

Technical Data Sheet

3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling

Product Description

3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling is a gray, rapid setting, two component polyurethane. It is packaged as 1:1 ratio liquid in a duo-pak cartridge. With the squeeze of a trigger, the components are automatically mixed and easily dispensed as a bubble-free self-leveling or non-sag liquid.


Product Features

- Fast Setting
- 1:1 Mix Ratio
- Easy Mixing
- Tough, non-brittle bonding

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

Property	Values	Additional Information
Color	Medium-Gray	View 


Notes: Colors may vary from nearly white to yellow/amber. Adhesive performance is not affected by color variation.

Base Color	Opaque Black
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Accelerator Color	Clear Yellowish
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Base Density	8.5 to 8.9 lb/gal
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Accelerator Density	9.5 to 9.9 lb/gal
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Base Viscosity	1100 to 6000 cP	View 
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Temp C: 23C
Temp F: 72F

Notes: Brookfield CP #52 @ 100 rpm

Accelerator Viscosity 1000 to 3000 cP [View](#) 

Temp C: 23C
Temp F: 72F

Notes: Brookfield CP #52 @ 100 rpm

Mix Ratio by Volume (B:A) 1:1


Mix Ratio by Weight (B:A) 1:1

Typical Mixed Physical Properties

Property	Values	Additional Information
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Open Time	1 min	View 
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Notes: POR=Pop Off Rubber

Worklife, 10g mixed	70 s	View 
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Temp C: 23C
Temp F: 73F


Tack Free Time	4 min	
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Time to Full Cure	1 hr	View 
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Temp C: 23C
Temp F: 73F

Typical Physical Properties

Property	Values	Additional Information
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Color	Gray	View 
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Test Name: Cured

Typical Cured Characteristics

Property	Values	Additional Information
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Shore D Hardness	70	View 
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Test Method: ASTM D2240

Temp C: 23C
Temp F: 73F

Temperature Range	-60-250 °F	
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Temperature Range -51-121 °C



Typical Performance Characteristics

Property	Values	Additional Information
Long Term Temperature Resistance	121 °C	
Minimum Long Term Temperature Resistance	-51 °C	
Long Term Temperature Resistance	250 °F	
Minimum Long Term Temperature Resistance	-60 °F	
Bell Peel	20 lb/in width	View 

Test Method: ASTM D3167

Temp C: 23C
Temp F: 72F
Substrate: Etched Aluminum

Notes: Bell peel strengths were measured on 1 in. wide bonds at the temperatures noted. The testing jaw separation rate was 6 in. per minute. AF: adhesive failure CF: cohesive failure SF: substrate failure

Overlap Shear Strength 7day Aluminum	2300 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 7.0 Dwell Time Units: day Temp C: 23C Temp F: 73F Environmental Condition: 50%RH Substrate: Aluminum Surface Preparation: MEK/Abrade/MEK</p> <p>Notes: 1in wide 1/2in overlap specimens. 2 panels of 0.05-0.064in x 4in x 7in 2024T-3 clad aluminum bonded and cut to 1in wide samples after 24hr. Jaw separation 0.1 in/min, 0.005-0.008in bondline. Cohesive (CF), Adhesive (AF), and Substrate (SF) Failure</p>		
Overlap Shear Strength 7day Cold Rolled Steel	2250 lb/in ²	View 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength
Dwell/Cure Time: 7.0
Dwell Time Units: day
Temp C: 23C
Temp F: 73F
Environmental Condition: 50%RH
Substrate: Cold Rolled Steel
Surface Preparation: MEK/Abrade/MEK

Notes: Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x .060in substrates. Jaw separation 0.1 in/min. 0.005-0.008in bondline. Cohesive (CF), Adhesive(AF), and Substrate(SF) Failure

Overlap Shear Strength 7day ABS

500 lb/in²

[View](#) 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength

Dwell/Cure Time: 7.0

Dwell Time Units: day

Temp C: 23C

Temp F: 73F

Environmental Condition: 50%RH

Substrate: ABS

Surface Preparation: IPA Wipe/Abrade/IPA Wipe

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. Bonds made with 1 in x 4 in x 0.125in pieces of substrate with a 0.005-0.008in bondline. Jaw Separation 2in/min Cohesive (CF), Adhesive (AF), Substrate (SF) Failure

Overlap Shear Strength 7day Polyvinyl chloride (PVC)

430 lb/in²

[View](#) 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength

Dwell/Cure Time: 7.0

Dwell Time Units: day

Temp C: 23C

Temp F: 73F

Environmental Condition: 50%RH

Substrate: Polyvinyl chloride (PVC)

Surface Preparation: IPA Wipe/Abrade/IPA Wipe

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. 1" x 4" x 0.125" substrate Jaw separation 2 in/min; 0.005-0.008in bondline. Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Overlap Shear Strength 7day Polycarbonate (PC)

300 lb/in²

[View](#) 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength

Dwell/Cure Time: 7.0

Dwell Time Units: day

Temp C: 23C

Temp F: 73F

Environmental Condition: 50%RH

Substrate: Polycarbonate (PC)

Surface Preparation: IPA Wipe/Abrade/IPA Wipe

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. 1" x 4" x 0.125" substrate Jaw separation 2 in/min; 0.005-0.008in bondline. Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Overlap Shear Strength 7day Acrylic (PMMA)

430 lb/in²

[View](#) 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength

Dwell/Cure Time: 7.0

Dwell Time Units: day

Temp C: 23C

Temp F: 73F

Environmental Condition: 50%RH

Substrate: Acrylic (PMMA)

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. 1" x 4" x 0.125" substrate Jaw separation 2 in/min; 0.005-0.008in bondline. Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Overlap Shear Strength 7day Fiber-Reinforced Plastic

340 lb/in²

[View](#) 

Test Method: ASTM D1002

Test Name: Overlap Shear Strength

Dwell/Cure Time: 7.0

Dwell Time Units: day

Temp C: 23C

Temp F: 73F

Environmental Condition: 50%RH
Substrate: Fiber-Reinforced Plastic
Surface Preparation: IPA Wipe/Abrade/IPA Wipe

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. 1" x 4" x 0.125" substrate Jaw separation 2 in/min; 0.005-0.008in bondline. Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Storage and Shelf Life

Store products at 60-80°F (15-27°C) for maximum shelf life.

These products have a shelf life of 18 months from date of manufacture in original duo-pak containers at room temperature.

Bottom Matter

3M
Industrial Adhesives and Tapes Division
3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
800-362-3550

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Handling/Application Information

Application Examples

- Rapid repair of spalled or cracked concrete floors or pool decks in high traffic areas
- Custom tapping of bolts and screws into wood, concrete and masonry
- Tough, non-brittle bonding of wood, metal, glass and plastic
- Bonding of dis-similar substrates
- Non-brittle bonding to primed PVC and to ABS pipe

Self-Leveling:

- Re-installing posts and rails
- Fixturing of hand/grabrails into pool decks
- Rapid repair of pool decks prior to being coated

Non-Sag:

- Used as a vertical grade repair material and adhesive for numerous substrates such as concrete, ceramic, wood, metal and glass
- Repairing leading edges of stairs
- Fixturing bolts

Instructions for Concrete Repair

Preparation

Prepare the Concrete for the Vertical Repair and/or Custom Tap

1. Remove all loose aggregate, dust, old caulks, grease and waterproofing compounds from repair surface. (Grind away any absorbed oils to ensure a clean surface.)
2. Clean repair surface with a bristle brush and use moisture and oil-free compressed air to blow out debris.
3. Mask off area surrounding repair.

Repairing Concrete Damage from Corrosion

1. Apply a pre-coat of cement corrosion inhibitor or protectant to excessively corroded areas.
2. Allow pre-coat to dry thoroughly.
3. Follow the procedure for general concrete repairs.

Self-Leveling Procedure for Doing Concrete Repairs

1. Keeping the mixer tip at the deepest portion of the repair area, dispense into the prepared cavity, depression, void, groove or crack.
2. Keep the end of the mix tip immersed in the product as the repair is being filled.
3. Use a spreader to cover the repair and leave an excess of at least 1" around the repair edges.

Overfilling 3M™ Scotch-Weld™ Urethane Adhesive DP600 and allowing it to overlap approximately one inch along the edges of the repair tapering to just a few mils thickness provides a substantial tie into the concrete and increases the lifetime of the repair.

4. Place the spreader over the filled repair.
5. Press down and hold for about 30 seconds to spread the repair compound.
6. Let repair cure before removing the spreader.
7. 3M™ Scotch-Weld™ Urethane Adhesive DP600 will self-level and set approximately within one minute and leave a slight meniscus. If desired, one can create a repair flush and level to the concrete floor on smaller areas up to 6 inches square by overlaying a slightly stiff polyethylene sheet (approximately the modulus of a plastic spreader) just prior to the set of 3M™ Scotch-Weld™ Urethane Adhesive DP600.
8. At 75°F (24°C), a 1/4"-thick section sets and becomes tack-free within 4 minutes and will cure within one hour. Note: Thicker masses or substrates at higher temperature take less time to cure. Thinner masses or substrates at lower temperature take more time to cure.

Repairing Leading Edges on Steps and Stairways

1. For sharp edges: Follow the procedures above and shape edge by using two spreaders. Use one spreader to flatten the vertical edge of repair and the other spreader for the top of repair.
2. For round edges: Form round edges with a piece of plastic contouring sheet on small repairs (less than 3" x 3"). Plastic must be at least 1" larger around than the edges of the repair.

Repair Clean-up and Finishing

1. Remove masking tape from repair.
2. Shave or grind cured product with 36 grit sandpaper to achieve desired shape.
3. Sand with 80 grit sandpaper to remove any scratches.
4. If 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS is applied in a traffic area, apply sand or some type of grip to repaired surface area.

Instructions for Custom Tapping and Fastening

Custom Tapping and Fastening

Custom tapping is a form of chemical anchoring where cupboards, wall hangers or other heavy cabinetry can be secured in place. However, the bolts or screws holding heavy cantilevered items can be easily removed facilitating the re-location

of the cabinetry. Custom tapping is done by molding the threads of bolts and screws into an adhesive plug, rather than being mechanically anchored into lag shields. The tough molding properties of this product allow it to form and retain a high-strength, non-brittle interlock between holes cored into concrete, wood or masonry and the threads of the inserted bolt or screw. The release characteristics, upon removal, are achieved by simply spraying the bolt or screw with 3M™ 5-Way Penetrant (or another release agent) before the bolt or screw is inserted into the liquid 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS prior to its setting. To achieve a more permanent fixture, the bolts and screws simply are not lubricated before embedding into the liquid 3M™ Scotch-Weld™ Urethane Adhesive DP600NS prior to curing.

Preparation For Custom-tapping:

1. Drill holes into the concrete, wood or masonry to the specified depth using the chart below.
2. Use a round bristle brush to clean the cored holes if they have not been freshly drilled.
3. Use moisture-free and oil-free compressed air to blow out the debris.
4. Lightly coat the bolts or screws with 3M™ 5-Way Penetrant.

Procedure for Custom Tapping Concrete:

1. Dispense 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS into the hole nearly halfway full. To obtain a consistent fill, judge for under-fill or overfill by counting the number of squeezes of the trigger.
2. Insert the bolt or screw within the first 20 seconds after dispensing. The paste characteristic of 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS will hold the bolt or screw in place until it cures. Once the work life has been exceeded, do not disturb the bolt.
3. Move to the next hole to keep 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS flowing in the mixer tip. If material sets in the mixer tip, replace the tip and start dispensing again.
4. 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS will become tack-free within 2 minutes and cure within one hour. Note: It is best to wait for one full hour before extracting the bolt or screw for securing the cupboards, wall hangers or other cabinetry in place.
5. Allow 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS to fully cure before applying a load. The maximum torque recommended is 9.5 pounds.

Procedures for Custom Tapping Hollow Concrete Blocks, Wood or Masonry:

1. Use a reinforcement patch to create a mesh net around the bolt. Leave at least a 1 in excess of mesh around the diameter of the bolt. Push the bolt and mesh through the hole.
2. Remove the bolt and then fill the net 3/4-full with 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS while slowly backing the nozzle out of the hole.
3. Place the bolt in the hole and complete the fill, if necessary, to adjust for any under-fill.
4. Allow 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS to fully cure before removing the bolt and reinstalling it along with the supported load.

Instructions for Re-Anchoring Handrails

Note: Not for use in repairing or anchoring diving boards.

Re-Anchoring Handrails and Grabrails

Preparation of Hand/Grabrails

1. Bore a hole through the base of the hand/grabrail just above grade level to allow introduction of the product.
2. Using 80 grit sandpaper, roughen the footing surface of the hand/grabrail which is to be imbedded below the concrete grade.
3. Refer to instructions on cartridge for dispensing.

Preparation of Concrete for Re-anchoring

1. Chip away the cracked or broken concrete to allow removal of the hand/grabrail.
2. Leave the concrete as close as possible around the hand/grabrail. It is best to allow the concrete to remain intact as close as possible (within 1/2 to 1 inch all around) to the base of the hand/grabrail.
3. Dig down to the base of the concrete, typically 4- to 6-inches deep.
4. Expose any rebar, if possible, in order to create a ground connection to the rebar.
5. Create as much as a 1-inch undercut under the concrete in a smooth taper from the concrete surface.
6. Remove all of the loose concrete particles and dust prior to encasing the replacement hand/grabrail.
7. Attach the replacement hand/grabrail to surrounding rebar using a copper wire.

Cinch the connection down tightly, allowing a slight amount of slack in the wire connection.

8. Create a shield to corrosion at the base of the hand/grabrail by laying a piece of polyethylene plastic at the base of the hole.
9. Insert the hand/grabrail in the hole. Align the hand/grabrail for its elevation and vertical plumb.

Encasement Procedure

1. Dispense 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS into the concrete hole. Product will remain liquid for approximately 50 seconds, and fully cure in 1 hour. Dispense more cartridges as necessary to bring the fill level up to the concrete surface level.
2. Dispense 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS into the inside of the hand/grabrail. Fill with product up to and slightly above the grade level. (Filling the inside of the post provides extra strength and protection against corrosion.)
3. Apply cement dust or sand, if desired, to blend the surface appearance into the surrounding concrete.
4. If 3M™ Scotch-Weld™ Urethane Adhesive DP600 Self-Leveling or DP600NS is applied in a traffic area, apply sand or some type of grit to repaired surface area.

Repair Clean-up and Finishing

Shave or grind cured product with 36 grit sandpaper to achieve desired shape

Directions for Use

3M™ Scotch-Weld™ Urethane Adhesives DP600 Self-Leveling and DP600NS are 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 configuration. 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). Dissolve 1.5 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.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40072259/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP600 Self-Leveling

Family Group

Link Tags:

• DP600 Self-Leveling

• DP600NS

Products	Open Time	Color	Long Term Temperature Resistance	Minimum Long Term Temperature Resistance
DP600NS	1 min	Medium-Gray	250 °F	-51 °C
DP600 Self-Leveling	1 min	Gray	250 °F	-51 °C

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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