Technical Data Sheet

MGS Repairset 037

CHARACTERISTICS

Approval	DNV
Application	Repair lamination of composite structures
Operational temperature	-40 °C up to +70 °C after appropriate cure
Processing	At temperatures between 15 °C and 40 °C
Features	Short pot life and fast curing Easy-to-use cartridge solution
Storage	Shelf life of 48 months

APPLICATION AND USAGE

MGS Repairset 037 is an epoxy-based laminating resin system with the constituents EPIKOTE™ Resin MGS RIMR035C and EPIKURE™ Curing Agent MGS RIMH037. It contains no solvents or fillers and intended main application is hand lamination process in repairs of composite structures.

The pot life is approx. 6h at room temperature. Different temperatures will have an influence on the pot life. As a rule of thumb, the pot life will be doubled / reduced to half by a decrease / increase of 10°C. After initial curing at room temperature, the manufactured components are workable and demoldable. The final properties, however, will only be reached after a postcure at elevated temperatures.

Picture of a partially used cartridge

The curing agent is strongly colored in order to make identification of homogenous mixing possible, especially at the very beginning of the application process. The color is only a visual aid and is therefore not exactly specified. Therefore, variations from batch to batch are possible. Furthermore, the color is not stable and can change over time due to UV radiation (like exposure to direct sunlight), but this has no known effect on the overall performance and does not constitute a quality complaint.

Repairset037 is only to be used with the supplied static mixers which provide good mixing and low loss of pressure. The tip of the mixing nozzle can be cut for an adaption of the flow rate.

We recommend processing as follows:

- Remove cap nut and plug.
- Attach mixer and secure with cap nut.
- Reject the first 5-15 grams until color is homogenous.

It's possible not to use up the complete cartridge and close it again. It can be further used after attaching a new static mixer.

The recommended temperature for application is between 15 and 35°C. Pot life depends on temperature and a temperature change of 10°C will double/halve the pot life. At low temperatures viscosity increases which especially will be noticed when working with a manual cartridge press.

Only fully transparent products should be used. A milky / cloudy appearance of the mixed resin can be an indication for crystallization which is a physical phenomenon and immanently possible when product is stored at lower temperatures. Prior mixing, crystallization can be reversed by slow heating of the product to approx. 40°C and there is no restriction to quality after removal of crystallization. It needs to be noted that product should not be used immediately after heating because the reactivity will be significantly increased. Allow to cool down prior usage.

No problems are expected concerning compatibility (e. g. blistering, tearing or changes in color) when Repairset037 is processed with gelcoats. However, comprehensive tests are indispensable.

The materials have a shelf life of minimum 4 years, when stored in their originally sealed kits.

The relevant industrial safety regulations for the handling of epoxy resins and hardeners are to be observed.

TYPICAL PROPERTIES

Property	Unit	Resin RIMR035C	Curing agent RIMH037
Density[1)]	g/cm³	1,125	0,935
Viscosity[1)]	mPa·s	1250	10
Pot life[2)]	min	240	
Ultimate T_G	°C	90	

These are typical values and should not be construed as specifications.

Measuring conditions:

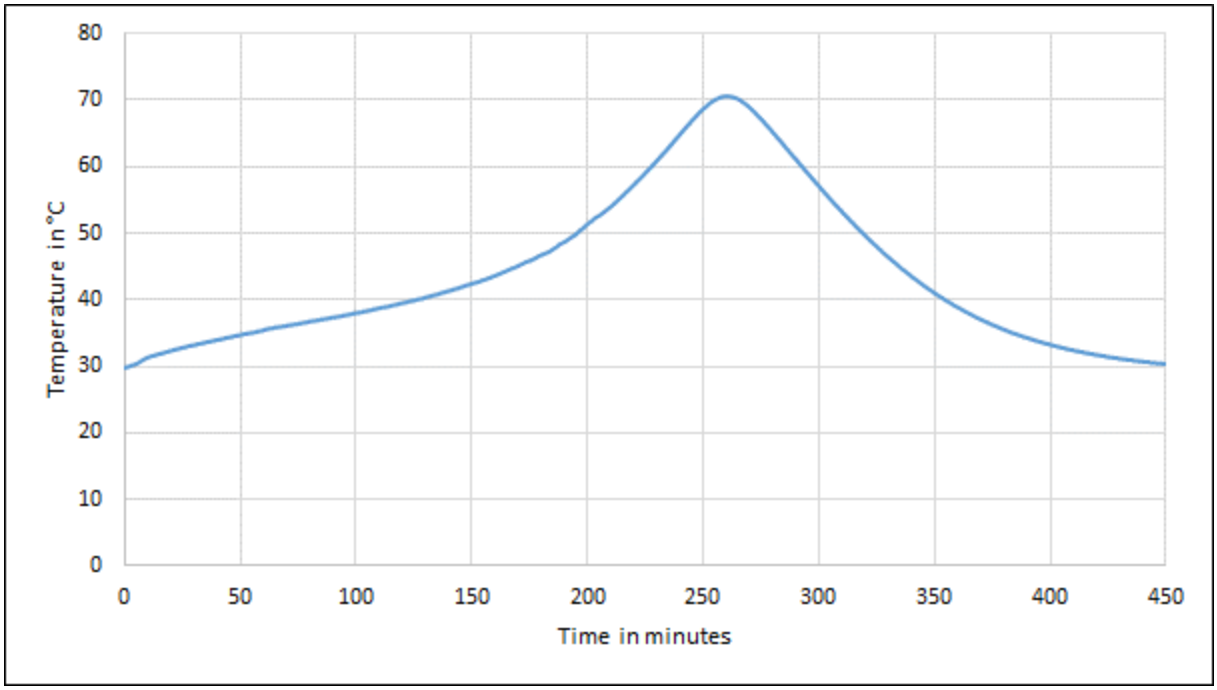
1) measured at 25°C
2) 100g mixture in water bath at 30°C
   Pot life is a standardized lab test under fixed conditions which does not necessarily reflect real process conditions. The usage or working time varies depending on real processing conditions (environmental temperature, lay-up thickness)
3) DSC after full cure, 20K/min, midpoint

MIXING RATIO

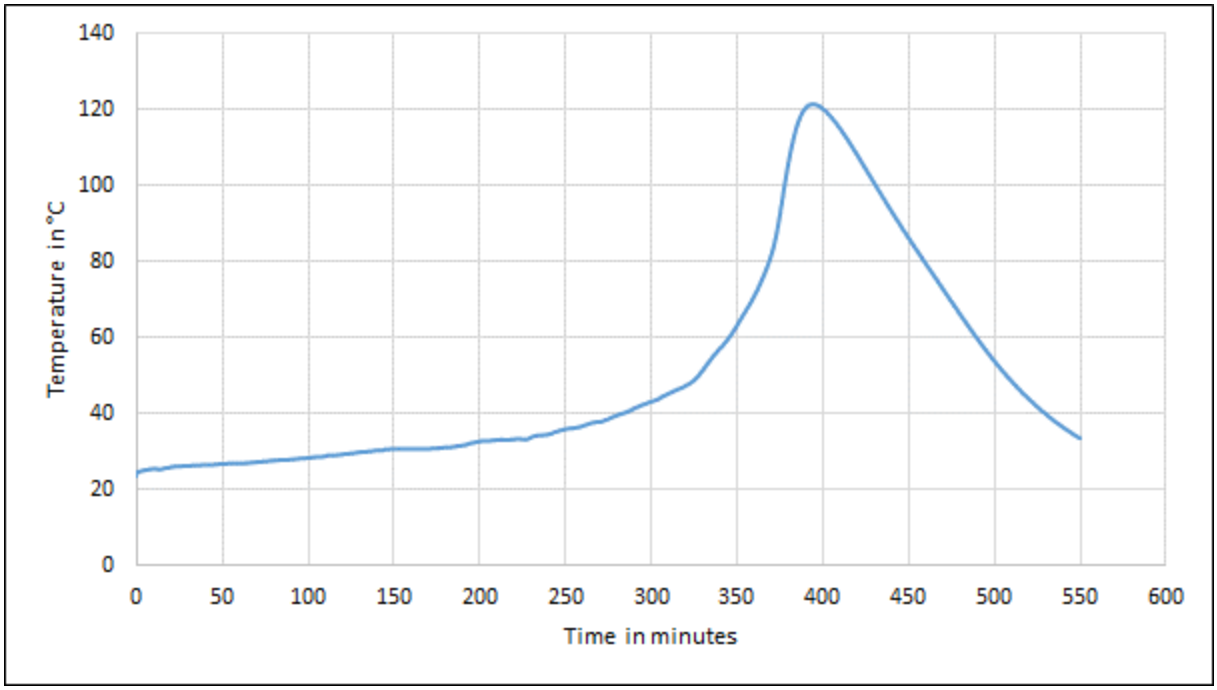
	Parts curing agent per 100 parts resin
Parts by weight	28 ± 2
Parts by volume	34 ± 2

The mixing ratio is included for information only, the kit of Repairset037 is prepared with the correct mixing ratio.

TEMPERATURE DEVELOPMENT

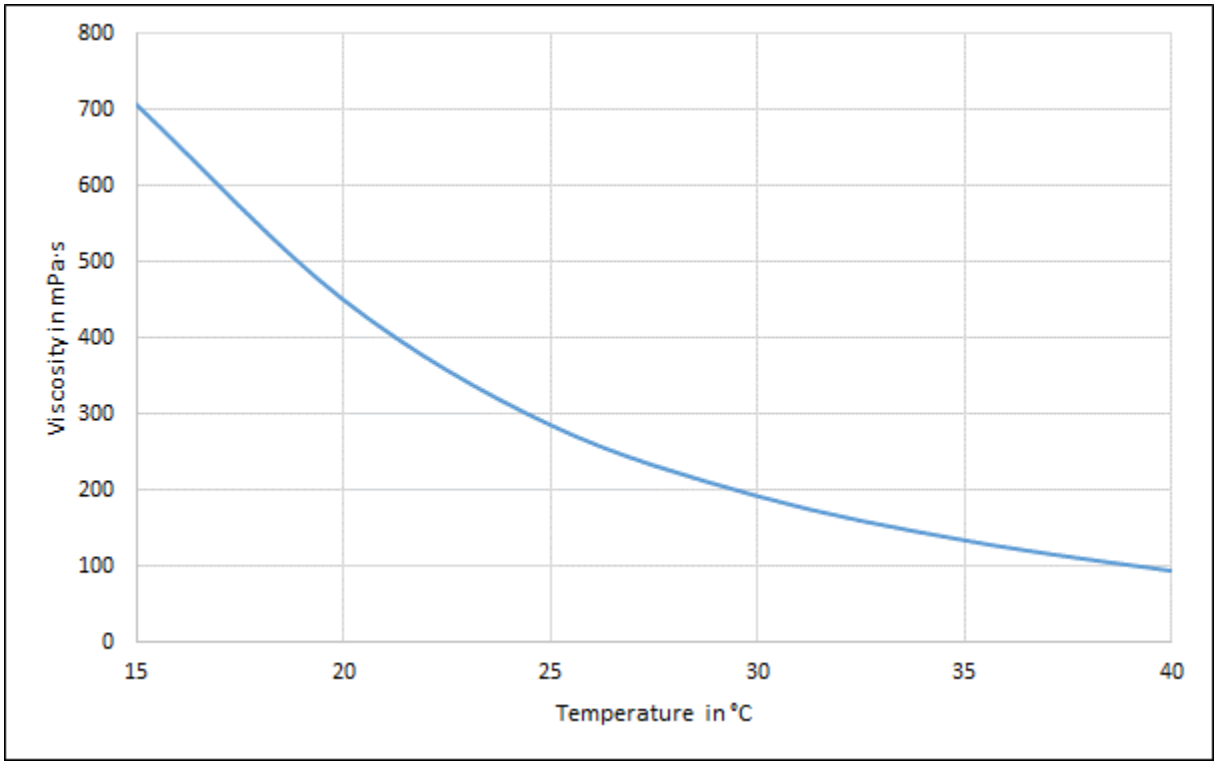


Measuring conditions: 100g in a paper cup isolated in a water bath at 30°C



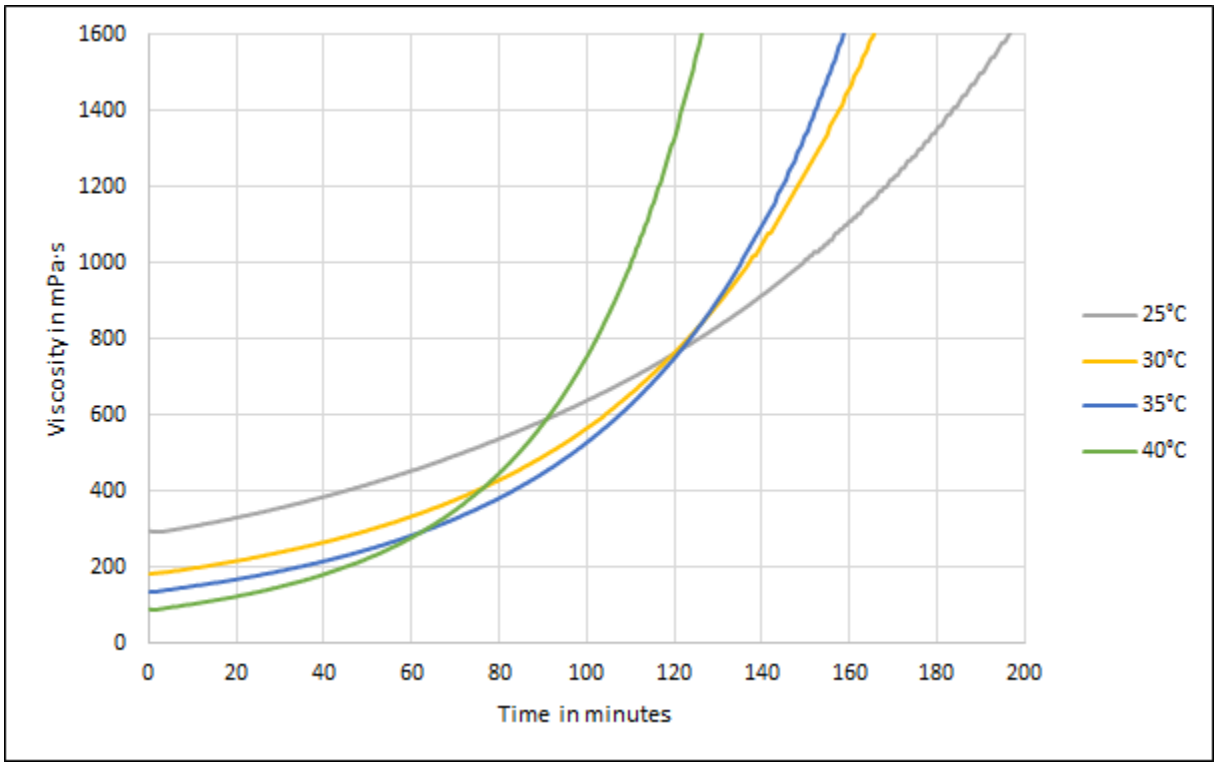
Measuring conditions: measured 500g in a tin can at 23°C

VISCOSITY OF MIXTURE



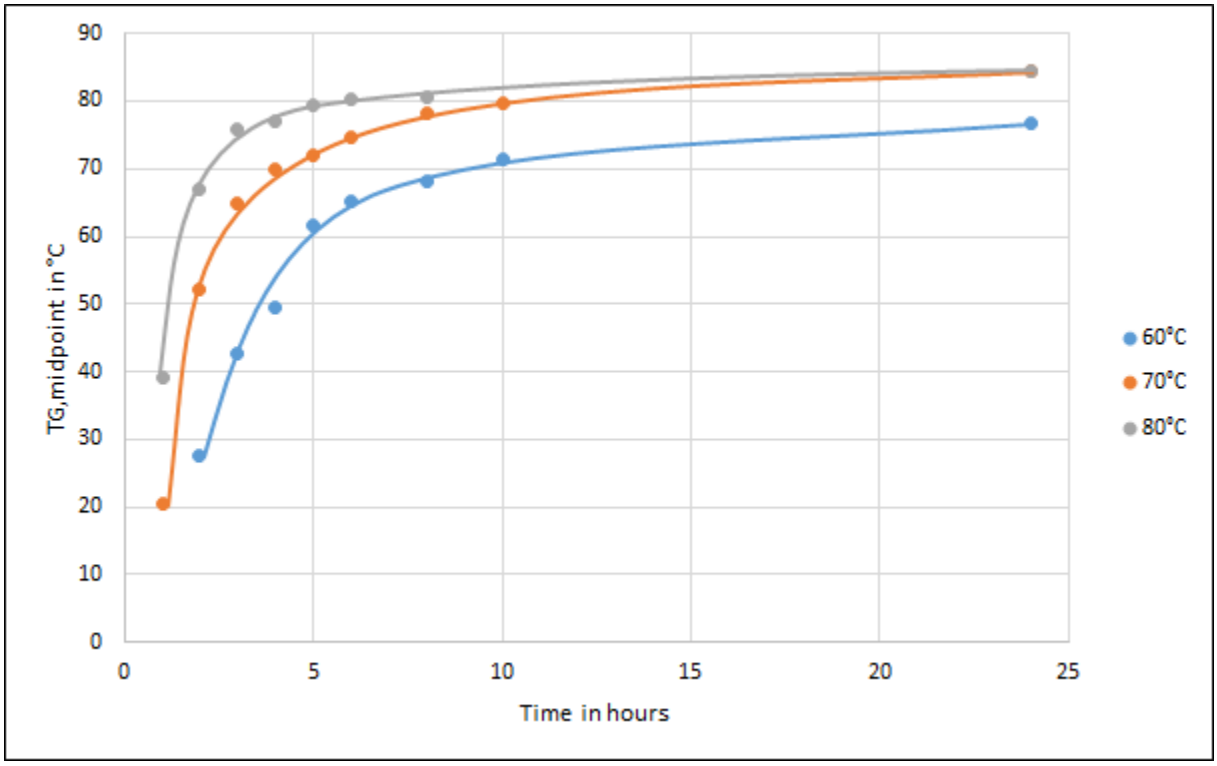
Measuring conditions: Viscometer, cone-plate configuration, diameter 50 mm, gap 0.1 mm

VISCOSITY DEVELOPMENT



Measuring conditions: Viscometer, cone-plate configuration, diameter 50 mm, gap 0.1 mm

T_G DEVELOPMENT



Measuring conditions: DSC-measuring heat rate: 20°C/min, sample mass 10-20 mg

PYHISICAL AND MECHANICAL DATA

Test	Property	Typical value
Cured density DIN EN ISO 1183-1	**Density [g/cm³]**	1,15
Tensile test DIN EN ISO 527-2	**Tensile strength [MPa]**	70
	Tensile modulus [GPa]	3,0
	Tensile strain at break[1)] [%]	8
Flexural test DIN EN ISO 178	**Flexural strength [MPa]**	115
	Flexural modulus [GPa]	3,1

[1)] Tensile strain at break results strongly depends on specimen quality, especially void content
All tests accomplished at standard climate; specimens cured up to a T_G midpoint (DSC) of approx. 75°C