

**PLEXIGLAS® Resist zk5BR**

PMMA-I

Evonik Industries AG

Product Texts**Productprofil:**

PLEXIGLAS® Resist zk5BR is an amorphous, impact-modified thermoplastic molding compound (PMMA-I).

Typical properties of impact-modified PLEXIGLAS® molding compounds are:

- high weather resistance
- excellent transmission and clarity
- brilliant appearance
- the pleasant feel and sound of the moldings.

PLEXIGLAS® Resist zk5BR is characterized by the following special properties:

- high break resistance and impact strength
- improved resistance to stress cracking
- balanced property profile
- AMECA listing.

Application:

Used for injection molding as well as for extruding and coextruding panels and profiles

Example:

mobile phone displays, extruded and injection-molded luminaire covers, extruded hollow profiles, writing utensils such as stencils and fountain pens, housings, coextruded profiles for window frames, gutters, downspouts, and housewares such as cutlery handles, bowls, cookie jars.

Processing:

PLEXIGLAS® Resist zk5BR molding compound can be processed on machines with 3-zone general purpose screws for engineering thermoplastics.

Physical Form / Packaging:

PLEXIGLAS® Resist zk5BR molding compounds are supplied as pellets of uniform size in 25kg polyethylene bags or in 500kg boxes with PE lining; other packaging on request.

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	3.3	cm ³ /10min	ISO 1133
Temperature	230	°C	ISO 1133
Load	3.8	kg	ISO 1133
Mechanical properties			
ISO Data			
Tensile Modulus	2400	MPa	ISO 527-1/-2
Yield stress	62	MPa	ISO 527-1/-2
Yield strain	4.5	%	ISO 527-1/-2
Nominal strain at break	27	%	ISO 527-1/-2
Tensile creep modulus, 1h	2000	MPa	ISO 899-1
Tensile creep modulus, 1000h	1500	MPa	ISO 899-1
Charpy impact strength (+23°C)	50	kJ/m ²	ISO 179/1eU
Thermal properties			
ISO Data			

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Glass transition temperature, 10°C/min	109	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	93	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	98	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	100	°C	ISO 306
Coeff. of linear therm. expansion, parallel	90	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	17.5	%	ISO 4589-1/-2
Electrical properties			
ISO Data			
Relative permittivity, 100Hz	3.7	-	IEC 60250
Relative permittivity, 1MHz	2.9	-	IEC 60250
Dissipation factor, 100Hz	500	E-4	IEC 60250
Dissipation factor, 1MHz	300	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	1170	kg/m³	ISO 1183
Material specific properties			
ISO Data			
Luminous transmittance	92	%	ISO 13468-1, -2
Rheological calculation properties			
ISO Data			
Density of melt	1040	kg/m³	-
Thermal conductivity of melt	0.19	W/(m K)	-
Spec. heat capacity of melt	2440	J/(kg K)	-
Eff. thermal diffusivity	7.49E-8	m²/s	-
Ejection temperature	80	°C	-
VDA Properties			
ISO Data			
Burning rate, Thickness 1 mm	89.3	mm/min	ISO 3795 (FMVSS 302)
Test specimen production			
ISO Data			
Injection Molding, melt temperature	250	°C	ISO 294
Injection Molding, mold temperature	62	°C	ISO 10724
Injection Molding, injection velocity	195	mm/s	ISO 294

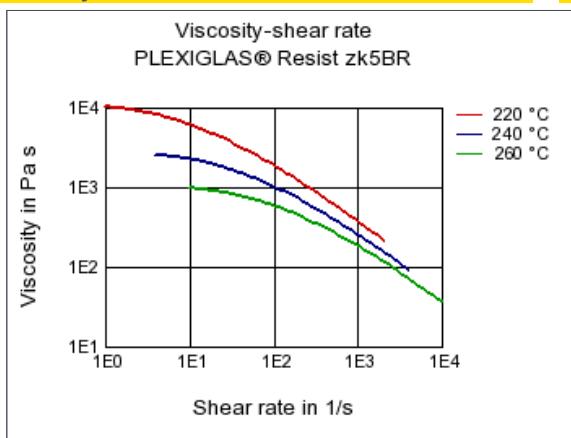
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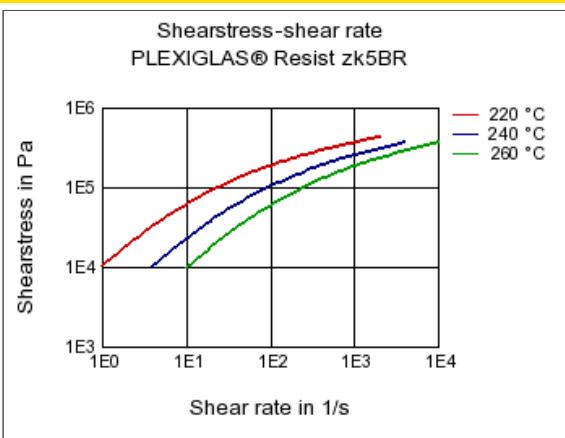
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Diagrams

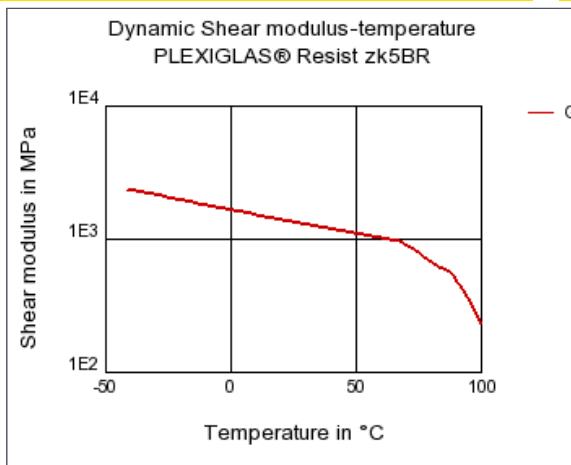
Viscosity-shear rate



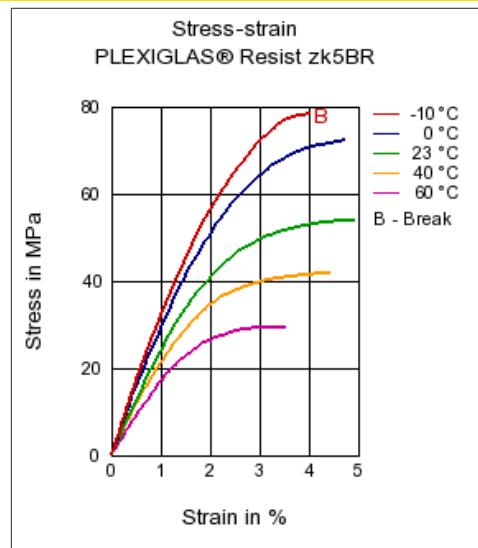
Shearstress-shear rate



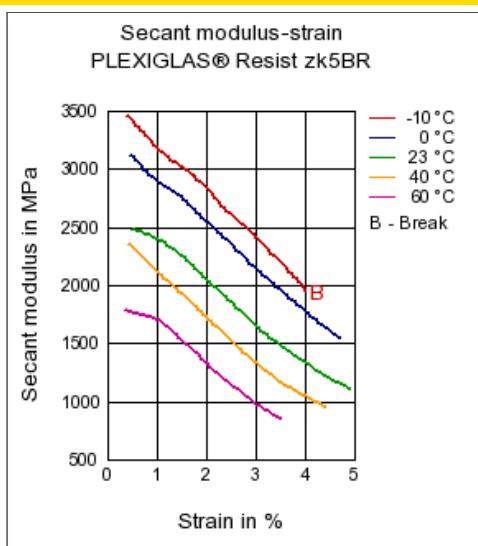
Dynamic Shear modulus-temperature



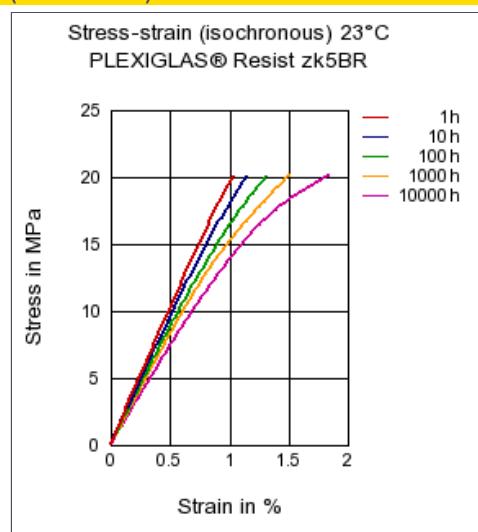
Stress-strain



Secant modulus-strain



Stress-strain (isochronous) 23°C

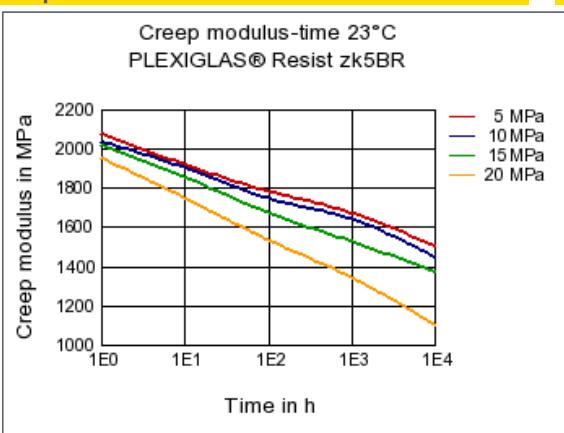


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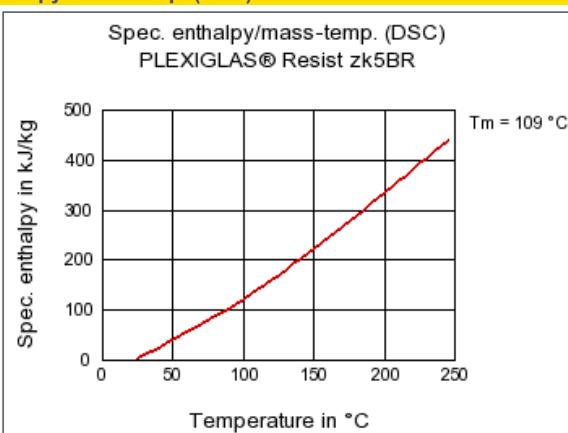
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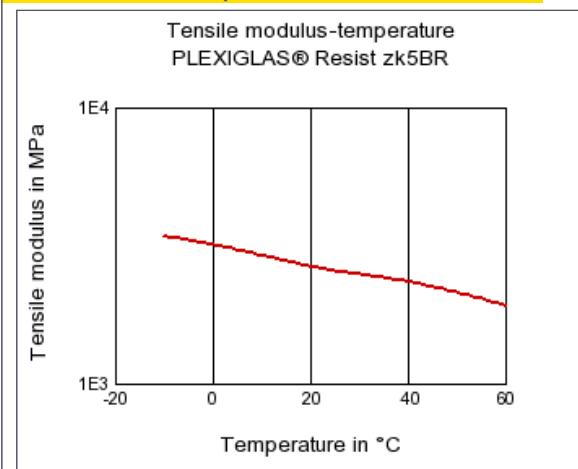
Creep modulus-time 23°C



Spec. enthalpy/mass-temp. (DSC)



Tensile modulus-temperature



Characteristics

Processing

Injection Molding, Film Extrusion, Profile Extrusion, Sheet Extrusion, Other Extrusion, Thermoforming

Additives

Release agent

Delivery form

Pellets

Special Characteristics

High impact or impact modified, Light stabilized or stable to light, U.V. stabilized or stable to weather, Transparent

Other text information

Injection Molding

PREPROCESSING

Predrying temperature: max. 90 °C

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

PROCESSING

Min. melt temperature: 220 - 260°C

Min. mold temperature: 50 - 70°C

Profile extrusion

PREPROCESSING

Predrying temperature: max. 90 °C

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

PROCESSING

Melt temperature: 220 - 260 °C

Die temperature: 220 - 260 °C

Sheet extrusion

PREPROCESSING

Predrying temperature: max. 90 °C

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

Melt temperature: 220 - 260 °C
Die temperature: 220 - 260 °C

Chemical Media Resistance

Acids

-  Citric Acid solution (10% 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)

Bases

-  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)

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)

Other

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