



# Product Data Sheet

## Ray-bond™ R81816

### Liquid Adhesive

#### PRODUCT DESCRIPTION

Ray-bond™ R81816 liquid adhesive is a solvent-based one-component pressure-bonding adhesive designed for bonding friction material to metal and friction material to friction material. Ray-bond™ R81816 liquid adhesive exhibits good strength properties at low and elevated temperatures. It also exhibits excellent plastic flow which contributes toward obtaining 100% contact with the parts to be bonded. The solids content and viscosity are suitable for filming the adhesive onto release paper. The filmed product can then be used as a dry film adhesive.

#### METHOD OF APPLICATION

Brush, roller coating, or extrusion

#### TYPICAL PROPERTIES

Solids (2 hours @ 105°C, 220°F)	28.5% to 30%
Wt/Gal	7.6 lbs. approximately
Viscosity (25°C), (Bkfld. #2 spindle @ 10 RPM)	1700 - 2200 cps
Solvent for dilution	Methyl Ethyl Ketone, n-Butyl Acetate
Chemical resistance	Resistant to oils, brake fluid, water
Disc shear strength	(Procedure SAE J840)
73°F (23°C)	1750 psi minimum (17.2 mPa)
400°F (204°C) (1 hour)	600 psi minimum (2.8 mPa)
Flash point (closed cup)	37°F (3°C)
Storage life, 40°F - 60°F (4 - 16°C)	90 days maximum
Storage life, 60°F - 80°F (15-27°C)	45 days maximum

#### CURE

Complete cures will be obtained with any of the following bond line temperatures and time:

350°F for 15 minutes; 370°F for 10 minutes; 400°F for 5 minutes

177°C for 15 minutes; 188°C for 10 minutes; 204°C for 5 minutes

The above temperatures and times are for hot press or batch oven cures. Shorter cures are possible at higher temperatures. Setting the cure, however, requires considerable experience and should be arranged under the guidance of the factory representative. Constant pressure *is* mandatory throughout the cure cycle. The pressure should be sufficient to bring the surfaces into intimate contact. The normal working range is 50 -250 psi (0.34 - 1.7 mPa).



## **Ray-bond™ R81816 Liquid Adhesive (cont.)**

### **INSTRUCTIONS**

1. Surfaces to be bonded must be free of rust, dirt, grease, previous plating's or any foreign material. For metallic members, this may be accomplished by roughening to develop "tooth" by shot blasting or chemical etching. Non-metallic surfaces may be wiped with a clean rag saturated with an oil- free Solvent such as acetone.

2. Apply the adhesive to both surfaces to be bonded. A sufficient amount should be applied to completely fill all voids and leave a 0.002" (0.051 mm) coating when dry, over the entire area. Where thick films are desirable more than one coat may be required.

If so desired, the adhesive may be applied to one surface. In this case, the amount to be applied is double that for coating both surfaces. It must be enough to fill the voids of both surfaces plus an additional dry film 0.004" (0.102 mm) minimum thickness.

Optimum results are obtained by coating both surfaces and bonding immediately after the dry out period.

Satisfactory bonds are obtained with the adhesive applied to only one surface if bonded immediately after the dry out period. As the pre-cemented parts age, the watability of the adhesive decreases. Where pre-cemented parts are to be aged for a month or more, the use of a resin coating on the uncoated part will improve the bond greatly. The **Ray-bond™ R84017** coating is recommended for this application.

3. Allow to dry at room temperature until tack free. An overnight dry out is normally sufficient.

4. If dry film on release paper is used, strip the release paper from one side and press that side against the bonding surface with enough force to make it stick. Then strip the paper from the other side. Multiple layers can be built up to obtain a greater thickness of adhesive. (Note: If a film is needed, please contact your sales representative for options. Multiple thickness films are available.)

5. Assemble the parts using suitable fixtures to prevent movement and cure.

### **STORAGE**

When refrigerated upon receipt and stored at 40°F - 60°F (4°C - 16°C) in liquid form, R81816 will meet the adhesion requirements after 90 days. Shelf-life at 60°F - 80°F (15°C - 27°C) is 45 days. Lower temperatures cause increased viscosity of a temporary nature. It may be necessary to add solvent to adjust the viscosity of the aged material. Rotate stock on a "first in - first out" basis.

### **FREIGHT CLASSIFICATION**

Rubber cement, red label, UN1133



## *Ray-bond™ R81816 Liquid Adhesive (cont.)*

### **IMPORTANT NOTICE**

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