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## Reliobond 1800 Series Dip Coat Primers for Friction Bonding

Reliobond 1800 series products are used as corrosion resistant primers for metal surfaces. These coatings provide high bond strength across a wide range of temperatures and offer excellent resistance to oils, greases, and cleaning fluids.

### PROPERTIES:

	RB1800	RB1803	RB1805	RB1806
<b>Solids</b>	24-27%	12-14%	28-31%	24-27%
<b>Solvents</b>	MEK, Ethanol, Isopropyl Alcohol	MEK, Isopropyl Alcohol	Isopropyl Alcohol	Acetone
<b>Color</b>	Amber/Tan	Black	Amber	Amber/Tan
<b>Density</b>	7.54 #/gal (0.90 g/mL)	7.03 #/gal (0.84 g/mL)	7.52 #/gal (0.90 g/mL)	7.50 #/gal (0.90 g/mL)

### 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 1800 adhesives 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.

### APPLICATION:

Reliobond 1803 should be thoroughly mixed before application to disperse any pigments that have settled during storage. Mix the product before application using an air mixer with high shear mixing blade, pail tumbler, or drum roller for 30 minutes to 1 hour.

All Reliobond 1800 products can be reduced to a desired concentration by using ketones, esters, or alcohols in any proportion. Methyl ethyl ketone, acetone, isopropyl alcohol, and ethanol are typical dilution solvents used with these products but others can be chosen to adjust drying rate for different types of applications. Toluene or xylene can be used in small amounts but will destabilize the product if too much is added. Contact your Ruscoe Technical Representative for dilution charts and instructions.

Reliobond 1800 products are typically applied by dipping the metal part directly into the coating solution. Ruscoe recommends a coating thickness of at least 0.25 mil (0.00025", 6.4 µm) for applications where the product is used as a primer in conjunction with a bonding adhesive. This minimum film thickness will provide moderate corrosion resistance. For increased corrosion resistance a dry coating thickness of 0.5 mil (0.0005", 12.7 µm) or greater is recommended.

**DRYING:**

Reliobond 1800 primers must be fully dried before curing. Residual solvent in the coating 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. Do not exceed 250°F 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.

**CURING:**

The phenolic resins in Reliobond 1800 generate water vapor during cure. This water vapor must be forced out of the coating 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 1800 products will cure in the temperature range of 300-450°F. 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 at 200 psi. This cure cycle will fully cure the adhesive. Experiments can then be run reducing time and/or temperature until bond failures begin to occur. In some applications, a partial cure will provide adequate bond strength and chemical resistance. For example, when bonding clutch rings a cure cycle as short as 2-3 minutes at 425°F may provide adequate strength.

**CLEANING:**

Reliobond 1800 can be cleaned prior to cure using methyl ethyl ketone, acetone, n-butyl acetate, methyl acetate, or t-butyl acetate solvents. If the coating is fully cured the only practical methods of removal are abrasion, burning, heating above 600°F for many hours, or soaking in a highly caustic solution.

**STORAGE:**

Reliobond 1800 Series adhesives are flammable and should be stored in tightly sealed containers away from direct sunlight, heat, sparks, or other potential sources of ignition. Shelf life is 12 months when stored 40-60°F (4-16°C) in unopened containers. Storage at temperatures above 60°F will cause eventual loss of adhesive performance. Parts that have been coated and dried can be bonded within 12 months if stored in a clean, dry area at temperature below 100°F (30°C).

All statements, technical information and recommendations contained herein are based on tests believed to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties expressed or implied.

Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of, or the inability to use the product. Before using, user shall determine the suitability of the product for their intended use and user assumes all risk and liability whatsoever in connection therewith.

The foregoing may not be changed except by an agreement signed by officers of seller or manufacturer.

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