



# Scotch-Weld™

## 2216 B/A Grey Epoxy Adhesive

### Product Data Sheet

Updated : March 1996  
Supersedes : July 1995

**Product Description** Flexible, two part, room temperature curing structural adhesive with high shear and peel strengths.

**Physical Properties**  
Not for specification purposes

	BASE	ACCELERATOR
	Modified Epoxy	Modified Amine
<b>Density G/cc</b>	1.33	1.26
<b>Mix Ratio</b> By Weight By Volume	5 parts 2 parts	7 parts 3 parts
<b>Viscosity</b> CPS Approx Brookfield RVF # 7SP at 20 rpm	100,000	52,000
<b>Colour</b>	White	Grey
<b>Work Life</b> (100 gram at 23°C)	90 Minutes	
<b>Shelf Life</b>	24 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

**Performance Characteristics**  
Not for specification purposes

**Overlap Shear** Minimum Overlap Shear Strength on FPL Etched Aluminium. ASTM D-1002-64

Test Temperature (°C)	N/mm <sup>2</sup>	psi
-55	13.8	2000
25	17.2	2500
82	2.8	400

**T-Peel** Minimum T-Peel Strength on FPL Etched Aluminium. ASTM D-1876-61T

Test Temperature (°C)	N/cm	piw
25	44	25

Data developed using 7 days cure 25°C, 2 psi.

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**Overlap Shear Strength**      Overlap Shear Strength on  
Etched Aluminium after  
Environmental Ageing.

Environment	Time	Test Results (25°C) psi
100% Relative Humidity at 49°C.	14 days	2950
	30 days	1985
	90 days	1505
Salt Spray at 35°C.	14 days	2300
	30 days	500
	60 days	300
Tap Water at 25°C.	14 days	3120
	30 days	2942
	90 days	2075
Air at 70°C.	35 days	4650
Air at 150°C.	8 days	4000
Anti-icing Fluid at 25°C.	7 days	3300
Hydraulic Oil at 25°C.	30 days	2500
JP-4 Fuel	30 days	2500
Hydrocarbon Fluid	7 days	3300

**Overlap Shear Strength  
Comparison on  
Aluminium Substrates  
Evaluating Various  
Cleaning Methods**      **Aluminium Substrate -  
2024 T3 Clad**

Cleaning	N/mm <sup>2</sup>	psi
FPL Acid Etch	23.4	3400
Abrade with Scotch-Brite Sanding Pad & Solvent Wipe	16.2	2350
Sanded (240 grit) & Solvent Wipe.	16.1	2340

Thermal Conductivity	4 W/m deg C	0.228 BTU/HR/Sq. Ft/°F/Ft
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Coefficient of Thermal Expansion	102 x 10 <sup>-6</sup> in/in/°C between 0-40°C	134 x 10 <sup>-6</sup> in/in/°C between 40-80°C
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Electrical Properties	Temperatures in °F
Arc Resistance	130 seconds.
Dielectric Strength	408 volts/mil (1 mil = 0.0254 mm).
Dielectric Constant at 73°F	5.51 measured at 1.00 KC.
Dielectric Constant at 140°F	14.17 measured at 1.00 KC.
Dissipation Factor at 73°F	0.112 measured at 1.00 KC.
Dissipation Factor at 140°F	0.422 measured at 1.00 KC.
Surface Resistivity at 73°F	$5.5 \times 10^{16}$ ohms at 500 volts DC.
Volume Resistivity at 73°F	$1.9 \times 10^{12}$ ohms-cm at 500 volts DC.
All above data developed using 7 day cure at 23°C, 2 psi.	

### Storage Conditions

Store product at 15-27°C for maximum storage life. Higher temperatures reduce normal storage life. Lower temperatures cause increased viscosity of a temporary nature. Rotate stock on a first-in first-out basis.

Clean-up can be accomplished with Scotch Grip Brand Solvent No. 2. When using solvents for clean-up, it is essential that proper precautionary measures for handling such materials be observed.

### Directions for Use

Surfaces must be clean, dry and free from paint, rust, oil, grease or wax. Surfaces can be cleaned by sanding with 3M Brand Coated Abrasives (240 grit) followed by solvent wiping. Scotch-Weld Degreasing Primer 3911 should be used in applications that demand ultimate performance.

These products consist of two parts, base and accelerator. Mix thoroughly by weight. 5 parts base, 7 parts accelerator. Colour should be a uniform grey. Replace caps on correct tubes. Use within 90 minutes.

For maximum bond strength apply product evenly to both surfaces to be joined.

Join the adhesive coated surfaces and allow to cure at 15°C or above until completely firm. Overnight curing at 25°C is usually sufficient. In addition to the standard room temperature cure, the following times and temperatures will give a minimum of 2000 psi tensile shear strength at 25°C.

Do not move parts during cure. Contact pressure is necessary.

Cure Temperature	Time
4°C	7 days
65°C	120 minutes
93°C	30 minutes

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**Applications**                      Excellent for bonding rubber, metal, wood, most plastics and masonry products.

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**Health and Safety Information**

**Precautions:**  
Causes severe eye irritation, may cause permanent eye damage. May cause sensitisation by skin contact. Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection. Launder contaminated clothing before re-use.

**First Aid:**

**Eye Contact:**  
Rinse immediately with plenty of water and seek medical advice.

**Skin Contact:**

Wash with soap and water.

For further Health & Safety information, please contact our Toxicology Department on Bracknell (0344) 858000.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



**Specialty Tapes & Adhesives**

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3M United Kingdom PLC  
3M House,  
28 Great Jackson Street,  
Manchester,  
M15 4PA

Customer Service :  
Tel 0161 236 8500  
Fax 0161 237 1105

3M Ireland  
3M House, Adelphi Centre,  
Upper Georges Street,  
Dun Laoghaire, Co. Dublin,  
Ireland

Customer Service :  
Tel (01) 280 3555  
Fax (01) 280 3509