SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
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제품 제안부터 공급·시공·설치·교육까지



COMPANY INFORMATION

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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.

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홈페이지 바로가기 →
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English-US

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Technical Data Sheet

3M™ Scotch-Weld™ Urethane Adhesive DP640 Brown

Product Details

Regulatory Info/SDS

Product Description

3M™ Scotch-Weld™ Urethane Adhesive DP640 Brown is a two-part, non-sag urethane adhesives. It provides tough, flexible bonds with good adhesion to a wide variety of substrates, especially wood and many properly abraded and cleaned plastics. Good adhesion can also be obtained on painted metals and ceramics and glass. For maximum bond durability under moisture conditions, priming of glass is required.
Note: This product is sold in bulk as 3M™ Scotch-Weld™ Urethane Adhesive 3549 Brown.

Product Features

- Tough, flexible bonds
- Non-Sag/Thixotropic
- 40 to 60 minute worklife
- Bonds wood and many plastics

Technical Information Note

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

Typical Uncured Physical Properties

Attribute Name	Value
Color	Brown [1]
Mix Ratio by Volume (B:A)	1:1
Mix Ratio by Weight (B:A)	1:1

[1] Colors may vary from nearly white to yellow/amber. Adhesive performance is not affected by color variation.

Attribute Name	Temperature	Value
Base Color		Pink/Purple
Accelerator Color		Tan
Base Density		10.0 — 10.5 lb/gal
Accelerator Density		11.1 — 11.5 lb/gal
Base Viscosity	27 °C (80 °F)	10,000-40,000 cP [1]
Accelerator Viscosity	27 °C (80 °F)	15,000-55,000 cP [1]

[1] Viscosity measured using Brookfield RVF, spindle #6, 10 RPM

Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Open Time		60 min [1]
Worklife, 10g mixed	23 °C (73 °F)	40 min
Time to Handling Strength	23 °C (73 °F)	6 — 8 h [2]
Time to Full Cure	23 °C (73 °F)	7 d [3]

[1] Max time allowed after applying adhesive to a substrate before bond must be closed and fixed. Cure times approximate and depend on adhesive temperature. Hotmelts: The approx. bonding range of a 3.2 mm (1/8 in) bead of molten adhesive on a non-metallic surface.

[2] Minimum time required to achieve 0.3 MPa (50 psi) of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

[3] The cure time is defined as that time required for the adhesive to achieve a minimum of 80% of the ultimate strength as measured

by aluminum-aluminum OLS.

Typical Physical Properties

Attribute Name	Value
Cured Color	Brown

Typical Cured Characteristics

Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Value
Shore A Hardness	ASTM D2240	75

Typical Performance Characteristics

Overlap Shear Strength

Temperature: 23 °C (73 °F)
Dwell Time: 7 d
Test Method: ASTM D1002, ISO 4587

Substrate	Surface Prep	Value
Aluminum	MEK/Abrade/MEK	2,160 lb/in² [1]
Cold Rolled Steel	MEK/Abrade/MEK	1,960 lb/in² [1]
ABS	IPA Wipe/Abrade/IPA Wipe	1,729 lb/in² [1]
Polycarbonate (PC)	IPA Wipe/Abrade/IPA Wipe	1,210 lb/in² [1]
Acrylic (PMMA)	IPA Wipe/Abrade/IPA Wipe	1,150 lb/in² [1]
Fiber-Reinforced Plastic	IPA Wipe/Abrade/IPA Wipe	900 lb/in² [1]
Polyvinyl chloride (PVC)	IPA Wipe/Abrade/IPA Wipe	1,180 lb/in² [1]

[1] 25 mm (1") wide, 12.7 mm (1/2") overlap samples, 25 mm (1") x 102 mm (4") substrates, bondline thickness: 0.13-0.20 mm (5-8 mil)
Separation rate 2.5 mm/min (0.1 in/min) metal, 51 mm/min (2 in/min) plastic, 510 mm/min (20 in/min) rubber.
Substrate thickness: steel 1.5 mm (60 mil), other metal 1.3-1.6 mm (50-64 mil), rubber and plastic 3.2 mm (125 mil)
Cohesive Failure (CF), Adhesive Failure (AF), Mixed Failure (MF), Substrate Failure (SF)

Substrate: Aluminum
Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Value
Bell Peel	ASTM D3167	64 lb/in width [1]

[1] 25 mm (1 in) wide bonds. 0.5 mm (0.02 in) thick, 1.7 mm (0.065 in) bondline
Jaw separation rate 15 mm/min (6 in/min)
AF: adhesive failure CF: cohesive failure SF: substrate failure

Attribute Name	Test Method	Value
Elongation	ASTM D882	100 %

Electrical and Thermal Properties

Temperature: 23 °C (73 °F)

Attribute Name	Test Method	Test Condition	Value
Dielectric Constant	ASTM D150	1 KHz	5.9
Volume Resistivity	ASTM D257		2.6 x 10^{14} Ω-cm

Handling/Application Information

Directions for Use

3M™ Scotch-Weld™ Urethane Adhesive DP640 is supplied in dual syringe plastic duo- pak cartridges as part of the 3M™ EPX™ Applicator System. The duo-pak cartridges are supplied in 48.5 ml, 200 ml and 400 ml configurations. To use the EPX cartridge system simply insert the duo-pak cartridge into the EPX applicator. Next, remove the duo-pak cartridge cap and expel a small amount of adhesive to be sure both sides of the duo-pak cartridge are flowing evenly and freely. If simultaneous mixing of Part A and Part B is desired, attach the EPX mixing nozzle to the duo-pak cartridge and begin dispensing the adhesive.
When mixing Part A and Part B manually the components must be mixed in the ratio indicated in the typical uncured properties section of this data sheet. Complete mixing of the two components is required to obtain optimum properties. Two-part mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems are ideal for line uses because of their variable shot size and flow rate characteristics and are adaptable to most applications.
Apply adhesive to clean, dry surfaces, joint parts and secure until adhesive sets.

Surface Preparation

The following surface preparations were used for substrates described in this Technical Data Sheet.
A. Aluminum Etch
Optimized FPL Etch - 3M (test method C-2803)
1. 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 (3M test method C-2802).
2. Optimized FPL Etch Solution (1 liter):

Material Amount
Distilled Water 700 ml plus balance of liter (see below)
Sodium Dichromate 28 to 67.3 grams
Sulfuric Acid 287.9 to 310.0 grams
Aluminum Chips 1.5 grams/liter of mixed solution
To prepare 1 liter of this solution, dissolve sodium dichromate in 700 ml of distilled water. Add sulfuric acid and mix well. Add additional distilled water to fill to 1 liter. Heat mixed solution to 66 to 71°C (150 to 160°F).
Dissolve1.5 grams of 2024 bare aluminum chips per liter of mixed solution. Gentle agitation will help aluminum dissolve in about 24 hours.
To FPL etch panels, place them in the above solution at 150 to 160°F (66 to 71°C) for 12 to 15 minutes.
Note: Review and follow precautionary information provided by chemical suppliers prior to preparation of this etch solution.
Rinse immediately in large quantities of clear running tap water.
Dry – air dry approximately 15 minutes followed by force dry at 140°F (60°C) maximum for 10 minutes (minimum).
3. Both surface structure and chemistry play a significant role in determining the strength and permanence of bonded structures. It is therefore advisable to bond or prime freshly primed clean surfaces as soon as possible after surface preparation in order to avoid contamination and/or mechanical damage. Please contact your 3M sales representative for primer recommendations.

B. Oakite Degrease
Oakite 164 solutions (9-11 oz./gallon of water) at 190°F ± 10°F (88°C ± 5°C) for 2 minutes. Rinse immediately in large quantities of cold running water.
C. MEK/Abrade/MEK
Wipe surface with a methyl ethyl ketone (MEK) soaked swab, abrade and wipe with a MEK soaked swab.* Allow solvent to evaporate before applying adhesive.
D. Isopropyl Alcohol Wipe Only Surface Preparation
Wipe surface with an isopropyl alcohol soaked swab.* Allow solvent to evaporate before applying adhesive.
E. Isopropyl Alcohol/Abrade/Isopropyl Alcohol Surface Preparation
Wipe surface with an isopropyl alcohol soaked swab, abrade using clean fine grit abrasives, and wipe with an isopropyl alcohol soaked swab.* Then allow solvent to evaporate before applying adhesive.
*__Note:__When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. For best performance, use this product within 18 months from date of manufacture.

Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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