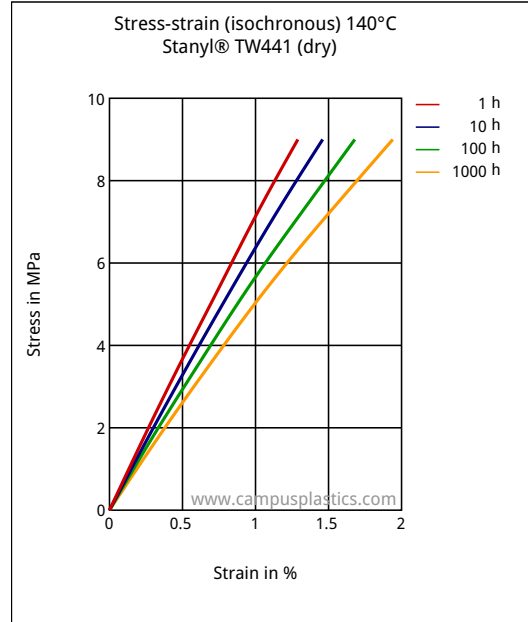
**Stress-strain (isochronous) 100°C**



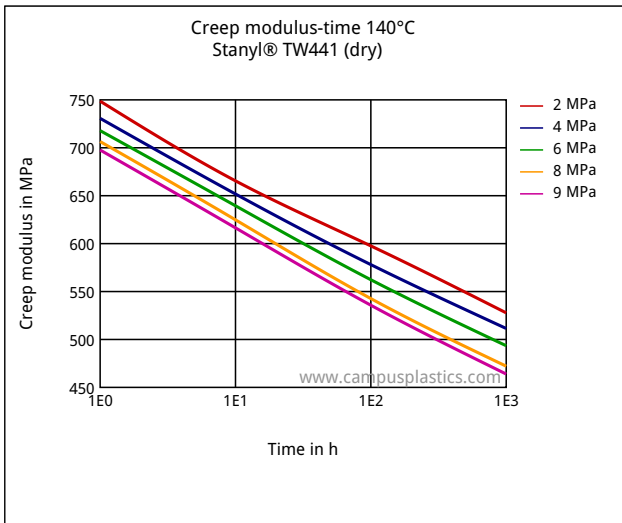
**Creep modulus-time 100°C**



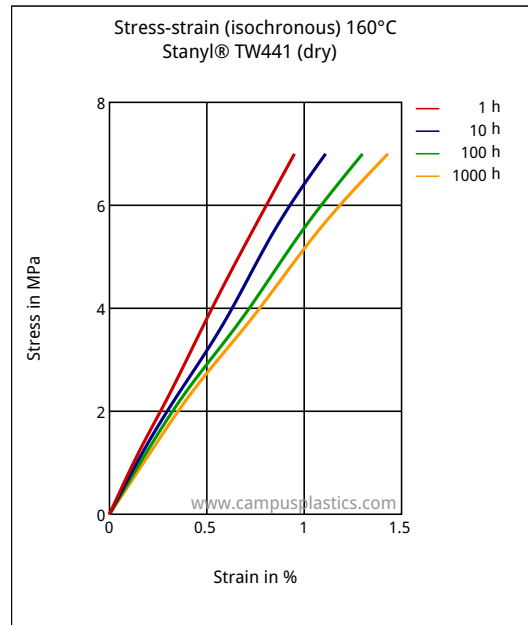
**Stress-strain (isochronous) 140°C**



**Creep modulus-time 140°C**



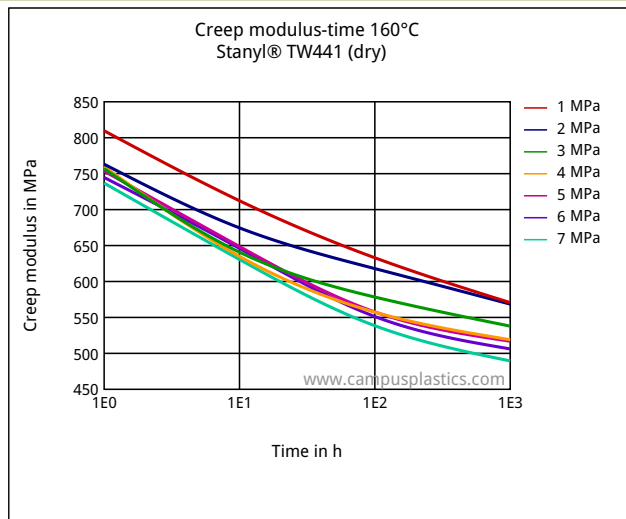
**Stress-strain (isochronous) 160°C**



# Stanyl® TW441 - PA46

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### Creep modulus-time 160°C



### Characteristics

#### Processing

Injection Molding, Other Extrusion

#### Special Characteristics

Heat stabilized or stable to heat

#### Additives

Lubricants

#### Regional Availability

North America, Europe, Asia Pacific

### Other text 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](#)

### Chemical Media Resistance

#### Alcohols

😊 Ethanol (23°C)

#### Hydrocarbons

😊 Toluene (23°C)

#### Ketones

😊 Acetone (23°C)

#### Ethers

😊 Diethyl ether (23°C)

#### Other

😊 Ethyl Acetate (23°C)

😊 Water (23°C)

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## **Stanyl® TW441 - PA46**

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