Technical Data Sheet

MGS BP5

EPIKOTE™ Resin MGS BPR5
EPIKURE™ Curing Agent MGS BPH5

CHARACTERISTICS

Application	Non-structural-bonding and auxiliaries
Operational temperature	-40°C – +70°C after post cure
Processing	at temperatures below 30°C
Features	Economical, clean and selective application by cartridges
Storage	Shelf life of 48 months in originally sealed containers

APPLICATION

PRELIMINARY

Adhesive EPIKOTE™ MGS BP5 is a solvent free epoxy-based bonding paste with a wide range of applications which was especially developed for bondings in composite applications.

Surface Preparation

No special surface preparation is required, but bonding surfaces should be dry and free from grease.

Applying & Curing

Standard packaging of MGS BP5 is a 400ml or 50ml SBS (side by side) cartridge, the cartridge including resin (MGS BPR5) and curing agent (MGSBPH5), which facilitates easy and accurate application. The cartridges are also an ideal solution for bonding auxiliaries in rotor blades in the production and especially in operational environment.

The curing agent is strongly colored in black, yielding a black adhesive when mixed with the resin component.

BP5 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:

- Prior usage, store the cartridges in an environment of approx. 23°C. Depending on the needs of the individual application it is recommended to check the best cartridge temperature for usage.
- Remove cap nut and plug
- Attach mixer and secure with cap nut
- Squeeze out material until hardener and resin showing good mixing properties of components, we recommend to squeeze out 1 time the mixer length

Open time and processing times must be checked with the required bonding geometry, surface and environmental temperatures, humidity, and peel ply in production.

The recommended temperature for application is between 15°C and 30°C. Higher temperatures shorten pot life. A temperature increase of 10°C will approximately halve the pot life. At low temperatures reactivity is low, but viscosity will increase which especially will be noticed when working with a manual cartridge press.

Storage

We recommend storage at temperatures around 20-25 °C without exposure to direct sunlight. Please note that exposure to sun light, especially over longer time, can lead to color changes especially for the curing agent which however has no known effect on the processing and final properties of the product.

The products show no tendency to crystallize but lower temperatures will make processing more difficult.

In originally packed and closed cartridges the materials have a shelf life of minimum 2 years under the correct storage conditions.

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

TYPICAL PROPERTIES

Property	Unit	Resin BPR5	Curing agent BPH5
Color	-	White	Black
Component Density[1)]	g/cm³	1,14	1,01
Mixed Density[1)] uncured / cured[4)]	g/cm³		1,11 / 1,19
Pot life[3)]	min		20
Working time[1)]	min		5 - 10
Ultimate T_G[4)]	°C		> 73

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

Measuring conditions:

1) measured at 23°C
2) rotational viscometer, oscillating measurement, plate 25mm, gap 0,5mm
3) 50g mixture of BPR 5 and curing agent in air at 23°C
   Conditions do not necessarily reflect real process conditions.
4) After full cure, DSC midpoint, 20K/min

MIXING

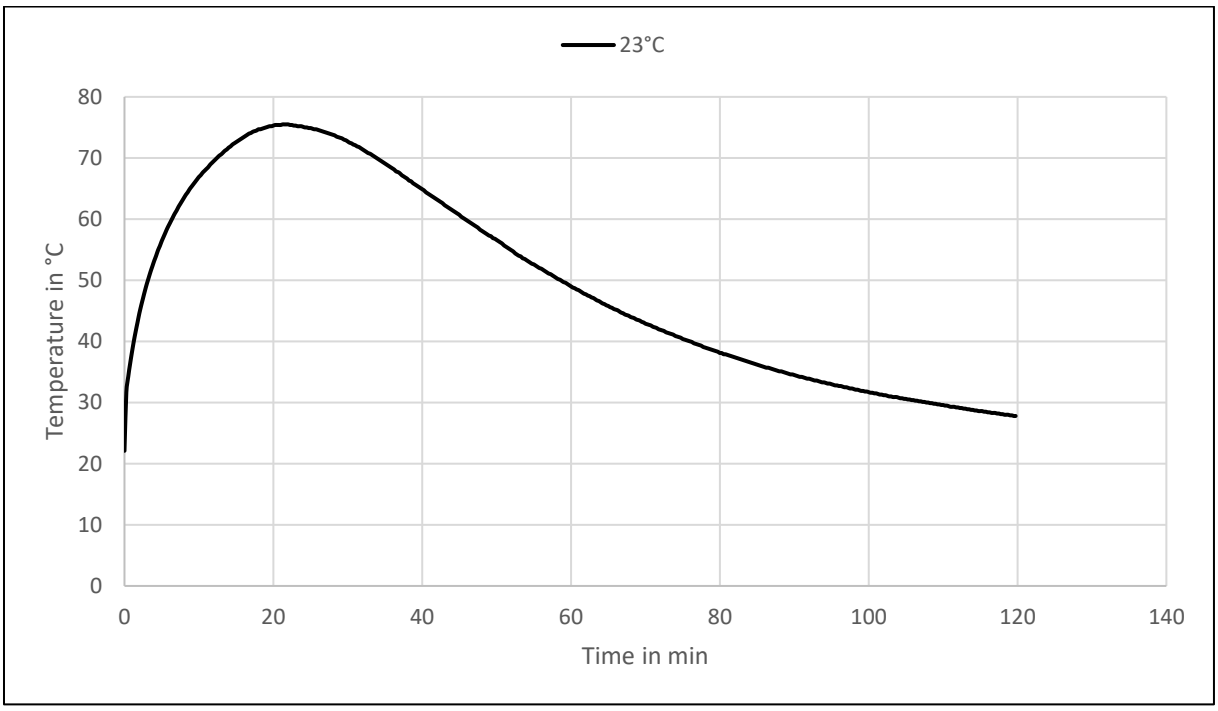
Mixing ratio	Parts curing agent per 100 parts resin BPR5 BPH5
Parts by weight	25 ± 2
Parts by volume	28 ± 2

The cartridges are already prepared with the correct mixing ratio.

In case the material is used in small drums, the mixing ratio stated must be observed very carefully and resin and curing mixed very thoroughly. Adding more or less curing agent will not result in a faster or slower reaction, but in incomplete curing which can't be corrected in any way. Pay special attention to the walls and bottom of the mixing container.

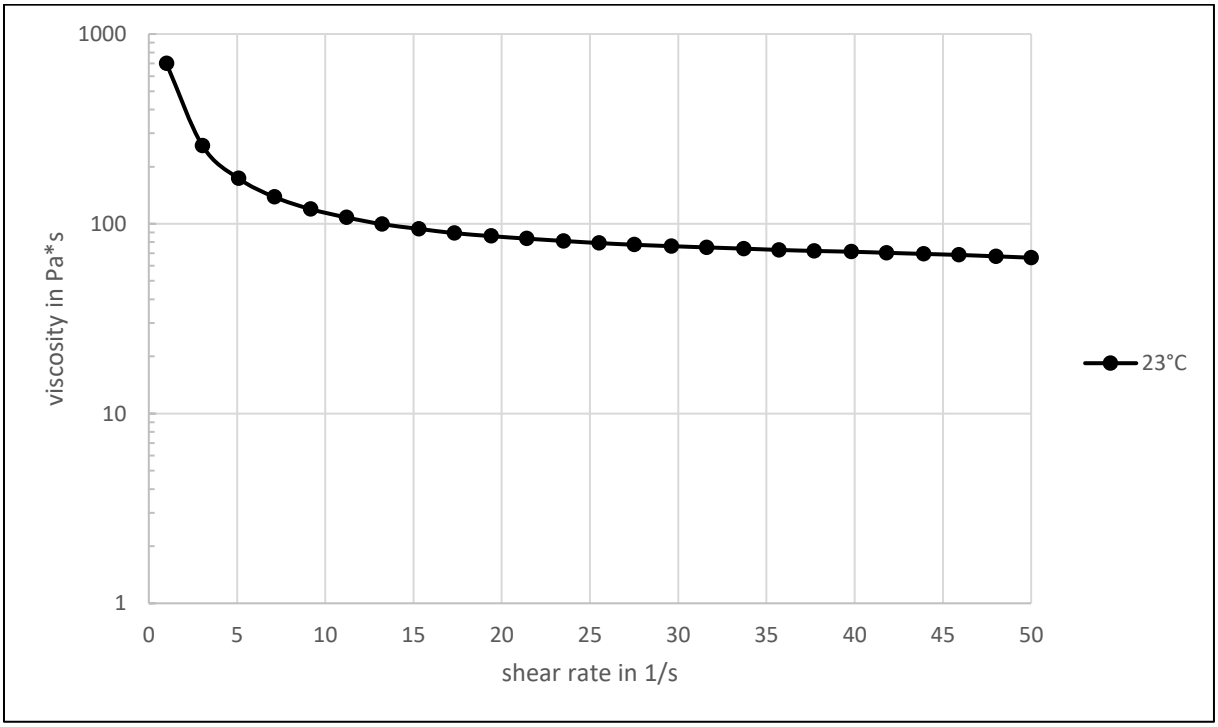
PRELIMINARY

TEMPERATURE DEVELOPMENT



Measuring conditions: 50g of mixture

VISCOSITY OF MIXTURE



Measuring conditions: Viscometer, parallel plate, diameter 25mm, gap 0.5 mm

MECHANICAL DATA

Single lap shear test[1)] DIN EN ISO 1465	**Bond line [mm]**	1,0
	Lap Shear Strength[2)] [MPa] - GFK	26,9
	Lap Shear Strength[2)] [MPa] - PVC	3,4
	Lap Shear Strength[2)] [MPa] - ABS	6,4

Single lap shear test[1)] ASTM 1002 D	**Bond line [mm]**	0,2
	Lap Shear Strength[2)] [MPa] - ALU	9,2

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

[1)] Lap shear Strength strongly depends on specimen configuration, especially substrate thickness
[2)] All tests accomplished at standard climate; specimens cured 7d 23°C

PRELIMINARY