PLEXIGLAS® Resist zk5BR

PMMA-I

Röhm GmbH

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 zk 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	cm³/10min	ISO 1133
Temperature	230	°C	-
Load	3.8	kg	-

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2400	MPa	ISO 527
Yield stress	62	MPa	ISO 527
Yield strain	4.5	%	ISO 527
Nominal strain at break	27	%	ISO 527
Tensile Creep Modulus, 1h	2000	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	1500	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	50	kJ/m²	ISO 179/1eU

Thermal Properties	Value	Unit	Test Standard
ISO Data			
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	UL 94
Thickness tested	1.6	mm	-
UL recognition	yes	-	-
Oxygen index	17.5	%	ISO 4589-1/-2

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.7	-	IEC 62631-2-1
Relative permittivity, 1MHz	2.9	-	IEC 62631-2-1
Dissipation Factor, 100Hz	500	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	300	E-4	IEC 62631-2-1
Volume Resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	1E13	Ohm	IEC 62631-3-2
Comparative tracking index	600	-	IEC 60112

Other Properties	Value	Unit	Test Standard
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	Value	Unit	Test Standard
ISO Data			
Luminous transmittance	92	%	ISO 13468-1, -2

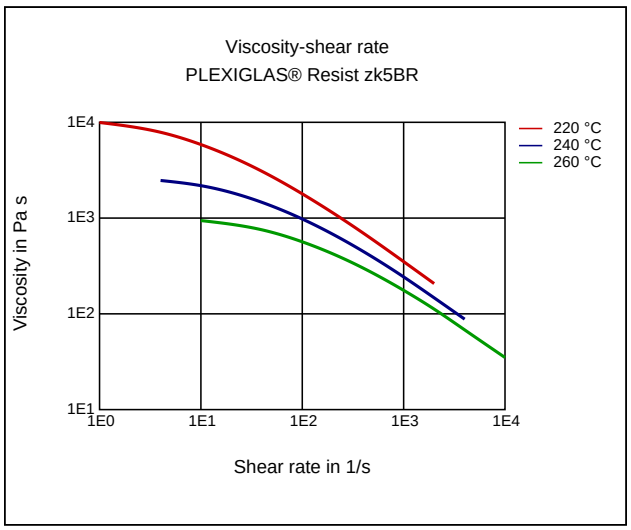
Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Density of melt	1040	kg/m³	-
Thermal Conductivity of Melt	0.19	W/(m K)	-
Spec. heat capacity of melt	2440	J/(kg K)	-
Eff. thermal diffusivity	7.49E-8	m²/s	-
Ejection temperature	80	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	250	°C	ISO 294
Injection Molding, mold temperature	62	°C	ISO 294
Injection Molding, injection velocity	195	mm/s	ISO 294

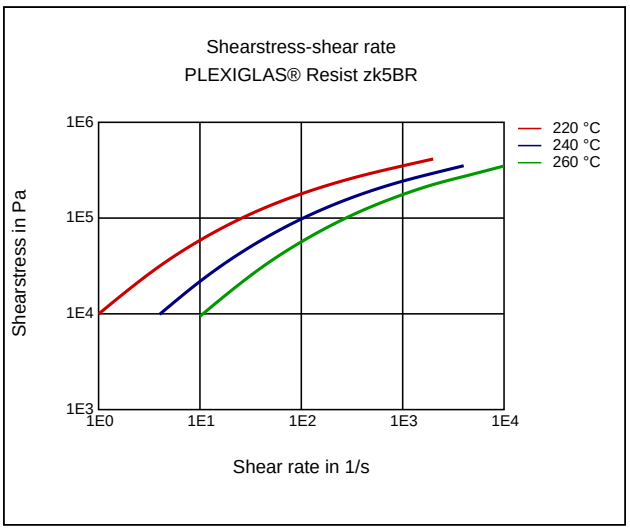
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	90	°C	-
Pre-drying - Time	2 - 3	h	-
Melt temperature	220 - 260	°C	-
Mold temperature	50 - 70	°C	-

Diagrams

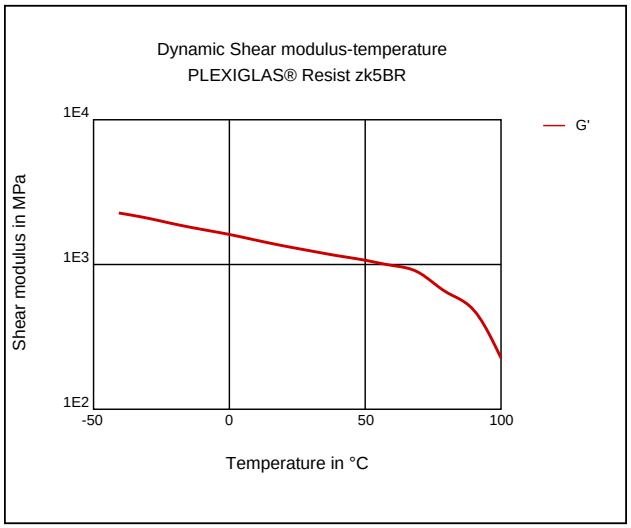
Viscosity-shear rate



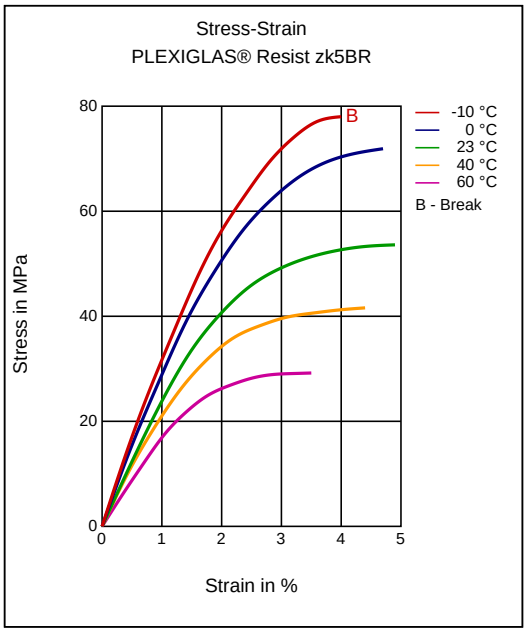
Shearstress-shear rate



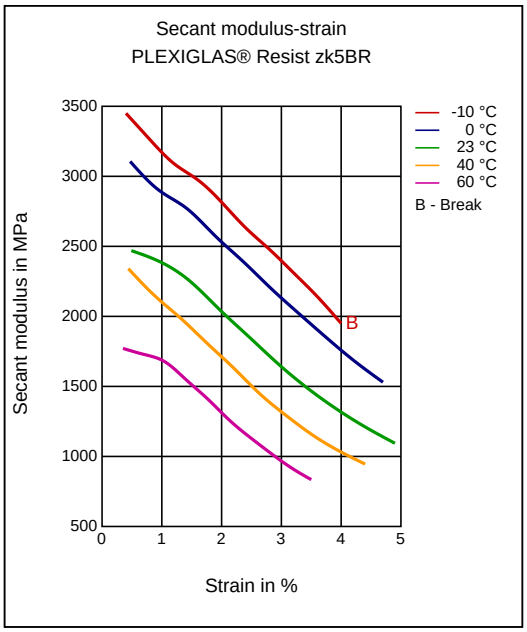
Dynamic Shear modulus-temperature



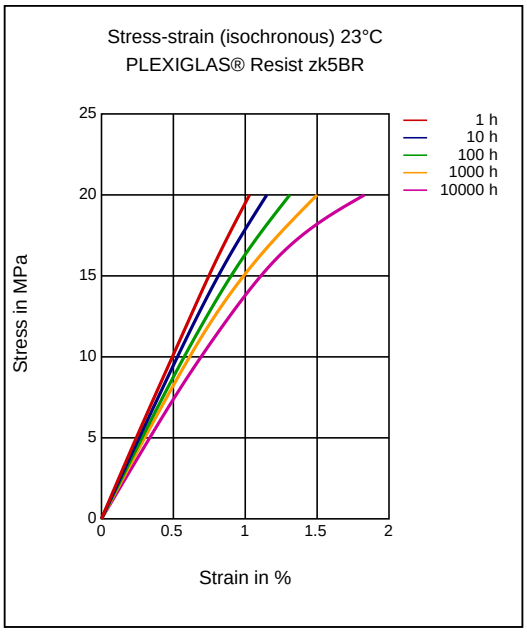
Stress-strain



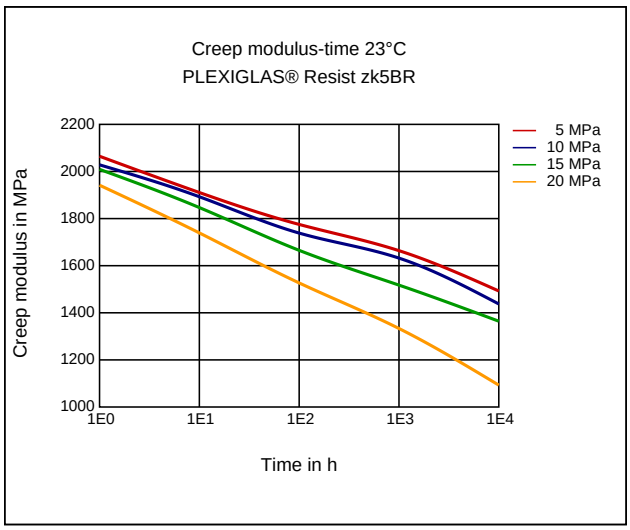
Secant modulus-strain



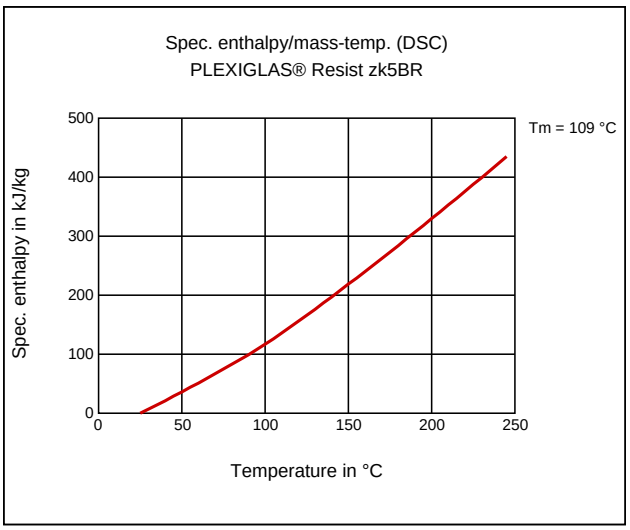
Stress-strain (isochronous) 23 °C



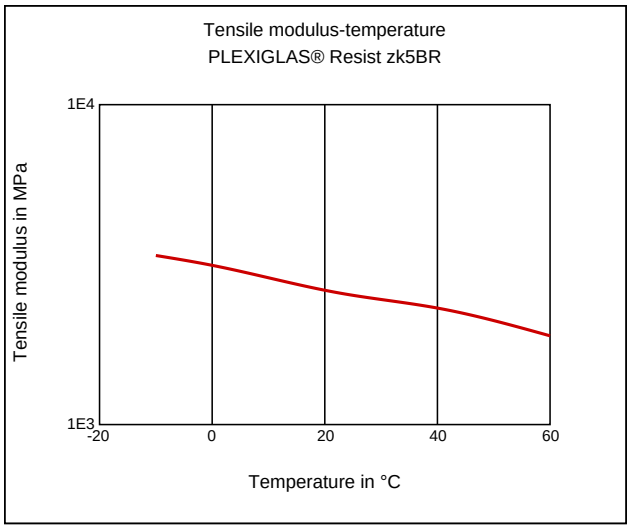
Creep modulus-time 23 °C



Spec. enthalpy/mass-temp. (DSC)



Tensile Modulus-Temperature



Characteristics

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

Delivery form
Pellets

Additives
Release agent

Special Characteristics
Impact modified, Light stabilized or stable to light, UV stablized, Transparent

Features
Amorphous

Chemical Resistance
Environmental Stress Crack Resistance

Applications
Building Construction, Encapsulation

Injection Molding
PREPROCESSING
Predrying temperature: max. 90 °C
Predrying time in a desiccant-type drier: 2 - 3 h
PROCESSING
Melt temperature: 220 - 260°C
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
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)

Disclaimer