

# 3M Scotch-Weld™ Structural Adhesive Primer EC-3901

## Technical Data

Issue No. 2

March 1, 1986 (Supersedes previous product data)

### Introduction

EC-3901 is a primer for “Scotch-Weld” film and liquid adhesives in those applications where it is desired to obtain improved metal and glass adhesion or improved resistance to environmental exposure with epoxy and urethane adhesives. EC-3901 offers the following advantages.

### Advantages

- Insures complete wetting of film adhesive to adherend surfaces.
- Simplifies production scheduling by protecting the cleaned surfaces until the bonding operations can be completed.
- Imparts improved corrosion protection to metal.

### Description

<b>Color:</b>	Red
<b>Base:</b>	Synthetic Resin
<b>Solvent:</b>	Methyl alcohol
<b>Viscosity:</b>	5 ± 2 cps (Brookfield, RVF, No. 1 spindle, 20 rpm at 80°F [27°C])
<b>Net Weight:</b>	6.5 ± 0.2 lbs./gallon
<b>Flash Point:</b>	60°F (COC)

Contains non-photochemically reactive solvent; southern California APCD Rule 102 (Jan. 9, 1976).

### Product Performance

The following data shows data using EC-3901 on various metal substrates.

Adherend	Adhesive	Overlap Shows Strength at		
		-67°F (-55°C)	75°F (24°C)	180°F (82°C)
50 MIL 6-4 Titanium Alloy	AF-126 0.06 wt.	6380 psi	5280 psi	3650 psi
50 MIL 17-7 Stainless Steel	AF-126 0.06 wt.	10203 psi	6310 psi	3600 psi

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**Product Application** A thoroughly cleaned, dry, grease-free surface is essential for maximum performance. Cleaning methods which will produce a break-free water film on metal surfaces are generally satisfactory. Surface preparations should be fully evaluated with the adhesive, especially if resistance to specific environments are anticipated.

**Surface Preparation**      **Suggested Cleaning Procedure for Aluminum**

1. Vapor Degrease – Perchloroethylene condensing vapors for 5-10 minutes.
2. Alkaline Degrease – Oakite 164 solution (9-11 oz./gallon water) at 190°F ± 10°F (88°C ± 5°C) for 10-20 minutes. Rinse immediately in large quantities of cold running water.
3. Acid Etch – Place panels in the following solution for 10 minutes at 150°F ± 5°F (71°C ± 5°C). Caution: Use adequate respiratory, eye and skin protection when using etch solutions.

<b>A (FPL Etch)</b>	<b>B</b>
Sodium Dichromate (Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> •2H <sub>2</sub> O)	4.1-4.9 oz/gal (30.7-36.7 g/liter)
Sulfuric Acid, 66° Be	38.5-41.5 oz/gal (288.4-310.8 g/liter)
2024T-3 aluminum (dissolved)	0.2 oz./gal. (1.5 g/liter) minimum
Tap Water	Balance

4. Rinse – Rinse panels in clear running water.
5. Dry – Air dry 15 minutes, force dry 10 minutes at 150°F ± 10°F (71°C ± 5°C).
6. It is advisable to coat the freshly-cleaned surfaces with EC-3901 within four (4) hours after surface preparation.
7. Care should be taken to avoid contaminating the cleaned aluminum by any substance which will hinder the wetting action of EC-3901.

**Primer Application:**

EC-3901 has been successfully applied by spraying and brushing. The following spray equipment is suggested to obtain optimum results:

Spray Gun	DeVilbiss JGA
Air Cap	No. 78
Needle-Nozzle	AV-15-FX
Line Pressure	60-80 lbs.
Pot Pressure	1-2 lbs.
Distance from Panel	14 ± 3 in.
Primer Thickness (dry)	Less than .0001 in.

**(Note:** Only a micro-molecular layer of primer is required.)

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#### Surface Preparation (continued)

#### Primer Dry:

The following dry cycle is suggested for EC-3901:

Air Dry: Air dry at 75-85°F (24-33°C) for a minimum of one hour.

Force Dry: Circulating air oven 190°F (88°C) for 30 minutes.

Air dry cycles for periods as short as 1/2 hour have been used successfully with the force dry cycle. Humidity contributes greatly to satisfactory use of this primer. Relative humidity of 25% or lower may cause difficulties and should be thoroughly evaluated in the customer's application.

The primed surface, after cooling to ambient temperatures, is ready for adhesive bonding. The primed surface should be protected from contamination introduced by dust, fingerprints, oil, etc.

#### Primer Cleanup:

Excess primer and equipment may be cleaned up prior to curing with ketone-type solvents.\*

**\*Note:** When using solvents, extinguish all ignition sources and follow the manufacturer's precautions and directions for use.

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#### Storage

Store product at 60-80°F (16-27°C) for maximum storage life. Higher temperatures reduce normal storage life. This material is purposely packaged in small-mouth glass bottles in order to prevent premature reaction of the active ingredients with atmospheric moisture of metallic surfaces.

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**Precautionary Information** See Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information call 1-800-364-3577 or 651-737-6501.

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**For Additional Information** To request additional product information or to arrange for sales assistance, call toll free (800) 235-2376. Our fax number is (417) 869-5219. Address correspondence to: 3M Aerospace Central, 3211 E. Chestnut Expressway, Springfield, MO 65802.

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ISO 9002

This Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



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Printed in U.S.A.  
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