PLEXIGLAS® Resist zk20

PMMA-I Evonik Industries AG

Product Texts

Productprofil:

PLEXIGLAS® Resist zk20 is an amorphous thermoplastic molding compound that is slightly impact-modified (PMMA-I).

Typical properties of standard PLEXIGLAS® molding compounds are:

- excellent light transmission
- good mechanical properties.

Special properties of PLEXIGLAS® Resist zk20 are:

- increased break resistance to avoid demolding fractures during injection molding
- improved resistance to stress cracking
- AMECA listing.

Application:

Used for injection molding. Profile extrusion or coextrusion are also possible.

Example:

lighting fixtures, writing and drawing utensils, domestic appliances and sanitaryware

Processing:

PLEXIGLAS® Resist zk20 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, packaged in 25kg polyethylene bags or 500kg boxes with PE lining; other packaging on request.

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	2	cm³/10min	ISO 1133
Temperature	230	°C	ISO 1133
Load	3.8	kg	ISO 1133

Mechanical properties	Value	Unit	Test Standard
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	22	%	ISO 527-1/-2
Tensile creep modulus, 1h	2300	MPa	ISO 899-1
Tensile creep modulus, 1000h	1600	MPa	ISO 899-1
Charpy impact strength (+23°C)	25	kJ/m²	ISO 179/1eU

Thermal properties	Value	Unit	Test Standard
ISO Data			
Glass transition temperature, 10°C/min	112	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	96	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	100	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	102	°C	ISO 306
Coeff. of linear therm. expansion, parallel	100	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
Oxygen index	17.5	%	ISO 4589-1/-2

Electrical properties	**Value**	**Unit**	**Test Standard**
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	**Value**	**Unit**	**Test Standard**
ISO Data			
Water absorption	1.7	%	Sim. to ISO 62
Humidity absorption	0.5	%	Sim. to ISO 62
Density	1170	kg/m³	ISO 1183

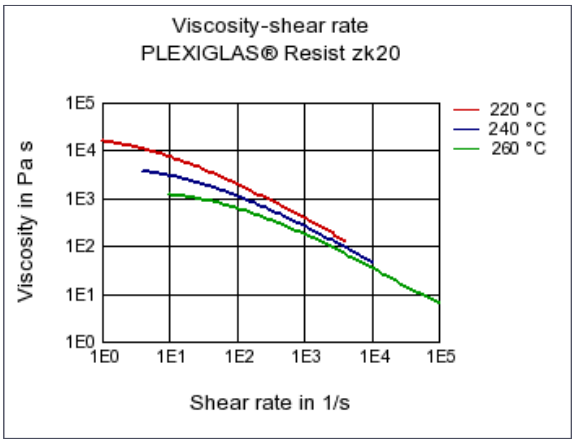
Material specific properties	**Value**	**Unit**	**Test Standard**
ISO Data			
Luminous transmittance	91	%	ISO 13468-1, -2

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	-

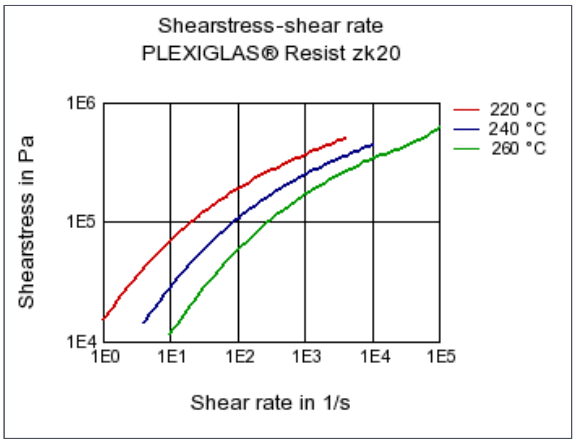
Test specimen production	**Value**	**Unit**	**Test Standard**
ISO Data			
Injection Molding, melt temperature	250	°C	ISO 294
Injection Molding, mold temperature	64	°C	ISO 10724
Injection Molding, injection velocity	195	mm/s	ISO 294

Diagrams

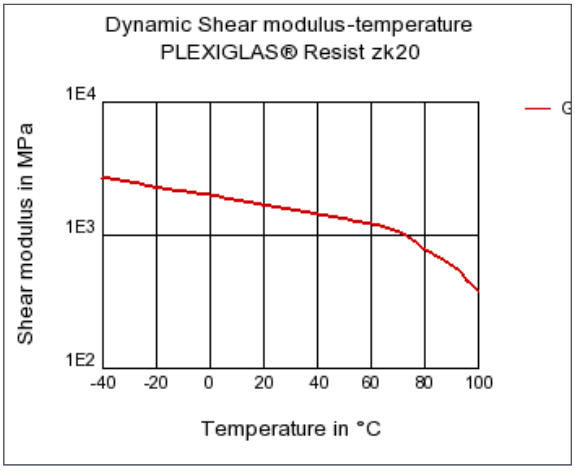
Viscosity-shear rate



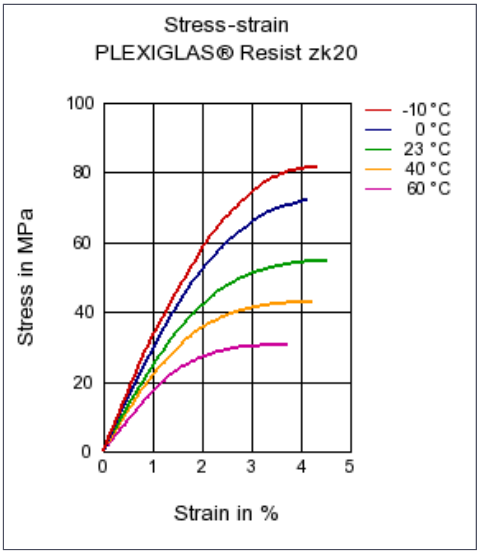
Shearstress-shear rate



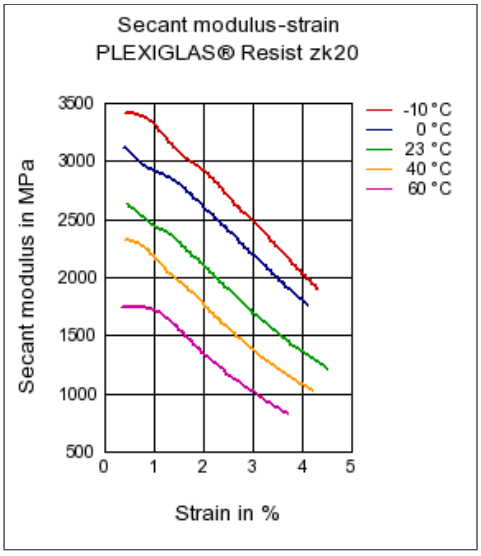
Dynamic Shear modulus-temperature



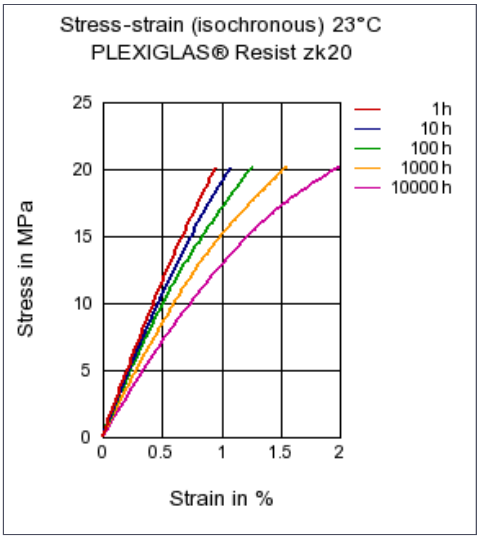
Stress-strain



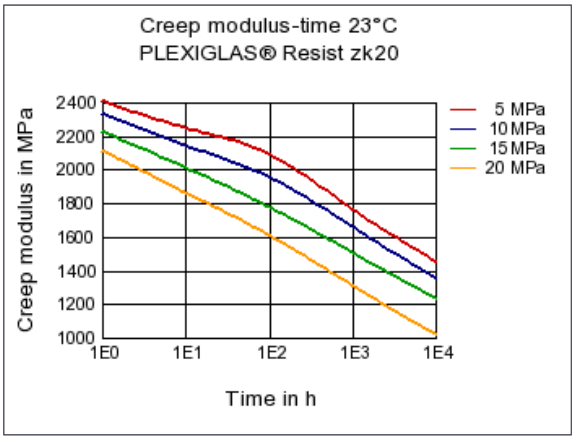
Secant modulus-strain



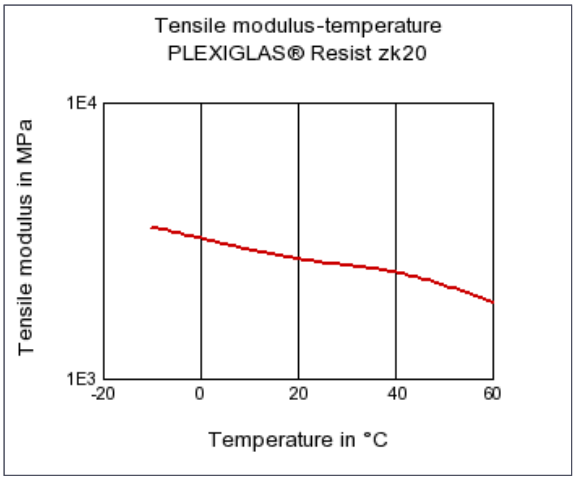
Stress-strain (isochronous) 23°C



Creep modulus-time 23°C



Tensile modulus-temperature



Characteristics

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

Additives
Release agent

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

Delivery form
Pellets

Other text information

Injection Molding
PREPROCESSING
Predrying temperature: max. 95 °C
Predrying time in a desiccant-type drier: 2 - 3 h
PROCESSING
Min. melt temperature: 230 - 240°C
Min. mold temperature:50 - 70°C

Profile extrusion
PREPROCESSING
Predrying temperature: max. 95 °C
Predrying time in a desiccant-type drier: 2 - 3 h
PROCESSING
Melt temperature: 230 - 240 °C
Die temperature: 230 - 240 °C

Sheet extrusion
PREPROCESSING
Predrying temperature: max. 95 °C
Predrying time in a desiccant-type drier: 2 - 3 h
PROCESSING
Melt temperature: 230 - 240 °C
Die temperature: 230 - 240 °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)