VEE-TEK

composite engineering

Compset 5-2-1

High performance laminating grade epoxy system

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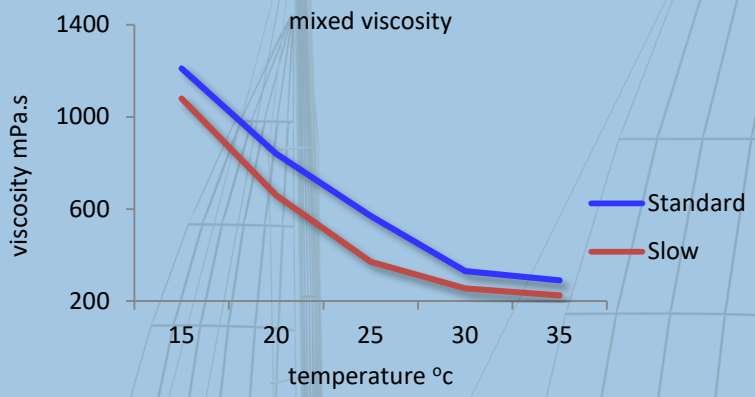
Compset 5-2-1 is a high performance, low viscosity **hand laminating** epoxy system, developed for the production of articles where thin film cure is of particular importance. This system exhibits significant toughness and strength for an ambient cured epoxy resin. **Low viscosity** facilitates wet-out of difficult laminates. Containing no solvent ensures **low odour** during application and cures to a clear finish.

Compset 5-2-1 epoxy has been developed to provide good mechanical properties at a cure temperature between 15°c to 35°c. Progressive post-curing at elevated temperatures will shorten processing times and increase the toughness of the laminate.

Compset 5-2-1 epoxy utilises three hardener grades that covers temperature conditions and thickness of laminate.

- **Fast Hardener** **15°c - 25°c**
- **Standard Hardener** **20°c - 30°c**
- **Slow Hardener** **25°c - 35°c**

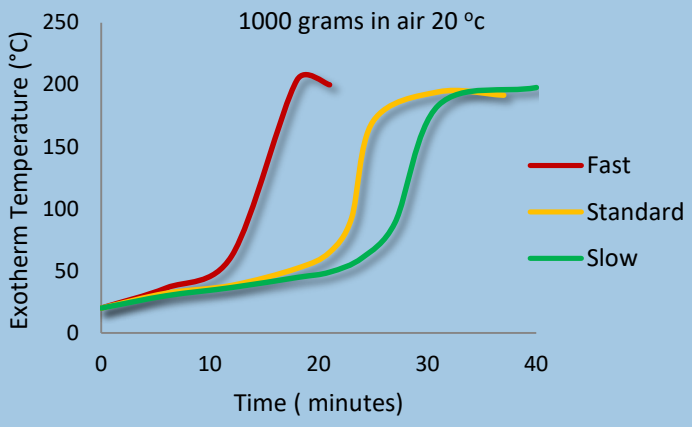
Hardener Grade	Slow	Standard	Fast
Mixing ratio weight OR volume Resin : Hardener	5 parts : 1 part	5 parts : 1 part	5 parts : 1 part
Mixed Viscosity mPa.s 25°c	500	650	550
Work time 25°c	40 minutes	25 minutes	15 minutes



The components should be mechanically mixed at medium speed ensuring that no unnecessary air is entrained. Both sides and bottom of container should be scraped during the mixing process.

High humidity or sudden drops in temperature may result in condensation on the surface of the laminate causing loss of interlaminate adhesion. Adhesion may be obtained by sanding the surface. If the laminate is allowed to cure for 48 - 72 hours at ambient temperature, the surface should be lightly sanded before further lamination.

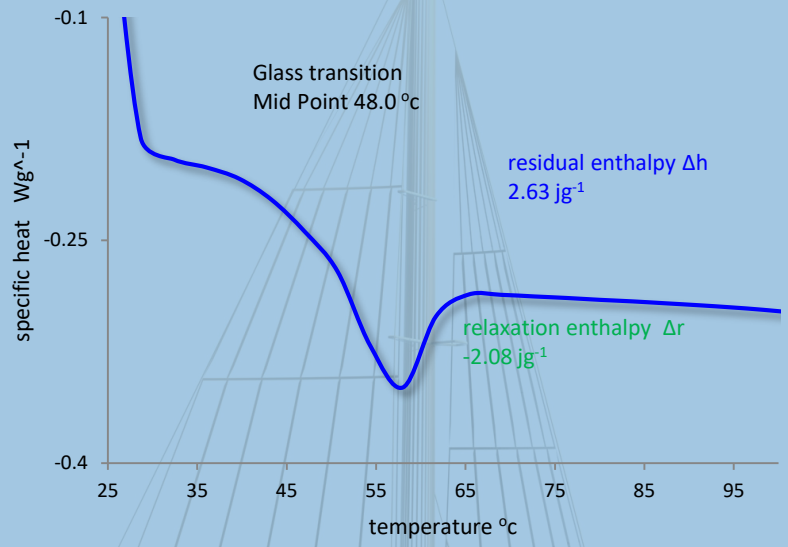
curing data : potlife



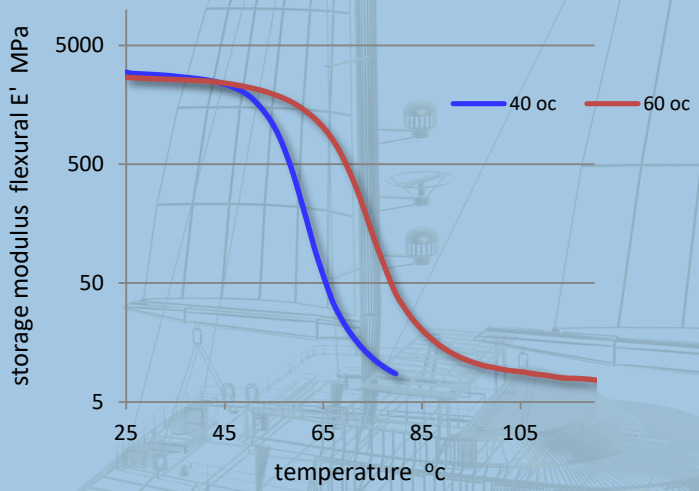
Significant changes in pot life occur with varying volumes and temperature. When difficult laminations are encountered, smaller mixers may be required. Laminate design including fibre type and content, core size and thickness will significantly influence pot life.

curing data : Tg differential scanning calorimeter

	20°c	60°c	80°c
Tg °c mid point	48	59	67
Tg Enthalpy jg^-1	-2.08	-1.30	0.0
Delta H jg^-1	2.63	1.81	0.0



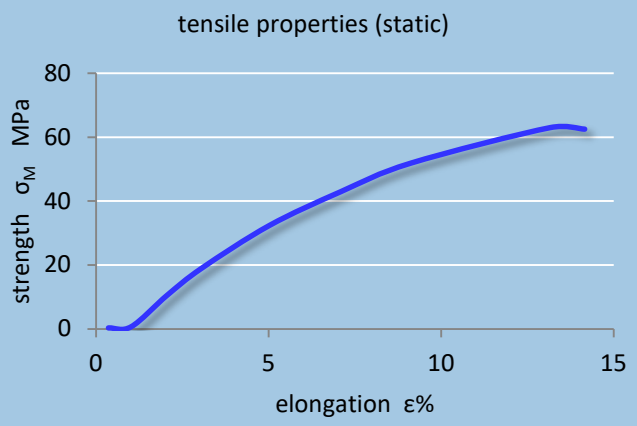
cured data : DMA dynamic modulus

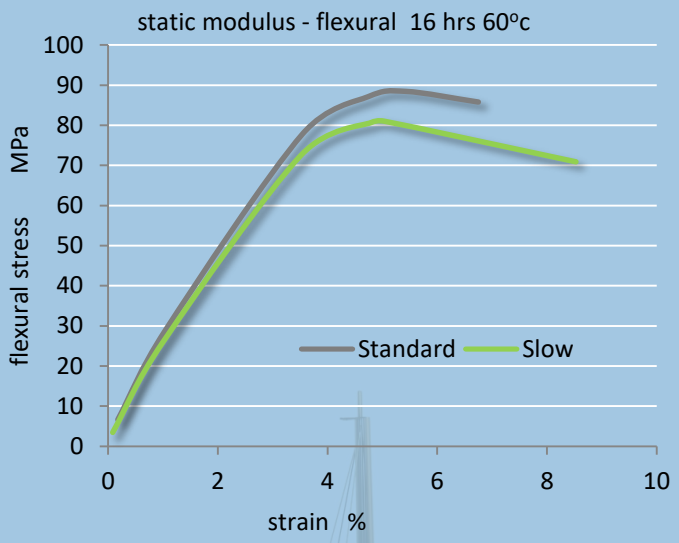


	40°c	60°c
Tά °c	48	64
tan δ °c	67	78

cured data : engineering data

cure	16 hrs 40°c	16 hrs 60°c
Tensile Max MPa	63	64
Eln%	13.2	14.6





cure	16 hrs 40°c	16 hrs 60°c
Modulus	2060	2450
Max strength MPa	86	91
Strain at Max %	4.70	5.3
Stress at 3.5% strain	80	80
Ultimate strength MPa	76	91

Referenced test methods

Viscosity	ISO 2555
Epoxy Equivalent weight	ISO 3001
Determination of amine nitrogen content	ISO 9702
Reactivity dynamic	ISO 11357-5
Tg	ISO 111357-3
Tg Enthalpy	ISO 111357-5
Flexural Properties	ISO 178
Tensile Properties	ISO 527
Heat Deflection Temperature	ISO 75
Compressive Properties	ASTM D695
Dynamic Mechanical Properties	ASTM D5418
DMA flexural vibration	ISO 6721
DMA shear	ISO 6721

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