



BETAMATE™ 2090 BPA-free

Structural Adhesive

Short Description

BETAMATE™ 2090 BPA-free is a two component glass beads containing epoxy based adhesive especially developed for applications on which a high glass transition temperature and a quick curing also at temperatures below 25°C is required. The adhesive is used in the car to increase the operation durability, the crash performance and the body stiffness.

Characteristic

BETAMATE™ 2090 BPA-free has excellent adhesion to automotive steels (including coated or organic coated steels) and pretreated aluminum. BETAMATE™ 2090 BPA-free helps to increase the stiffness and the crash stability of the entire car body with high durability of the adhesive and adhesive bond. The adhesive provides corrosion protection of the metal and weld points due to its sealing capability. It is compatible with other mechanical and thermal joining techniques, compatible with the e-coat process. BETAMATE™ 2090 BPA-free has a high glass transition temperature and is fast curing. Hand free in approx two hours.

Unless specified otherwise test are conducted at 23°C/50% relative humidity. Standard curing 7 days at 23°C

Component A	Value	Unit	Standard
Basis	epoxy resin	-	-
Colour	blue	-	-
Density	1.26	kg/l	ISO 1183
Viscosity @23°C (Bohlin, Casson Model)	80	Pa.s	-
Component B	Value	Unit	Standard
Basis	polymeric amines	-	-
Colour	yellow-brown	-	-
Density	1.07	kg/l	ISO 1183
Viscosity @23°C (Bohlin, Casson Model)	30	Pa.s	-
Other Properties	Value	Unit	Standard
Glass Transition Temperature (DMA, 1 Hz, 7 days)	90	°C	-
Mixing Ratio (volumetric)	2:1		-
Time to Handle	approx. 20	min	-
Mechanical Properties	Value	Unit	Standard
Tensile Strength	30	MPa	DIN EN ISO 527-1
Elongation at break	5	%	DIN EN ISO 527-1
E-Modulus	2000	MPa	DIN EN ISO 527-1
Lab shear strength 7 days 23°C ¹⁾	17	MPa	DIN EN 1465
Lab shear strength 2h 23°C ¹⁾	0.2	MPa	DIN EN 1465
T-Peel Strength 7 days 23°C ²⁾	4.6	N/mm	DIN EN ISO 11339
Impact Peel strength 7 days 23°C ³⁾	15	N/mm	ISO 11343

Footnotes:
 1) CRS 14O3 1.5mm; Adhesive layer thickness 0.2mm; Bonded area 25x10mm
 2) DX56 D Z100 MB 0.78 mm; ; Adhesive layer thickness 0.2mm 0.2mm; Bonded area 25x100mm
 3) CRS 14O3 1.0 mm; 2m/s; ; Adhesive layer thickness 0.2mm 0.2mm; Bonded area 20x30mm





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Application

All Dupont T&I Adhesives products are primarily developed in co-operation with the automobile manufacturers, according to their needs and their specifications, they are approved for the specific applications as defined by the customer. The use of the product other than approved application should be released in written form by the Technical Service of DuPont T&I Adhesives.

Surface Preparation

Oily surfaces should be cleaned before applying the adhesive

Application Equipment

Single cartridge (two-in-one cartridge): Application with a standard 1-component hand-operated or pneumatic gun with piston bar (no direct air guns!). 1-component battery guns may be used, if they are equipped with adjustable feed.

Drums and Pails: With a standard drum or pail pumps and a two-component dosing system

Application Notes

- For the Aftermarket (curing temp $\leq 60^{\circ}\text{C}$) it is recommended to clean the surface with Betaclean™ 3350 before the application. On oily surfaces lower mechanical properties might be achieved.
- If applied out of cartridges it is necessary to equalize the filling levels.
- For the best performance it is recommended to reject the first few grams of mixed adhesive.
- During the storage time a crystallization of the resin may occur. By heating the adhesive to $40 - 50^{\circ}\text{C}$ for about 15 to 30 minutes this physical process is reversible. All properties stay on the same level.
- Before the application the material temperature of both the resin and the hardener should be at min. 15°C .

Application Parameter

The product is cold pumpable and applicable as bead. Mixing ratio 2:1, statically or dynamic mixing). It can be applied with the following parameters:

Application speed: up to 300mm/s

Temperature follower plate: unheated

Temperature follower plate to doser: unheated, max temperature at doser 35°C

Temperature nozzle: unheated

For an optimum tack of the adhesive, the parts to bond should be stored at 15°C or higher. In case of an application break longer than 10 minutes the mixer should be changed.





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Curing Conditions

Standard curing: 7 days at ambient temperature
 Handling strength: after approx. 2 h at ambient temperature
 After 1 days at Ambient temperature a strength of 90% of the final value is reached.
 Curing temperatures up to 180°C are possible

Cleaning

Uncured material can be removed with BETACLEAN 3510. Attention: The contact with bonded areas should be avoided.

Delivery Form

Drums, Pails on request, Cartridge Sets (Two-in-One cartridges with 195ml; usable volume 180ml)

Storage Condition	Value	Unit	Standard
Shelf life	12	month	-
Storage temperature	<30	°C	-

