SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
산업용 소재 · 건축자재
제품 제안부터 공급·시공·설치·교육까지



COMPANY INFORMATION

스냅슛 (SNAPSHOOT)

ADDRESS (15431) 경기도 안산시 단원구 풍전로 37-9 트리플렉스 301동 118호
TEL 0507-1374-9229
FAX 0504-481-6749
E-MAIL bkkim@snapshoot.co.kr

TECHNICAL DOCUMENTS

인증서 · 데이터시트 · 기술자료

제품의 규격과 성능, 인증 및 적용 조건을 확인하기 위한 자료입니다.

ABOUT SNAPSHOOT

제품 공급을 넘어, 현장에 맞는 해결책으로

스냅슛은 산업현장의 작업 환경과 요구 조건을 바탕으로
적합한 제품과 시스템을 제안합니다. 현장 실사를 통해 설치 조건을 확인하고,
공급부터 시공·설치 및 사용 교육까지 필요한 과정을 함께합니다.

추락방지 시스템

안전대부착설비 · 수평·수직 라이프라인
레일 시스템 · 리지드 포스트

밀폐공간 진입·구조 솔루션

데빗암 · 삼각대 · 구조용 윈치
윈치 안전블록 · 구조장비

산업안전 보호구

전신형 안전대 · 랜야드 · 안전블록
작업 환경에 맞춘 개인보호구

산업용 소재·건축자재

산업용 테이프 · 접착제 · 기능성 소재
구조용 스크류 · 목조건축 자재

SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

홈페이지 바로가기 →
문서 라이브러리 바로가기 →
시공사례 바로가기 →
문의하기 →

본 페이지는 스냅슛의 자료 제공 안내용 표지입니다. 첨부된 인증서 및 기술자료의 발행 주체, 인증 대상과 적용 범위는 해당 원문을 기준으로 확인해 주세요.

3M

Scotch-Weld™

Epoxy Adhesive

EC-2615 B/A • EC-2615 B/A LW

Technical Datasheet **July 2009**

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive EC-2615 B/A and EC-2615 B/A LW (Long Worklife) are two-component epoxy adhesives which cure at room temperature or with heat to form a tough, impact-resistance bond. They have excellent adhesion to many metal and plastic substrates.

Features

- High shear strength
- High peel strength
- Outstanding environmental resistance
- Easy mixing (kit or pre-measured no-mix available)
- Non-Sag (thixotropic)
- 20 minute worklife (Scotch-Weld EC-2615 B/A Adhesive)
- 60 minute worklife (Scotch-Weld EC-2615 B/A LW Adhesive)

Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	Scotch-Weld EC-2615 B/A Adhesive		Scotch-Weld EC-2615 B/A LW Adhesive	
	Part B (Base)	**Part A (Accelerator)**	**Part B (Base)**	**Part A (Accelerator)**
Viscosity (Brookfield RVF): Approx.	800,000 cps	8,000 - 16,000 cps	800,000 cps	8,000 - 16,000 cps
Color:	Off White	Amber	Off White	Amber
Weight/Gallon:	9.3-9.7 lbs.	9.1-9.5 lbs.	9.3-9.7 lbs.	8.9-9.2 lbs.
Solids:	100%	100%	100%	100%
Mix Ratio: By Weight By Volume	100 100	49 50	100 100	48 50
Worklife at 72 ± 3°F (20 g mixed):	Over 20 minutes		Over 60 minutes	

Note: Both the Scotch-Weld EC-2615 B/A Adhesive and Scotch-Weld EC-2615 B/A LW Adhesive are available in charcoal gray.

3M™ Scotch-Weld™ Epoxy Adhesive EC-2615 XLW (Extra Long Worklife) has an 8 hour worklife and is similar in composition to Scotch-Weld EC-2615 B/A and EC-2615 B/A LW Adhesives; however, a separate data sheet is not available.

Typical Product Performance

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Aluminum to Aluminum Bonds

A. Overlap Shear

The following data shows typical values obtained with 3M™ Scotch-Weld™ Epoxy Adhesive EC-2615 B/A and EC-2615 B/A LW in aluminum overlap shear bonds. All specimens were 2024-T3 alclad aluminum panels which had been FPL etched and primed with 3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960. Bonds were cured for 7 days at 70°F-80°F under 2 psi pressure. Tests were conducted according to MMM-A-132 methods.

	Overlap Shear Strength	
Test Temperature	**Scotch-Weld EC-2615 B/A Adhesive**	**Scotch-Weld EC-2615 B/A LW Adhesive**
75°F	5500 psi	5800 psi
160°F (30 minutes at 160°F)	2800 psi	3500 psi
75°F (after 14 days exposure to 160°F and 100% relative humidity)	4400 psi	5400 psi

B. MMM-A-132D Type I, Class 3, Form P, (Selected Tests)

All tests conducted on unprimed, FPL etched 2024-T3 alclad aluminum.

Cure 1: cured for 7 days at room temperature under 2 psi pressure
Cure 2: cured for 1 day at room temperature under 2 psi pressure, plus 1 hour at 180°F

	Scotch-Weld EC-2615 B/A Adhesive		Scotch-Weld EC-2615 B/A LW Adhesive	
Description	**Cure 1**	**Cure 2**	**Cure 1**	**Cure 2**
1. 75°F Tensile Shear (psi)	4350	3850	5000	5250
2. 180°F Tensile Shear (psi)	460	950	700	1250
3. -67°F Tensile Shear (psi)	3650	6400	5350	3900
4. Fatigue Strength at 750 psi at 1800 cpm for 10^6 cycles	NF*	NF*	NF*	NF*
5. Creep Rupture 192 hours at 75°F at 1600 psi (in.)	0	0	0	0
6. Blister Detection (psi)	3800	3850	4150	4050
7. 75°F Tensile Shear after 30 days at 120°F 95-100% RH (psi)	3900	4050	4500	4350
8. 75°F Tensile Shear after 7 days in JP-4 (psi)	4000	4450	5100	4250
9. 75°F Tensile Shear after 7 days Hydraulic Oil (psi)	3300	4550	5250	4750

*No failures

Typical Product Performance *(continued)*

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

C. T-Peel

T-Peel specimens were made according to ASTM D1876-72 with 2024-T3 alclad aluminum sheets, 8 in. x 8 in. x .032 in. The surface preparation was the optimized FPL described below. The specimens were cured at a pressure of 2 psi for 7 days at 75°F. Typical bond line thicknesses were 0.010 in. - 0.018 inches. One inch wide specimens were cut from the 8 in. wide specimens and were tested at a jaw separation rate of 20 in./minute at 75°F.

Test Conditions	Scotch-Weld EC-2615 B/A Adhesive	Scotch-Weld EC-2615 B/A LW Adhesive
75°F	73 piw	61 piw

D. Floating Roller Peel

Floating Roller Peel specimens consist of one .063 in. x 8 in. x 8 in. 2024-T3 alclad aluminum panel bonded to one .020 in. x 8 in. x 10 in. 2024-T3 alclad aluminum panel. The panels were phosphoric acid anodized (3M Test Method C-2780), and primed with about 0.2 mils of 3M™ Scotch-Weld™ Structural Adhesive Primer EC-3960. The bonded panels were cured for 5 days at room temperature under 2 psi pressure. The panels were cut into one inch wide specimens, and tested using a jaw separation rate of 6 in./minute according to ASTM D-3167.

Scotch-Weld EC-2615 B/A Adhesive	Scotch-Weld EC-2615 B/A LW Adhesive
98 piw	95 piw

Product Application

Note: While this information is provided as a general application guideline based upon typical conditions, it is recognized that no two applications are identical due to differing assemblies, methods of heat and pressure application production equipment and other limitations. It is therefore suggested that experiments be run, within the actual constraints imposed to determine optimum conditions for your specific application and to determine suitability of product for particular intended use.

I. Surface Preparation

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.

A. Aluminum: Optimized FPL Etch – 3M Company Test Method C-2803 or ASTM D2651

1. Alkaline degrease – Oakite® Aluminum Cleaner 164 solution 9-11 oz./gallon of water at 190°F ± 10° F for 10 to 20 minutes. Rinse immediately in large quantities of cold running water (Test Method C-2802).
2. Acid Etch – Immerse panels in the following solution for 10 minutes at 150°F ± 5°F:

Sodium dichromate ($Na_2Cr_2O_7 \cdot 2H_2O$)	4.1 - 4.9 oz./gallon
Sulfuric Acid 66° Be	38.5 - 41.5 oz./gallon
2024-T3 aluminum (dissolved)	0.2 oz./gal. minimum
Tap Water as needed to balance	

   Note: Read and follow component supplier's environmental, health and safety recommendations before preparing this etch solution.
3. Rinse immediately in large quantities of clear running tap water.
4. Air dry approximately 15 minutes followed by a force dry at 150°F ± 10°F for 10 minutes.
5. Current theory suggests that both surface structure and chemistry play a significant role in determining the strength and performance of bonded structure. It is therefore advisable to bond or prime freshly cleaned surfaces as early as possible after preparing to avoid contamination and/or mechanical damage.

Product Application *(continued)*

B. Fiber Reinforced Epoxy Laminate Surface and Plastic Surfaces

1. Abrade surfaces to be bonded with 180 grit sandpaper or a Scotch-Brite® General Purpose Hand Pad 7447 (do not cut through resin into reinforcing fibers).
2. Wipe with clean rag or paper towel soaked with Ketone type solvent* such as Methyl Ethyl Ketone (MEK).*
3. Thoroughly dry before application of adhesive.

II. Primer Application

Although 3M™ Scotch-Weld™ Epoxy Adhesive EC-2615 B/A and EC-2615 B/A LW give excellent performance on unprimed surfaces, the use of 3M™ Scotch-Weld™ Structural Adhesive Primers EC-3960, EW5000 or EC-3924B corrosion inhibiting primers are suggested for maximum long-term durability and environmental resistance. See their data sheets for complete application instructions. These primers must be cured for one hour at 250°F prior to bonding. Review and follow MSDS prior to use.

Adhesive Application

A. Adhesive Mixing

Scotch-Weld EC-2615 B/A and EC-2615 B/A LW Adhesives are supplied in dual plastic cartridges. To use, insert the dual syringe cartridge into dispenser and advance the plungers into the cylinders using light pressure on the trigger. Next remove the cap from the cartridge and expel a small amount of adhesive to be sure both sides of the cartridge are flowing evenly and freely. If automatic mixing of Part A and Part B are desired, attach a 6 inch or longer mixing nozzle to the cartridge and dispense the adhesive. If nozzle mixing is not used, dispense both components into a container and thoroughly mix with a spatula until a uniform beige color is achieved.

Scotch-Weld EC-2615 B/A and EC-2615 B/A LW Adhesives are available in kit form consisting of Part B (Base) and Part A (Accelerator). To use, measure out base and accelerator on a weight or volume basis per typical physical properties. Mix thoroughly with spatula until it is a uniform beige color. CAUTION: Be careful mixing quantities larger than 50 grams (2 oz.) because an exothermic reaction will occur.

Apply adhesive to substrates and assemble bond before the work life expires, parts must be clamped or held together until cured.

B. Work Life

The work life of a 20 gram batch is over 20 minutes at 70°F-80°F for Scotch-Weld EC-2615 B/A Adhesive and over 60 minutes for Scotch-Weld EC-2615 B/A LW Adhesive. Larger quantities and/or higher temperatures will result in shorter work lives.

C. Curing Characteristics

It is suggested using a cure of 7 days at 70°F-80°F and 2 psi bonding pressure. At 70°F-80°F, bonds of Scotch-Weld EC-2615 B/A Adhesive generally reach handling strength in 2 to 3 hours. Scotch-Weld EC-2615 B/A LW Adhesive generally reaches handling strength in 5 to 6 hours. Full cure is reached in 1 to 7 days. If faster cures are desired, bonds may be heated. At 150°F full cure is reached in approximately 2 hours. For higher performance at elevated temperatures, a post cure of 1 hour at 180°F is suggested.

D. Cleanup

Excess adhesive and equipment may be cleaned prior to curing with toluene or Ketone solvents.*

***Caution!: When using solvents, extinguish all ignition sources including pilot lights. Read and follow manufacturer's precautions and directions for use.**

3M™ Scotch-Weld™
Epoxy Adhesive EC-2615 B/A • EC-2615 B/A LW
Technical Datasheet

Storage and Shelf Life

These products have a shelf life of one year from date of shipment when stored at 60°F-80°F (15°C-27°C) in their original unopened container. Higher storage temperatures reduce shelf life, whereas lower temperatures cause increased viscosity of a temporary nature.

Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, please visit www.3M.com/msds or call 1-800-364-3577 or (651) 737-6501.

For Additional Information

In the U.S., call toll free 1-800-235-2376, or fax 1-800-435-3082 or 651-737-2171. For U.S. Military, call 1-866-556-5714. If you are outside of the U.S., please contact your nearest 3M office or one of the following branches:

Australia	**Austria**	**Brazil**	**Canada**
61-2-498-9711 tel	01-86686-298 tel	55 19 3838-7876 tel	800-410-6880 ext. 6018 tel
61-2-498-9710 fax	01-86686-229 fax	55 19 3838-6892 fax	800-263-3489 fax
China	**Denmark**	**France**	**Germany**
86-21-62753535 tel	45-43-480100 tel	0810-331-300 tel	02131-14-2344 tel
86-21-62190698 fax	45-43-968596 fax	30-31-6195 fax	02131-14-3647 fax
Italy	**Japan**	**Korea**	**Netherlands**
02-7035-2177 tel	03-3709-8245 tel	02-3771-4114 tel	31-71-5-450-272 tel
02-7035-2125 fax	03-3709-8743 fax	02-786-7429 fax	31-71-5-450-280 fax
South Africa	**Spain**	**Switzerland**	**United Kingdom**
11-922-9111 tel	34-91-321-6000 tel	01-724-9114 tel	(0) 161-237-6174 tel
11-922-2116 fax	34-91-321-6002 fax	01-724-9068 fax	(0) 161-237-3371 fax

Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty, Limited Remedy, and Disclaimer

Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability

Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

These products were manufactured under a 3M quality standard registered under AS9100 standards.

3M

Aerospace and Aircraft Maintenance Department
3M Center, Building 223-1N-14
St. Paul, MN 55144-1000
1-800-235-2376
www.3M.com/aerospace

3M and Scotch-Weld are trademarks of the 3M Company.
Scotch-Brite is a registered trademark of the 3M Company.
Oakite is a registered trademark of Chemetall GmbH, Germany.

Please recycle. Printed in U.S.A.
©3M 2009 (7/09) All rights reserved.
78-6900-9562-1