



BETAMATE™ 1440

Crashresistant Structural Adhesive

Description / Application:

BETAMATE™ 1440 is a one component, epoxy based adhesive especially developed for the body shop. The adhesive is used in the car to increase the operation durability, the crash performance and the body stiffness.

Properties:

- Excellent process and storage stability
- Excellent adhesion to automotive steels, including coated steels and pretreated aluminium with good tolerance to oils and dry lubes
- Stiffness and crash stability increase of the entire car body
- High durability of the adhesive and the adhesive bond
- Protection of the metal and weld points against corrosion due to its sealing capability
- Compatible with other mechanical and thermal joining techniques
- Compatible with the electrocoat process
- Wash-off resistant
- Precurable
- Up to six weeks open time in the uncured bond

Application:

The product is cold pumpable, can be swirled or applied as a bead . It can be applied with the following parameters:

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| application speed | 200 - 500 mm/s |
| temperatures: follower plate follower plate - doser | recommended: cold pumpable , preferably 30 - 40°C Per heating zone approx. 5°C heat increase. 40 - 55°C |
| nozzle | 45 - 60°C |

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 12 hours, the heating of the application equipment should be switched off.

All Dow Automotive 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 have to be released in written form by the Technical Service of Dow Automotive.

Technical Data:

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| Basis | epoxy resin |
| Colour | red |
| Density 23°C (DIN 52451) | 1.24 g/ml |
| Solid Content | > 99% |
| Viscosity/Yield Point (45°C, Bohlin, Casson) | 50 Pas / 520 Pa |
| G' at 0.05% deformation / η^* at 10% deformation / tan δ at 10% deformation (Bohlin, DIN 54458 at 45°C) | 38000 Pa / 170 Pas / 2.2 |
| Curing Condition | > 140°C / 30 minutes |
| Standard Curing | 180°C / 30 minutes |
| Tensile Strength (DIN EN ISO 527-1) | 31 MPa |
| Elongation at Break (DIN EN ISO 527-1) | approx. 11 % |
| E-Modulus (DIN EN ISO 527-1) | 1830 MPa |
| Lap Shear Strength (DIN EN 1465) (CRS 14O3, 1.5 mm) Adhesive layer thickness: 0.2 mm Bonded area: 25x10 mm | 30 MPa |
| T-Peel Strength (DIN EN ISO 11339) (DX56 D Z100 MC, 0.8mm) Adhesive layer thickness: 0.2 mm Bonded area: 25x100 mm | 10 N/mm |
| Impact-Peel Strength (ISO 11343, 23°C, 2m/s) (DX56D+Z100, 0.8mm DC06A+ZE 75/75+P, 0.8mm) | 30 N/mm |
| (HC420LAD+Z100MB, 1.0mm HC420LAD ZE 50/50, 1.1mm) Adhesive layer thickness: 0.2 mm Bonded area: 20x30 mm | 36 N/mm |
| Bonding Surface Preparation | The material has been designed to tolerate up to 5 g/m ² of surface oil. |
| Application Tool | Cartridges: hand-operated or pneumatic heated gun with mechanical piston. Drums, pails: heated pumping system. |
| Cleaning | Uncured material can be removed with BETACLEAN™ 3510. Attention: The contact with bonded areas should be avoided. |
| Containers | Drums, pails: 25 kg, 45 kg and 200 kg (re-usable pails with PE-liner). Cartridges: 0,36 kg |
| Shelf life | At temperatures between 5 and 15°C: 12 months At temperatures between 15 and 28°C: 10 months |

The given data are standard values.

Health and Safety

Bulk Exothermic Reaction

The material curing reaction is exothermic. If the material is held in bulk the reaction is accompanied by a rapid build-up of exothermic heat. To avoid the risk of this bulk exothermy, containers of the material should in no circumstances be heated by e.g. hot plates or simple drum heaters. If heating a bulk quantity of the material is considered necessary, advice should be sought.

Caution

The adhesive resins are generally quite harmless to handle provided that certain precautions normally taken when handling chemicals are observed. The uncured materials must not, for instance, be allowed to come into contact with foodstuffs or food utensils, and measures should also be taken to prevent the uncured materials, from coming into contact with skin, since people with particularly sensitive skins may be affected. The wearing of impervious rubber or plastic gloves will normally be necessary; likewise the use of eye protection. The skin should be thoroughly cleaned at the end of each working period by washing with soap and warm water. The use of solvents is to be avoided. Disposable paper - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. For further and more detailed precaution measures see the Health and Safety Data Sheet.

Notice:

Quality is our utmost goal. Dow Automotive works according to a modern quality management system conforming to international standard ISO/TS 16949.

All sites of Dow Automotive are certified according to ISO 14001.

All statements, technical information and recommendations contained in this document are based on tests that we deem reliable. However, the customer is responsible to determine the suitability of the product for customer's intended purpose. No freedom from any patent owned by Dow or others is to be interferred.

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Dow Automotive Systems Main Offices

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|---|--|---|---|
| The Dow Chemical Company Customer Information Group Europe Phone +800 3 6946367 Phone +32 3 450 2240 Italia 800 783 825 Fax +32 3 450 2815 | Dow Automotive Systems World Head Quarter 1250 Harmon Road Auburn Hills, MI 48326 USA Tel. +1 248 391 63 00 Fax +1 248 391 64 17 | Dow Automotive Systems Dow Deutschland Anlagengesellschaft GmbH Am Kronberger Hang 4 65824 Schwalbach Germany Tel: +49 6196 566 0 Fax: +49 6196 566 444 | Dow Automotive Systems Dow Europe GmbH Bachtobelstrasse 3 8810 Horgen Switzerland Tel. +41 44 728 2111 Fax. +41 44 728 2935 |
| Dow Automotive Systems St. George's Way Bermuda Industrial Estate Nuneaton CV10 7QT United Kingdom Tel: + 44 24 7635 7200 Fax: + 44 24 7635 7257 | Dow Automotive Systems Dow Chemical Ibérica, S.L. Ribera del Loira, 4-6 - Planta 4ª (Edificio IRIS) 28042 Madrid Spain Tel. + 34 91 740 7800 Fax. + 34 91 740 7785 | Dow Automotive Systems Dow France S.A.S. 23 avenue Jules Rimet 93631 La Plaine St Denis Cedex France Tel: +33 1 49 21 78 78 Fax: +33 1 49 21 79 79 | Dow Automotive Systems Dow Italia Divisione Commerciale s.r.l. Via F. Albani, 65 20148 Milano Italy Tel: +39 02 482 21 Fax: +39 02 482 241 08 |