



**SHERWIN
WILLIAMS.**

Chemical Coatings

Two Component Waterborne Polyurethane Enamel

Blue #35177 F93LL0500
Catalyst..... V93V00502

DESCRIPTION

Two Component Waterborne Polyurethane Enamel Blue #35177, F93LL0500, is a low gloss, high performance waterborne polyurethane coating suitable for various metal substrates. The color matches FED STD 595B 35177.

Advantages:

- VOC of less than 1.8 lb/gal
- Less than 0.9 lb/gal Volatile Organic Emissions
- Reduces with water – means considerable cost savings in solvents
- Low odor
- Excellent atomization
- May be applied with two component equipment
- Free of lead and chromate hazards
- Excellent exterior durability.

CHARACTERISTICS

Gloss - 2.0 mils dry:

60°	1.0 unit maximum
85°	3.5 units maximum

Volume Solids(%):

F93LL0500	35.8 ± 1
V93V00502	69.3 ± 1
Admixed	40.2 ± 2

Viscosity:

15-25 seconds #3 Zahn Cup catalyzed and reduced

Recommended film thickness:

Mils Wet	3.8 - 4.9
Mils Dry	1.8-2.3

Spreading Rate (no application loss)

358-285 sq ft/gal @ 1.8-2.3 mils DFT

Drying (77°F, 50% RH):

Set to Touch:	60 minutes
Dry Hard:	6 hours
Dry Through:	8 hours
Complete Cure:	7 days
Force Dry:	flash 1 hour, then dry 45 minutes at 180°F.

Flash time is dependent on air movement, humidity and temperature. The one hour flash can be reduced with an air dehydrator or fans to help remove the water.

Flash Point: 200°F

Mixing Ratio:

2 parts	F93LL0500
1 part	V93V502
0.8 part	Deionized or Distilled Water

Pot Life: 4 hours

Package Life: 12 months, unopened

Air Quality Data:

Non-photochemically reactive
Volatile Organic Compounds (VOC)
catalyzed and reduced as above, maximum
1.8 lb/gal, 216 g/L
Volatile Organic Emissions
Catalyzed and reduced as above, maximum
0.9 lb/gal, 108g/L

An Environmental Data Sheet is available from your local Sherwin-Williams facility.

SPECIFICATIONS

Steel: Surface must be clean and free of grease, dirt, oil, rust, fingerprints, and other contaminants to insure optimum adhesion and performance properties. Chemical pretreatment, (zinc phosphate) or DOD-P-15328D Wash Primer, E90G4, gives best adhesion and performance results. Where blasting is appropriate, blast in accordance with SSPC- SP6. For optimum adhesion pretreat blasted surface. Prime with wash primer E90G4 within two hours after blasting.

Aluminum: Clean with acidic cleaner or other appropriate cleaner depending on contamination. Pretreat with chromate conversion coating MIL-DTL-5541F, DOD-P-15328D Wash Primer, E90G4, or anodize per MIL-A-8625F. See below for primers.

Galvanized and other metals: Clean and remove oxidation contamination on surface, followed by treatment with DOD-P-15328D Wash Primer, E90G4. Due to the variability in these surface, testing adhesion on each situation is recommended. See below for primers.

For **ferrous** substrates, use MIL-DTL-53022C primer, e.g. E90W201 (Type I), E90H226 (Type II, faster recoat).

For **non-ferrous** substrates, MIL-PRF-23377J, E90G203 (Type I, Class C2, 2.8 VOC), MIL-DTL-53022C (see above). Check the data sheet of each primer for recoat time of topcoat, e.g. E90H226 can be topcoated in 20-30 minutes air dry.

Testing: Due to the wide variety of substrates, surface preparation methods, application methods, and environments, the customer should test the complete system for adhesion, compatibility, and performance prior to full scale application.

APPLICATION

Typical Setups

Special Mixing Instructions:

F93LL0500 should be shaken 5 minutes on Red Devil type shaker before opening, then mix V93V00502 into F93LL0500 for 3 minutes using a mechanical air agitator. Sherwin-Williams highly recommends the use of a cage mixer. An air drill capable of 2000 rpm is also a necessity. Contact your Sherwin-Williams representative for an initial demonstration. The viscosity of the admixed components will increase. Reduce to spray then mix well.

Reduction: Reduce with deionized or distilled water. Reduction may vary depending on application variables. More water may be added to achieve desired viscosity.

Conventional Spray:

Air Pressure45-60 psi
Tip070"

Air Assisted Airless:

Air Pressure 50 psi
Fluid Pressure 2100 psi
Tip 611

HVLP:

Air Pressure65 psi
Fluid Pressure 5-10 psi
Tip070"

Cleanup:

Clean tools/equipment immediately after use with water.
Then flush equipment with MIL-T-81772, Type I Thinner, R91K20, to prevent rusting. Another method is the use of Acrastrip® 600 BIG MOD (Military) manufactured by Polychem, U.S. patent #5,972,865.

Follow manufacturer's safety recommendations when using any solvent.

SPECIFICATIONS

Product Limitations:

- F93LL0500 must be catalyzed with Catalyst (Component B), V93V502, at 2:1 ratio by volume.
- Do not use other catalysts other than V93V502. Do not vary catalyst mixing ratio.
- F93LL0500 must be well agitated prior to use by using a Red Devil type shaker.
- F93LL0500, V93V502, and reducer must be mixed with a squirrel cage mixer and air drill or using proper two component equipment.
- Potlife will be shorter under warmer temperature.
- Force curing prior to the water evaporating will result in a soft film. However, after seven days, full cure will be obtained.

CAUTIONS

FOR INDUSTRIAL SHOP APPLICATION

Thoroughly review product label and Material Safety Data Sheet (MSDS) for safety and cautions prior to using this product.

A Material Safety Data Sheet is available from your local Sherwin-Williams facility. Please direct any questions or comments to your local Sherwin-Williams facility.

CAUTION:

Admixed material should not be discarded in sealed drums. Vented plugs should be used on the drums. This material will generate carbon dioxide gas within the first 24 hours of being mixed. After the material has been mixed for 24 hours, the gas is no longer emitted and the drums can be sealed.

Note: Product Data Sheets are periodically updated to reflect new information relating to the product. It is important that the customer obtain the most recent Product Data Sheet for the product being used. The information, rating, and opinions stated here pertain to the material currently offered and represent the results of tests believed to be reliable. However, due to variations in customer handling and methods of application which are not known or under our control, The Sherwin-Williams Company cannot make any warranties as to the end result.

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