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Advanced Materials

XB 2252-1	**100**	**pbw**
XB 2253-1	**13**	**pbw**

Optimally filled casting system for processing and curing at room temperature or slightly higher temperatures.

Application	Transformers, filters, capacitors, etc.
Processing Methods	Casting / vacuum casting.
Key Properties	Good thermal shock resistance. Good dielectric properties. Good mechanical properties. Excellent thermal endurance. Suitable for thermal class 180 (H) applications. Foreseen certifications: UL94 V-0 Railway EN 45545-2

Product Data (Guideline Values)

XB 2252-1

Modified, solvent free epoxy resin with inorganic filler.

Viscosity at 25°C	ISO 3219	mPa*s	6'000 - 11'000*
Specific gravity at 23°C	ISO 2811	g/cm³	1.59 – 1.64*
Appearance	Visual		Black liquid*

XB 2253-1

Formulated, low viscosity amine hardener.

Viscosity at 25°C	ISO 2555	mPa*s	40 - 100*
Specific gravity at 20°C	ISO 2811	g/cm³	0.96 – 0.99*
Appearance	Visual		Clear, liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
XB 2252-1	Resin	100	100
XB 2253-1	Hardener	13	20

Gel Time, Viscosity and Curing

Mix viscosity at 25°C	Rheomat	mPa*s	1'900
Mix viscosity at 40°C			900
Gel time at 25°C	Gelnorm	Min	240
Gel time at 40°C		Min	120
Gel time at 60°C	ISO 9396	Min	30 - 42*
Pot life at 40°C (Time to reach 15000 mPa*s)		Min	67
Standard curing cycle	24 hours at RT + 6 hours at 60°C		
Minimum curing cycle	24 hours at 25°C		

*Specified range

Processing and Storage (Guideline Values)

Preparation

XB 2252-1 contains fillers, which tend to settle over time. It is therefore recommended to carefully homogenize the complete contents of the container before use.
In the storage vessels of the production equipment, the pre-filled products should be stirred up from time to time to avoid sedimentation and irregular metering.

Mixing

The casting mix is best prepared by heating the resin up to 40 – 50 °C before stirring in the hardener.
Brief degassing of the mix under 5 – 10 mbar vacuum improves the mixture homogeneity and enhances the dielectric properties of the castings.

Curing

To determine whether cross-linking has been carried to completion and the final properties are optimal, it is necessary to carry out relevant measurements on the actual object or to measure the glass transition temperature. Different gel and cure cycles in the customer's manufacturing process could lead to a different degree of cross-linking and thus a different glass transition temperature.

Storage Conditions

Store the components in a dry place according to the storage conditions stated on the label in tightly sealed original containers. Under these conditions, the shelf life will correspond to the expiry date stated on the label. After this date, the product may be processed only after reanalysis. Partly emptied containers should be tightly closed immediately after use.
For information on waste disposal and hazardous products of decomposition in the event of a fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

Mechanical and Physical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 24h/RT + 6h/60°C.

Glass transition temperature	ISO 6721	°C	60
Shear modulus G' at RT	ISO 6721	MPa	2'200
Temperature index TI	IEC 60216	°C	
Thermal class	IEC 60085		180 (H)
Tensile modulus	ISO 527	MPa	4'300
Tensile strength	ISO 527	MPa	39
Elongation at break	ISO 527	%	1.9
Flexural modulus	ISO 178	MPa	4'900
Flexural strength	ISO 178	MPa	69
Coefficient of thermal expansion (α_1/α_2)	ISO 11359-2	ppm/K	60/100
Thermal conductivity	ISO 8894-1	W/mK	0.66
Hardness	DIN 53505	Shore D	85
Flammability	UL 94	*Not yet listed*	V-0 (6 mm)
Oxygen Index LOI	ISO 4589-2	%	
Smoke Density	ISO 5659-2	D_s (max)	
Smoke Toxicity	NF X 70-100	CIT	
Water absorption	ISO 62/80		
1 day at 23°C 30 min at 100°C		% by wt.	0.14 0.47

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 24h/RT + 6h/60°C.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm	29
Dielectric loss factor (tan δ, 50 Hz, 25°C)	IEC 60250	%	5.3
Dielectric constant (ε_r, 50Hz, 25°C)	IEC 60250		4.7
Volume resistivity (ρ, 25°C)	IEC 60093	Ω cm	$4*10^{14}$
Tracking resistance CTI	IEC 60112	grade	> 600
Electrolytic corrosion	IEC 60426	grade	A-1

Legal Notice

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