Product information

VESTALITE® S 102

(PRELIMINARY)

GENERAL DESCRIPTION

VESTALITE® S 102 is a curing agent for epoxy resin matrix designed for SMC applications. Systems using VESTALITE® S 102 have a low initial viscosity during compounding, allowing excellent fiber wetting, high fiber volume fraction and efficient processing. The high reactivity of the hardener allows fast curing in about 3 min at 150 °C.

SPECIFICATION

Tab.1: Properties of the neat resin system

	Unit	VESTALITE® S 102	Standard Epoxy Resin (EEW ~ 182)	Catalyst
Appearance		Clear, transparent	Yellow, transparent	solid
Density@25°C	g/cm³	0.91	1.16	1.03
Viscosity@25°C	mPa*s	< 50	~ 9,000	-
Mixing ratio	(m/m)	25.4	100	1.9
Initial viscosity@30°C	mPa*s	~ 600		
Curing time@150°C	min	3 - 4		

HANDLING AND PROCESSING

- We recommend to preheat the resin to 30°C for better processing.
  All other ingredients can be applied at room temperature
- Disperse the Catalyst into the resin
- Optional: Mix the internal release agent and the resin
- Mix the hardener and the resin
- The mixture can be processed for at least 30 min
- Produced SMC sheets will solidify after ~6-8 h. They are still meltable at 60-80°C.
- The sheets have to mature for at least 3 days at 25°C. The maturation time can be reduced by increasing the maturation temperature. After maturation the SMC matrix will show a Tg of 45-55°C
- The sheets are storage stable for at least 8 weeks

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Tab.2: Molding conditions for SMC sheets

	Unit	Value
Molding pressure	bar	100 - 200
Molding temperature	°C	150
Mold coverage	%	50 - 80
Curing time	min	3 - 4

Fig. 1: Shrinkage behavior of neat resin (method: volume dilatometry)

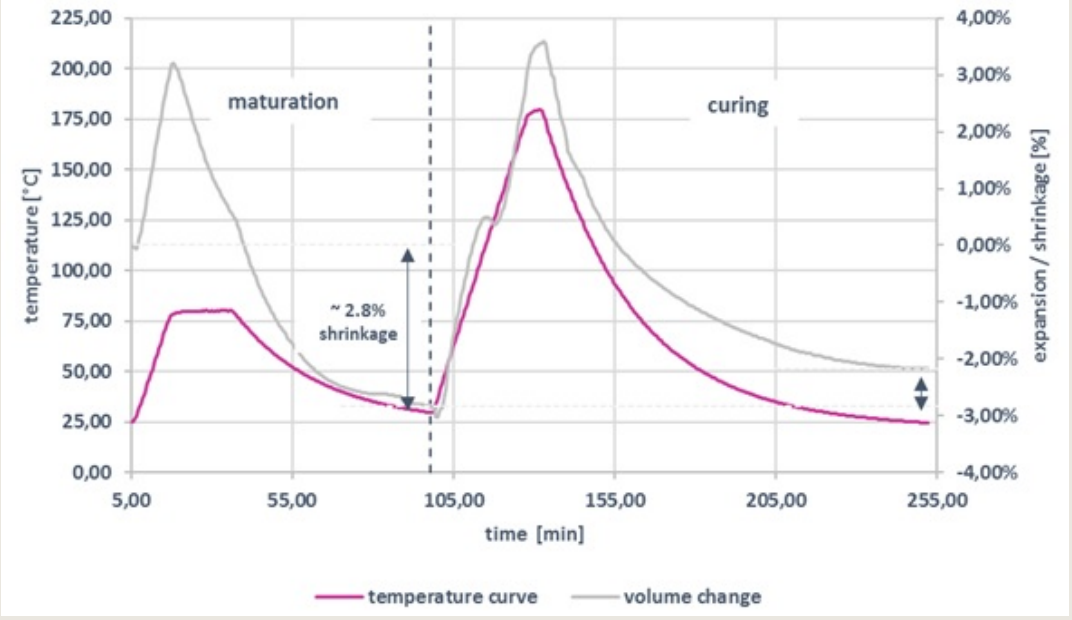
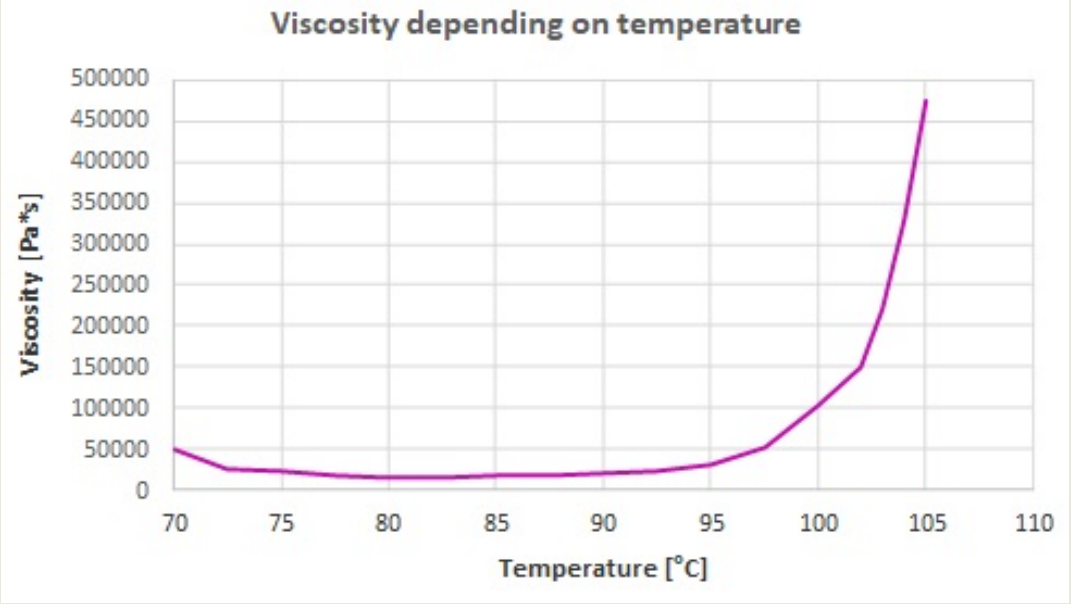


Fig. 2: Viscosity increase depending on temperature for matured SMC material



Tab. 3: Properties of cured neat resin system

	Unit	Value	Standard
Tensile modulus	MPa	2930	DIN EN ISO 527-2
Tensile stress at break	MPa	80	DIN EN ISO 527-2
Tensile strain at break	%	6	DIN EN ISO 527-2
Flexural modulus	MPa	2910	DIN EN ISO 178
Flexural strength	MPa	120	DIN EN ISO 178
Flexural strain at break	%	7	DIN EN ISO 178
Glass Transition temperature (Tg)	°C	120	DIN EN ISO 11357-2
Density	g/cm³	1.14	OECD 109

Tab. 4: Properties of cured SMC material (68.1 % carbon fiber mass fraction)

	Unit	Value	Standard
Tensile modulus	GPa	44	EN ISO 527-4
Tensile strength at break	MPa	263	EN ISO 527-4
Tensile strain at break	%	0.7	EN ISO 527-4
Compressive modulus	GPa	35.1	EN ISO 14126
Compressive strength	MPa	323	EN ISO 14126
Flexural modulus	GPa	39	EN ISO 14125
Flexural strength	MPa	545	EN ISO 14125
Flexural strain at break	%	1.8	EN ISO 14125
Charpy Impact Strength	KJ/m²	107	EN ISO 179-1

Tab. 5: Emission test of SMC panel

	Unit	Value	Standard
Volatile organic compounds	µg/g	9	PV 3341 / VDA 277

Marl, December 18, 2018; This data sheet replaces all former issues.

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