PLEXIGLAS® Resist zk5HF

PMMA-I Evonik Industries AG

Product Texts

Productprofil:

PLEXIGLAS® Resist zk5HF 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 zk5HF is characterized by the following special properties:

- high break resistance and impact strength
- improved resistance to stress cracking
- excellent flow.

Application:

Used for injection molding as well as for extruding sheets and profiles.

Example:

applications involving thin walls and long flow paths; thin-walled components; items requiring accurate mold surface reproduction, such as very finely textured luminaire covers.

Processing:

PLEXIGLAS® Resist zk5HF 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 25 kg polyethylene bags or in 500 kg boxes with PE lining; other packaging on request.

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	8.1	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	2500	MPa	ISO 527-1/-2
Yield stress	55	MPa	ISO 527-1/-2
Yield strain	4.5	%	ISO 527-1/-2
Nominal strain at break	25	%	ISO 527-1/-2
Charpy impact strength (+23°C)	50	kJ/m²	ISO 179/1eU

Thermal properties	Value	Unit	Test Standard
ISO Data			
Glass transition temperature, 10°C/min	95	°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)	102	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	96	°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	**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

Other properties	**Value**	**Unit**	**Test Standard**
ISO Data			
Water absorption	1.9	%	Sim. to ISO 62
Humidity absorption	0.5	%	Sim. to ISO 62
Density	1170	kg/m³	ISO 1183

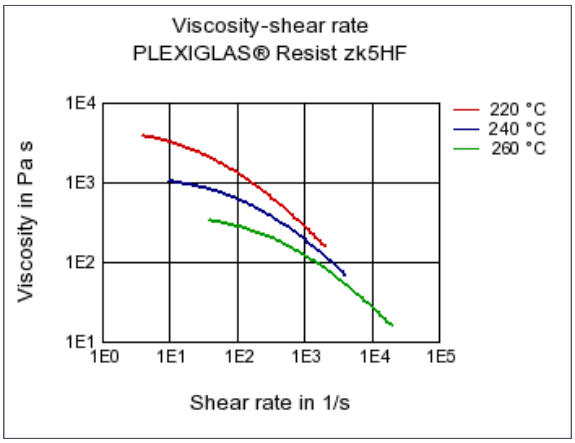
Material specific properties	**Value**	**Unit**	**Test Standard**
ISO Data			
Luminous transmittance	92	%	ISO 13468-1, -2

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	75	°C	-

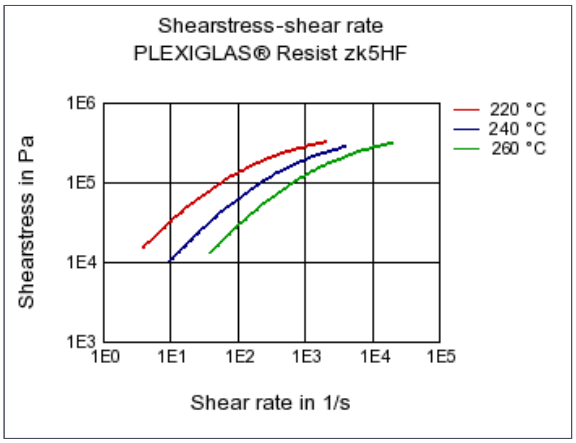
Test specimen production	**Value**	**Unit**	**Test Standard**
ISO Data			
Injection Molding, melt temperature	230	°C	ISO 294
Injection Molding, mold temperature	56	°C	ISO 10724
Injection Molding, injection velocity	195	mm/s	ISO 294

Diagrams

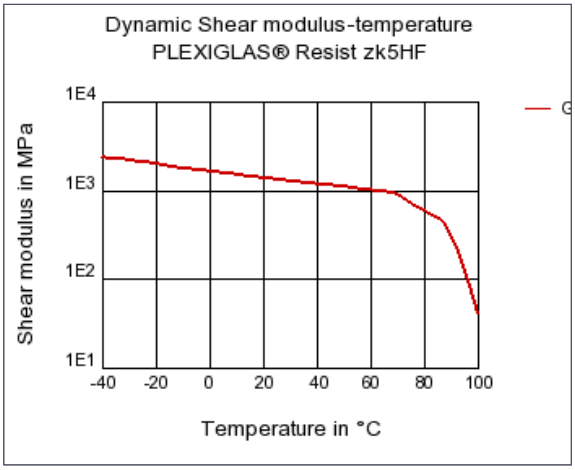
Viscosity-shear rate



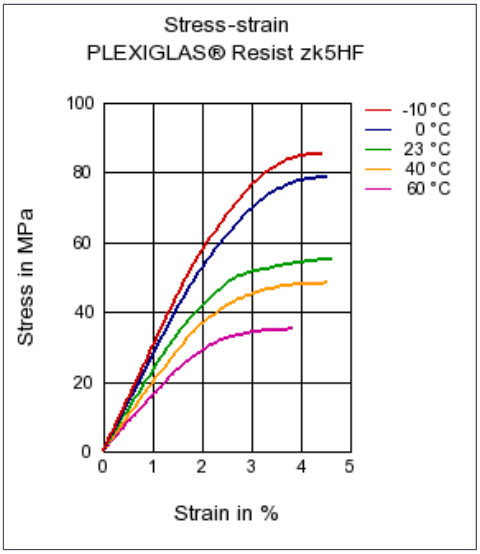
Shearstress-shear rate



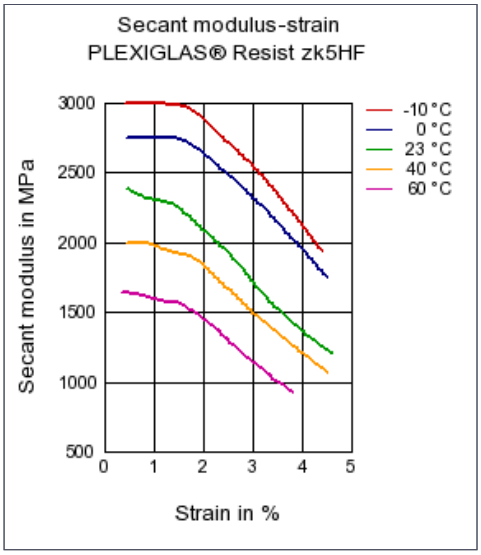
Dynamic Shear modulus-temperature



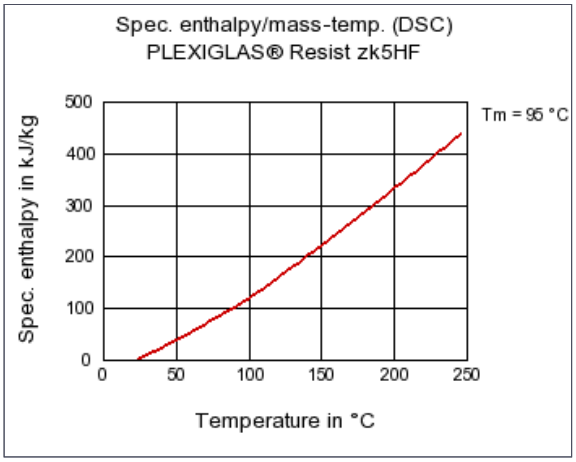
Stress-strain



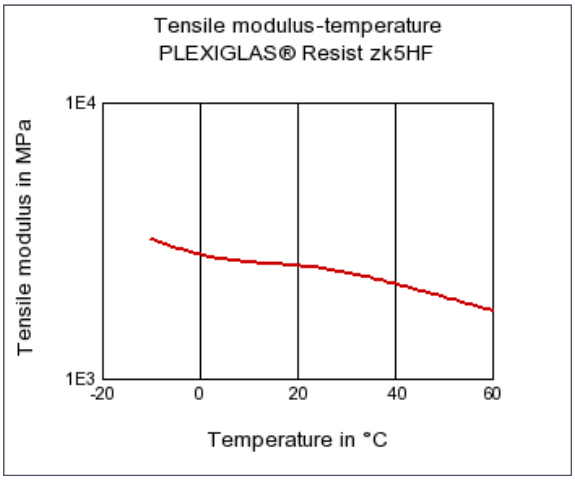
Secant modulus-strain



Spec. enthalpy/mass-temp. (DSC)



Tensile modulus-temperature



Characteristics

Processing
Injection Molding

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. 85 °C
Predrying time in a desiccant-type drier: 2 - 3 h
PROCESSING
Min. melt temperature: 220 - 260°C
Min. mold temperature:50 - 70°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)