

TEROSON® EP 5065 SB

Known as Impact Resistant Structural Bonder
February 2024

Product description

TEROSON® EP 5065 SB Impact Resistant Structural Bonder provides the following product characteristics:

Technology	Epoxy
Chemical type	Epoxy
Appearance (resin)	Black
Appearance (hardener)	Grey / greyish
Appearance (mixed)	Black
Components	Two components – requires mixing
Viscosity	Low to medium
Mix ratio, (by volume) Resin : Hardener	2 : 1
Cure	Room temperature cure after mixing, accelerated cure possible at elevated temperature
Application	Bonding
Application temperature	10 to 35°C (50 to 95°F)
In service temperature	-40 to 90°C (-40 to 194°F)
Short exposure (up to 1 hr)	140°C (284°F)
Specific benefits	<ul style="list-style-type: none"> • High impact resistance, high fatigue and stress durability • Excellent corrosion resistance • High crash performance on extreme temperatures (both low and high) • Adheres to a wide range of materials (without primer) • Can be used in combination with spot welding and riveting • Contains glass beads (0.25mm) to provide uniform bond-line control

TEROSON® EP 5065 SB Impact Resistant Structural Bonder is an OEM approved, solvent free, two-component, high strength impact resistant adhesive, based on toughened epoxy resin.

It is made for professionals to be mainly used in structural bonding of metals in car repair when crash behavior requirements are high.

TEROSON® EP 5065 SB Impact Resistant Structural Bonder supports crashworthiness performance of a vehicle exposed to a collision, both high and low temperatures (-40°C to 80°C / -40°F to 176°F). This means, the adhesive provides high crash safety for the driver and passengers in the aftermath of an accident, at various environment temperature conditions. The cured adhesive film remains hard but does not get brittle at low temperatures with the impact of a collision.

The adhesive provides the following characteristics:

- High Impact resistance, high fatigue and stress durability for increased crashworthiness of the vehicle
- Excellent corrosion resistance to sustain joint integrity and extend driving comfort
- High crash safety standard to meet OEM production line requirement
- High crash performance on extreme temperatures (both low and high)
- Compatible with main types of metal used in automotive industry. Adheres to a wide range of materials (without primer)
- Can be used in combination with spot welding and riveting methods to meet OEM repair guidelines

Typical application areas are engine mounts, strut tower, radiator support, A & B pillars, aprons, core supports, roof frame, rocker panel, wheel arch, floors, and safety critical parts.

Curing can take place at room temperature or be accelerated using additional heat, e.g., IR radiator.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin

Specific gravity @ 23°C	1.1
Viscosity, mPa·s (cP): Physica Rheometer @25°C	30,000
Plate/plate Ø 20 mm, Shear rate: 10 s ⁻¹	

Hardener

Specific gravity @ 23°C	1.0
Viscosity, mPa·s (cP): Physica Rheometer @25°C	2,000
Plate/plate Ø 20 mm, Shear rate: 10 s ⁻¹	

TYPICAL CURING PERFORMANCE

Working time

Working time @ 23°C, minutes ISO 4587-DIN EN 1465	60
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Fixture time

Fixture Time, @ 23°C, hours	10
Achieve 0.1 N/mm ²	

Final cure

Final cure @ 23°C, hours	48
Final cure, accelerated cure @ 60°C, hours	2
Final cure, accelerated cure @ 80°C, minutes	30

Typical performance of cured material

Cured for 7 days @ 23°C

Physical properties

Elongation, at break, ISO 527, %		3
E-Modulus, ISO 527	N/mm ² (psi)	1600 (230,000)
Tensile Strength, at break, ISO 527	N/mm ² (psi)	36 (5,200)

Adhesive properties

Lap Shear Strength, DIN 1465: CRS, sanded w/ 120 grit	N/mm ² (psi)	23 (3,300)
"T" Peel Strength, ISO 11339: CRS, sanded w/ 120 grit	N/mm (lb/in)	7 (40)

Impact Peel, ISO 11343, CRS:

Tested @ 23°C	N/mm (lb/in)	17 (97)
Tested @ 80°C	N/mm (lb/in)	13 (74)
Tested @ -40°C	N/mm (lb/in)	12 (69)

General information

For safe handling information on this product, consult the Material Safety Data Sheet.

Directions for use

During the storage and shipment, a crystallization of the resin may occur. If this is to happen, this physical change can be reversed by heating the adhesive above 60°C (140°F) for about 60 minutes. Afterwards, all properties will remain on the same level. It is recommended that the adhesive should be used at a minimum temperature of 15°C (59°F).

Pretreatment:

1. Bonding surfaces must be free of oil, grease, dust, or any other contaminant. Pretreat bonding surfaces with alcohol based cleaner and a lint-free cloth.
2. Remove old adhesive from existing body parts to make sure they are back to bare metal and free of any contamination.
3. Both bonding surfaces must be cleaned again to remove grinding dust. Pretreat bonding surfaces with alcohol based cleaner. Allow the prepared surfaces to dry for approx. 5 minutes.

Application:

1. Unscrew coupling ring and remove cap from TEROSON® EP 5065 SB Impact Resistant Structural Bonder cartridge. Before attaching the static mixer to the cartridge, squeeze out a small amount of material until both adhesive components run equally. This is necessary to achieve a good mix of the two components.
2. Attach the static mixer and fix it with the coupling ring. Insert the cartridge into the application dispenser. Only use dispensers that are equipped with a piston rod.
3. When mixed, TEROSON® EP 5065 SB Impact Resistant Structural Bonder is very dark grey in color (almost black). Discard first 5cm (~2 inches) of adhesive.
4. Apply and spread TEROSON® EP 5065 SB Impact Resistant Structural Bonder with a spreader or brush. All bare metal areas should be covered with adhesive for corrosion protection. TEROSON® EP 5065 SB Impact Resistant Structural Bonder can be used on steel and aluminum panels and as part of the preparation.
5. It may be necessary to change the static mixer if no material has been passed through it in over 30 minutes.
6. Remove excess adhesive immediately with spatula or cloth and alcohol based cleaner. Cured adhesive can only be removed mechanically.
7. Join and fix components within the 60 minutes processing time. The processing time depends on the temperature. If spot welding is required, it must be carried out during this initial period. Do not subject bonded parts to stress before final cure. In order to avoid the bonded parts being displaced, it is recommended that they should always be fixed during the process of curing.
8. To ensure high crash safety performance, the assembly bonded shall be designed so that the bonded surface or seams are only subjected to tensile or shear forces, but not to peel forces. It is recommended that bonding should be done with single overlaps.



Curing:

1. Cure speeds may vary based on adhesive and substrate temperatures.
2. TEROSON® EP 5065 SB Impact Resistant Structural Bonder cures at room temperature and it can be accelerated with heat (see typical curing performance section).
3. During the curing phase, avoid movement or stress until the product is fully cured.

Cleaning:

1. It is important to clean up excess adhesive from the work area and application equipment before it hardens.
2. Remove excess adhesive immediately with spatula or cloth and alcohol based cleaner. Cured adhesive can only be removed mechanically.

Painting:

1. TEROSON® EP 5065 SB can be painted when initial bond strength has been reached.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 15°C to 35°C (59°F to 77°F). Under certain conditions the product is frost sensitive. It may crystalize but it is reversible >40°C (104°F).

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

Product Specification

The technical data contained herein are intended as reference only and are not considered specifications for the product.

Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate

Please contact Henkel representative for related approval or certificate of this product.

Data Ranges

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

Conversions

(°C x 1.8) + 32 = °F
 kV/mm x 25.4 = V/mil
 mm / 25.4 = inches
 µm / 25.4 = mil
 N x 0.225 = lb
 N/mm x 5.71 = lb/in
 N/mm² x 145 = psi
 MPa x 145 = psi
 N·m x 8.851 = lb·in
 N·m x 0.738 = lb·ft
 N·mm x 0.142 = oz·in
 mPa·s = cP

Disclaimer

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