

BETAFORCE™ 2816L

Composite Bonding Adhesives

2-component polyurethane adhesive with moderate modulus and long working time at room temperature, suitable for structural bonding.

- Good adhesion to plastics, composites and painted surfaces
- Good adhesion to e-coat metal surfaces
- Accelerated curing at elevated temperatures
- High mechanical strength and elongation at break
- Low temperature dependency of the modulus
- Glass transition temperature outside the application range

All DuPont Automotive products are primarily developed in cooperation with the automobile manufacturers, according to their needs and their specifications. They are approved for the specific applications as defined by the customer. The uses of the product other than approved application have to be released in written form by the Technical Service of DuPont.

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

Component A

Colour	Black
Density	1.15 - 1.19 g/cm ³
Extrusion Viscosity, Component A	20 - 35 ^[1] g/min
[1]: 2mm, 4bar	

Component B

Colour	White
Density	1.41 - 1.45 g/cm ³
Extrusion Viscosity, Component B	25 - 40 ^[1] g/min
[1]: 2mm, 4bar	

Product information

Basis	Polyol and isocyanate
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Application technique

Processing temperature	18 - 28 ^[2] °C
Tack free time	35 - 50 ^[3] min

[2]: temperature has very high influence on reactivity/open time of the adhesive

[3]: Tested at 23°C on an approx. 30 - 50 cm length adhesive beads; 10 mm wide approx. 0.5 g/mm.

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Cured properties

Temperature stability -40 - 90 °C

Typical mechanical properties

Tensile Modulus	21 MPa	ISO 527-1/-2
Stress at break	10 MPa	ISO 527-1/-2
Strain at break	150 %	ISO 527-1/-2
Lap shear strength, 7 days	≥9 ^[4] MPa	DIN EN 1465

[4]: Bonding height: 2 mm; Bonding area: 15x25mm; e-coated steel 1.3 mm.

Storage and stability

Shelf life 6^[5] months
 [5]: at +5°C to + 25°C

Additional information

Adhesives Application

Mixing Ratio(by Volume A:B)

1:1 ± 0.10

It should be noted that temperature has high influence on reactivity/working time of the adhesive; assembly time must be separately evaluated depending on processing and Conditions.

Application Equipment

- a) 2 x 290ml cartridges: Manual application with static mixers using our pneumatic BETAPOWER™ application gun or with dynamic mixers using our electrical BETAGUN™ application gun.
- b) Pails and drums: Application with a 2-component dosing system either with static mixing head or with dynamic mixing head.
 Upon request our application specialists can give support to select the right application system for your application.

Bonding surface Preparation

All bonding surfaces must be free of dirt, dust, oil and grease. For the cleaning of paint, metal surface and plastics (including composites) we recommend BETACLEAN™ 3350 or and BETACLEAN™ 3900. Depending on the substrate, a pretreatment with an activator or primer might be necessary.
 For the selection of the appropriate activators or primers, we recommend that you consult our Technical Service.



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Cleaning

Uncured BETAFORCE™ 2816L can be removed with BETACLEAN™ 3000. Cured BETAFORCE™ 2816L can only be removed mechanically. Contaminated equipment can be cleaned with BETACLEAN™ 3000. Contaminated equipment can be cleaned with BETACLEAN™ 3000.

Health and Safety

The use of polyurethane adhesives is generally harmless and as long as the basic rules for safe handling of chemicals are applied. However, the direct contact of uncured adhesive with food and food containers should be avoided. It is mandatory to use protective measures in order to prevent direct skin contact. Suitable gloves and eye protection are essential. Should the skin come into contact with uncured adhesive, it must be rinsed first with warm water and then cleaned thoroughly with conventional soap. Cleaning skin with solvents must be avoided. It is essential to ensure good ventilation. For detailed protective measures refer to the Material Safety Data Sheets.

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