

**PLEXIGLAS® 8N**

PMMA

Evonik Industries AG

**Product Texts****Productprofil:**

PLEXIGLAS® 8N is an amorphous thermoplastic molding compound (PMMA).

Typical properties of PLEXIGLAS® molding compounds are:

- good flow
- high mechanical strength, surface hardness and abrasion resistance
- high light transmission
- very good weather resistance
- free colorability due to crystal clarity

Special properties of PLEXIGLAS® 8N are:

- optimum mechanical properties
- maximum heat deflection temperature
- good flow / melt viscosity
- AMECA listing.

**Application:**

Used for injection molding optical and technical items.

**Example:**

optical waveguides, luminaire covers, automotive lighting, instrument cluster covers, optical lenses, displays, etc.

**Processing:**

PLEXIGLAS® 8N can be processed on injection molding machines with 3-zone general purpose screws for engineering thermoplastics.

**Physical Form / Packaging:**

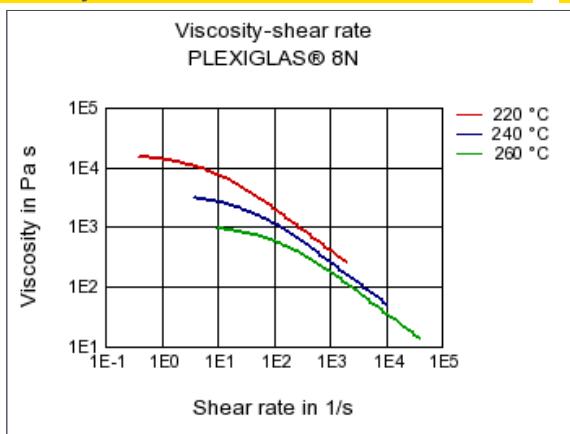
PLEXIGLAS® molding compounds are supplied as pellets of uniform size, packaged in 25kg polyethylene bags or in 500kg boxes with PE lining; other packaging on request.

Rheological properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Melt volume-flow rate, MVR	3	cm³/10min	ISO 1133
Temperature	230	°C	ISO 1133
Load	3.8	kg	ISO 1133
Mechanical properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Tensile Modulus	3300	MPa	ISO 527-1/-2
Stress at break	77	MPa	ISO 527-1/-2
Strain at break	5.5	%	ISO 527-1/-2
Tensile creep modulus, 1h	2800	MPa	ISO 899-1
Tensile creep modulus, 1000h	2200	MPa	ISO 899-1
Charpy impact strength (+23°C)	20	kJ/m²	ISO 179/1eU
Thermal properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Glass transition temperature, 10°C/min	117	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	98	°C	ISO 75-1/-2

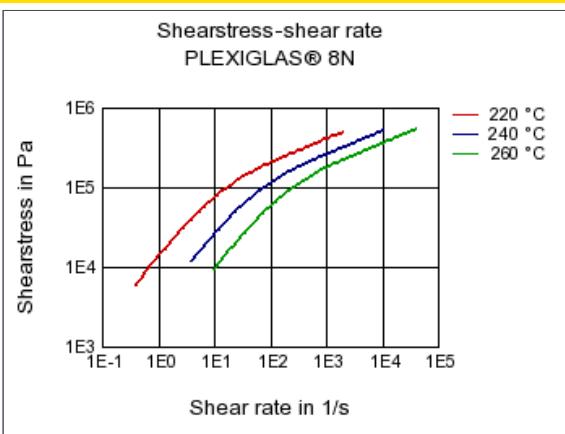
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Temp. of deflection under load (0.45 MPa)	103	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	108	°C	ISO 306
Coeff. of linear therm. expansion, parallel	80	E-6/K	ISO 11359-1/-2
Burning behav. at 1.5 mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.6	mm	IEC 60695-11-10
UL recognition	UL	-	-
Oxygen index	17.2	%	ISO 4589-1/-2
Electrical properties			
ISO Data			
Relative permittivity, 100Hz	3.6	-	IEC 60250
Relative permittivity, 1MHz	2.7	-	IEC 60250
Dissipation factor, 100Hz	500	E-4	IEC 60250
Dissipation factor, 1MHz	200	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	1E13	Ohm	IEC 60093
Comparative tracking index	600	-	IEC 60112
Other properties			
ISO Data			
Water absorption	2	%	Sim. to ISO 62
Humidity absorption	0.6	%	Sim. to ISO 62
Density	1190	kg/m³	ISO 1183
Material specific properties			
ISO Data			
Viscosity number	53	cm³/g	ISO 307, 1157, 1628
Luminous transmittance	92	%	ISO 13468-1, -2
Rheological calculation properties			
ISO Data			
Density of melt	1060	kg/m³	-
Thermal conductivity of melt	0.181	W/(m K)	-
Spec. heat capacity of melt	2440	J/(kg K)	-
Eff. thermal diffusivity	6.99E-8	m²/s	-
Ejection temperature	90	°C	-
Test specimen production			
ISO Data			
Processing conditions acc. ISO	8260	-	ISO ....-2
Injection Molding, melt temperature	248	°C	ISO 294
Injection Molding, mold temperature	68	°C	ISO 10724
Injection Molding, injection velocity	195	mm/s	ISO 294

## Diagrams

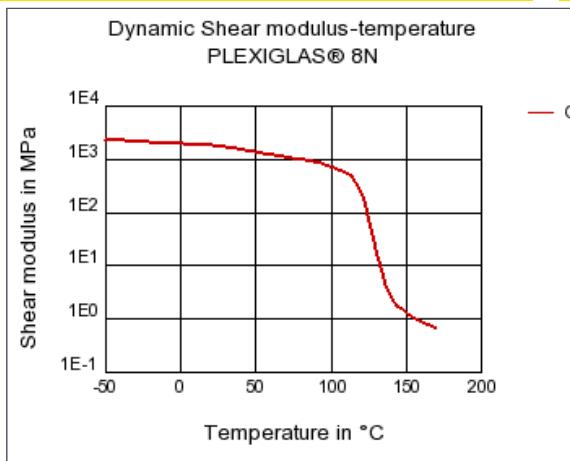
## Viscosity-shear rate



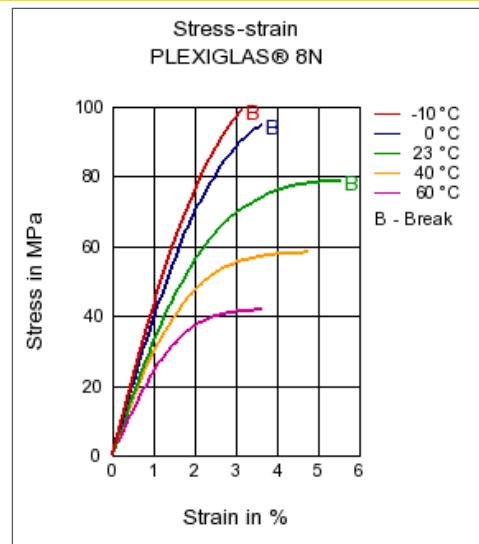
## Shearstress-shear rate



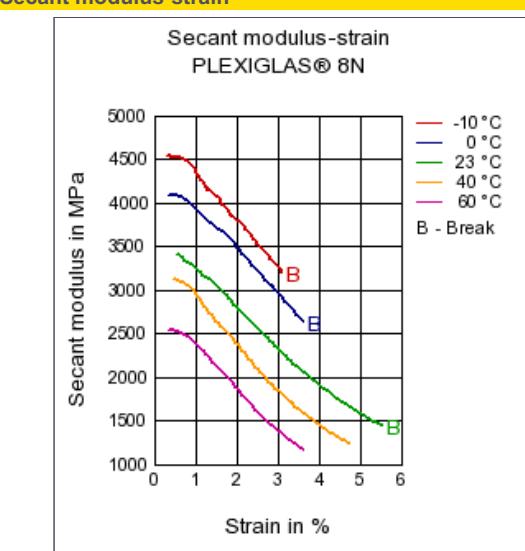
## Dynamic Shear modulus-temperature



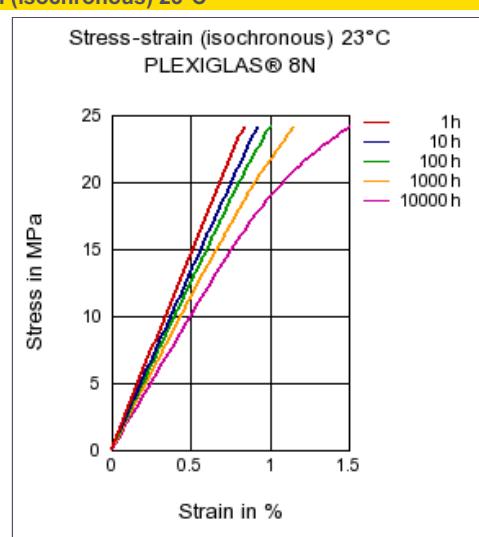
## Stress-strain



## Secant modulus-strain



## Stress-strain (isochronous) 23°C

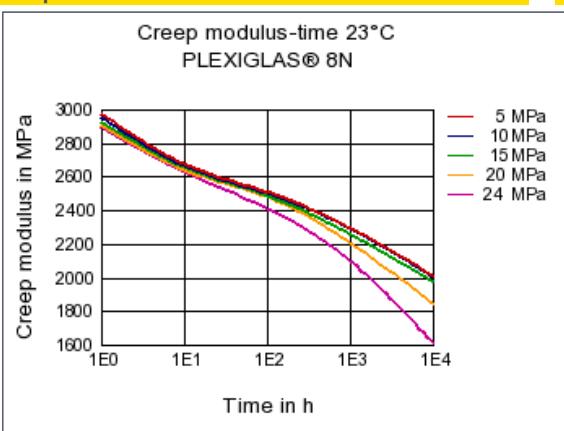


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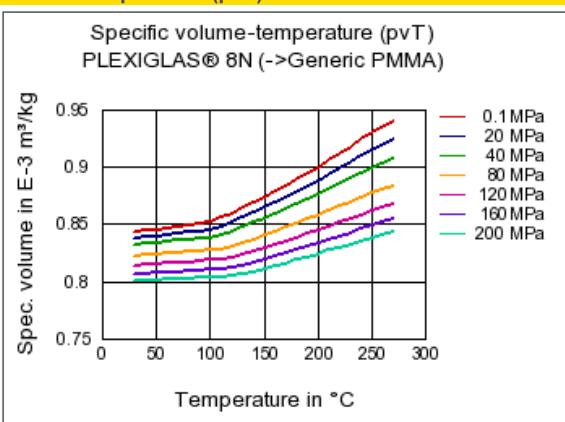
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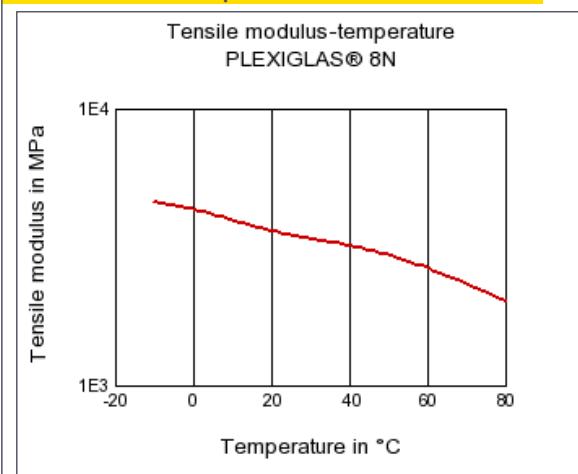
### Creep modulus-time 23°C



### Specific volume-temperature (pvT)



### Tensile modulus-temperature



## Characteristics

### Processing

Injection Molding

### Additives

Release agent

### Delivery form

Pellets

### Special Characteristics

Light stabilized or stable to light, U.V. stabilized or stable to weather, Heat stabilized or stable to heat, Transparent

## Other text information

### Injection Molding

#### PREPROCESSING

Predrying temperature: max. 98 °C

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

#### PROCESSING

Min. melt temperature: 220 - 260°C

Min. mold temperature: 60 - 90°C

## Chemical Media Resistance

### Acids

- 😊 Citric Acid solution (10% by mass) (23°C)
- 😊 Lactic Acid (10% by mass) (23°C)
- 😊 Nitric Acid (40% by mass) (23°C)
- 😊 Sulfuric Acid (38% by mass) (23°C)
- 😊 Sulfuric Acid (5% by mass) (23°C)

### Bases

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-  Sodium Hydroxide solution (35% by mass) (23°C)
-  Sodium Hydroxide solution (1% by mass) (23°C)
-  Ammonium Hydroxide solution (10% by mass) (23°C)

### Hydrocarbons

-  n-Hexane (23°C)
-  iso-Octane (23°C)

### Standard Fuels

-  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)

### Salt solutions

-  Sodium Carbonate solution (20% by mass) (23°C)
-  Sodium Carbonate solution (2% by mass) (23°C)

### Other

-  50% Oleic acid + 50% Olive Oil (23°C)
-  Water (23°C)