

Issued
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DESCRIPTION

TEROSON SB PL605-4 (known as TEROSON PL605-4) is a black, heat curing, nitrile/phenolic solvent-based adhesive. Cured TEROSON SB PL605-4 (known as TEROSON PL605-4) furnishes excellent resistance to thermal shock, chemicals, and water. The cured bond withstands temperatures exceeding 600°F (315.5°C). The primary application for TEROSON SB PL605-4 (known as TEROSON PL605-4) is bonding brake, clutch, and other friction materials to metal. Henkel's brake bonding adhesives are the most accepted, proven adhesives of the brake bonding industry. Billions of brake shoes have been bonded with Henkel's TEROSON SB PL605-4 (known as TEROSON PL605-4) adhesives.

FEATURES & BENEFITS

- Excellent resistance to chemicals and water
- High strength at room temperature and elevated temperatures

USES

- Friction materials (brakes, clutches, etc.) to metal
- Aluminum, steel, and other metals to themselves and each other

PHYSICAL PROPERTIES

The viscosity of these products will be thixotropic, that is, the viscosity will grow over time. It may be necessary to add a small amount of solvent to adjust the viscosity of aged material to achieve the original viscosity.

TEROSON SB PL605-4 (known as TEROSON PL605-4): 29% minimum total solids - Roll Coat, Spray, Brush Grade

TYPICAL PROPERTIES

Typical technical data and performance properties given for reference only (not for specification purposes)

Typical Technical Data	TEROSON SB PL605-4 (known as Teroson PL605-4)
Base	Nitrile Phenolic
Color	Black
Viscosity Brookfield RVF #2 @ 4 rpm	4000 – 6000 cps
Total Solids Weight Volume	29% minimum 30%

Typical Technical Data	TEROSON SB PL605-4 (known as Teroson PL605-4)
Weight/Gallon	7.81 lbs/gal (0.94 kg/liter)
Thinner	Methyl Ethyl Ketone Acetone
Calculated Coverage	481 ft ² /gal./mil (11.5m ² /liter/.0254mm)
Shelf Life	18 months from date of manufacture** **When stored under appropriate conditions (See STORAGE section)

TEST DATA

Tested per SAE J840 Button and Bar Disc Shear

TYPICAL RESULTS						
Ambient 73°F (22°C)	250°F (121°C)	300°F (149°C)	350°F (177°C)	400°F (204°C)	450°F (232°C)	500°F (260°C)
3750 psi (262.5 kg/cm ²)	1863 psi (130.4 kg/cm ²)	1672 psi (117.1 kg/cm ²)	1238 psi (86.7 kg/cm ²)	500 psi (35.0 kg/cm ²)	379 psi (26.5 kg/cm ²)	247 psi (17.3 kg/cm ²)

APPLICATION METHOD

Surface Preparation

Clean surfaces to be bonded. Metal should be degreased and grit-blasted.

Application to Part

Apply TEROSON SB PL605-4 (known as TEROSON PL605-4) to friction surfaces to be bonded. The dry film thickness should be 0.008 - 0.015 inches (0.20 - 0.38mm) (25-45 mil wet 0.635 - 1.14mm), depending upon the coverage pattern used. Consult Henkel's friction bonding manual for details.

After final coat has been applied, allow to dry 24 hours before bonding or allow to dry 10 minutes and prebake at 180°-190°F (82°-87°C) for 30 minutes before bonding. **Adhesive MUST be fully dried before bonding.** The following points about drying should be kept in mind:

- Adhesive patterns having the greatest surface area will dry the best.
- The solvent evaporation rate from a heavy adhesive coating is much slower.

- Humidity affects solvent evaporation rates. This can cause a drying problem during summer months. Normal drying cycles may require seasonal adjustments to provide adequate drying.
- The adhesive will dry faster on soft lining and slower on hard linings due to solvent escape through the lining.

Anvil-type bonding equipment includes the pressure jig and heating element in one unit. It heats the metal shoe and has a pressure device as part of the unit. After removal from the jigs or anvils, the lining should be allowed to cool before pack for shipment.

Further details for properly curing the adhesive can be found in the Friction Bonding Manual.

CURING CONDITIONS

TEROSON SB PL605-4 (known as TEROSON PL605-4) can be heat cured using an oven cure, press cure, or dielectric cure.

Oven-type heating unit, whether infrared, gas or electric, should maintain even temperature and have adequate air circulation. Pressure jigs are used to force the gas and vapors out of the adhesive during bonding. If there is not enough pressure, the bond will be weak and spongy. Keep these points in mind about oven curing:

- Jigs must keep pressure constant during cure. Because adhesive thicknesses decrease approximately 0.003" (0.076mm) during cure, relaxation of pressure will cause a weak, spongy bond.
- Uniform pressure must be exerted on full surface of lining to avoid slipping (cocking) of the lining of the shoe.
- Pressure may vary between 75 - 150 psi (5.3 - 10.6 kg/cm²) depending on type of lining used.
- For non-brake shoe applications a minimum cure cycle of 30 min. @ 400°F is recommended.

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CLEAN UP

Prior to cure, the adhesive can be removed with methyl ethyl ketone or acetone. Work should be done in a well-ventilated area.

Following cure, the adhesive will be resistant to basically all solvents. The only practical means of cleaning a cured adhesive is with some type of abrasion.

STORAGE

TEROSON SB PL605-4 (known as TEROSON PL605-4), when stored in the liquid form, will meet the adhesion requirements of Henkel Corporation's specifications after 18 months of storage in the temperature range of 40° - 60°F (4° -16°C). It may be necessary to add a small amount of solvent to adjust the viscosity of aged material. If TEROSON SB PL605-4 (known as TEROSON PL605-4) is stored at 61° - 80°F (16° -26°C), we recommend it be used within 90 days. TEROSON SB PL605-4 (known as TEROSON PL605-4) should not be stored at temperatures above 95°F (35°C).

Parts coated with TEROSON SB PL605-4 (known as TEROSON PL605-4) may be stored an additional 6 months at temperatures below 95°F (35°C) before bonding. It is necessary to protect the adhesive surface from contamination during this storage period.

SAFETY & HANDLING

Read Material Safety Data Sheet on this product before using, handling or disposing.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N}/\text{mm} \times 5.71 = \text{lb}/\text{in}$
 $\text{N}/\text{mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$