



TECHNICAL DATA SHEET

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Reliobond 5007 FRICTION BONDING ADHESIVE

Reliobond 5007 is a nitrile rubber and phenolic resin adhesive designed for bonding friction material to metal. This adhesive offers high bond strength across a wide range of temperatures. Cured Reliobond 5007 has excellent resistance to oil, grease, transmission fluid, and brake cleaning fluid. Reliobond 5007 is designed specifically for curtain coating application, but can be brush or roll coated. Reliobond 5007 is particularly well suited for bonding low density friction paper due to its low flow nature during cure.

TYPICAL PROPERTIES:

(NOT FOR SPECIFICATION PURPOSES)

	Reliobond 5007
Solids (Non-Volatiles)	28-32%
Viscosity (Brookfield RVF)	2000-3000 cps (#4 @ 10 rpm)
Density (Weight per Gallon)	7.6 #/gal
Shelf Life¹	12 months

1. When stored at temperatures less than 60°F (16°C) in original unopened container. See "Storage" for details.

Shear Strength

"Button & Bar" Shear Strength Test (SAE J840 Rev C)
(Grit blasted steel bonded to grit blasted steel. Cured 1 hour @ 425°F and 200 psi)

Tested at 75°F: 5600 psi

Tested at 400°F: 1400 psi

APPLICATION INSTRUCTIONS:

Surface Preparation:

All metal surfaces must be free of oils, dirt, and other contaminants. Typical cleaning processes include aqueous alkaline cleaners, solvent vapor cleaners, or burning or baking contaminants off of the surface. After cleaning, a surface preparation process like phosphating, grit blasting, or wheel abrading will enhance the adhesive bond. Reliobond 5007 adhesive will bond very well to a clean, bare metal surface, but preparing the surface with one of these methods will improve the consistency and overall strength of the bond.

Adhesive Application:

Reliobond 5007 should be thoroughly mixed before application. Mix the product before application using a high shear mixing blade, pail tumbler, or drum roller for 30 minutes to 1 hour. Reliobond 5007 can be reduced to a desired viscosity/solids by using methyl ethyl ketone, acetone, n-butyl acetate, methyl acetate, or t-butyl acetate in any proportion. Toluene, xylene, and alcohols can be used in small amounts but will destabilize the product if too much is added.



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Reliobond 5007 adhesive is typically applied to the friction material surface. Experimentation is necessary to determine the optimum adhesive thickness and coating pattern for each part design.

For friction paper applications the adhesive is usually roll coated or curtain coated onto the paper. For clutch or transmission parts, a dry film thickness of 1-3 mils (0.001-0.003") is a recommended starting range. The optimum film thickness allows for full wetting of adhesive onto the metal surface during cure, but does not squeeze out of the bond line or penetrate too deeply into the friction paper.

Drying:

Reliobond 5007 must be fully dried before curing. Residual solvent in the adhesive can cause a weak, "spongy", "blown" bond. It is difficult to recommend exact drying parameters. Environmental conditions, coating thickness, and drying equipment type all significantly affect dry time. Here are some general guidelines for drying:

- Drying oven temperatures can range from 100°F-250°F (38-121°C). Do not exceed 250°F (121°C) as higher temperatures can prematurely cure the adhesive or cause blistering of the adhesive film.
- Air flow in the drying oven is crucial to achieving fast dry times. More air flow will reduce dry time.
- Contact Ruscoe Technical Service for a test procedure to determine if your part is fully dried.

Curing:

The phenolic resins in Reliobond 5007 generate water vapor during cure. This water vapor must be forced out of the adhesive using pressure during the cure cycle. Most bonding problems with this type of adhesive are related to inadequate or uneven pressure. At least 100 psi must be continuously and uniformly applied during the curing process to ensure a good bond.

Reliobond 5007 adhesive will cure in the temperature range of 300-450°F (148-232°C). Keep in mind that this is the temperature that the adhesive must reach, not the oven setting. The adhesive will take longer to cure at lower temperatures, but will allow more time for water vapor to escape and for adhesive to flow and wet the metal surface. Curing at too high of a temperature can cause the adhesive to gel quickly which will trap water vapor in the adhesive and cause a weak bond. Experimentation is required to determine the optimum cure cycle for each part design. A good starting point is to cure for 30 minutes at 400°F (204°C) at 200 psi.

Cleaning:

Reliobond 5007 can be cleaned prior to cure using methyl ethyl ketone, acetone, n-butyl acetate, methyl acetate, or t-butyl acetate solvents. If the adhesive is fully cured the only practical methods of removal are abrasion, burning, heating above 600°F (316°C) for many hours, or soaking in a highly caustic solution. Consult MSDS for instructions on spill clean up and disposal.

Storage:

Recommended storage temperature is 40°-60°F (4°-16°C). Storage at temperatures above 60°F will cause significant increase in viscosity and eventually loss of adhesive performance. Parts that have been pre-coated and dried can be bonded within 6 months if stored in a clean, dry area at temperature below 85°F (30°C).