

# Technical Data Sheet

## 3M™ Scotch-Weld™ Epoxy Adhesive DP420 Black

### Product Description

3M™ Scotch-Weld™ Epoxy Adhesives are high performance, two-part epoxy adhesives offering outstanding shear and peel adhesion, and very high levels of durability.


### Product Features

- High shear strength
- High peel strength
- Outstanding environmental performance
- Easy mixing
- 20 minute worklife

### 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	Black	<a href="#">View</a> 

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

Base Color	Black
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Accelerator Color	Amber
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Base Viscosity	20000 to 50000 cP	<a href="#">View</a> 
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Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 4 sec<sup>-1</sup> shear rate.

Accelerator Viscosity	8000 to 14000 cP	<a href="#">View</a> 
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Notes: Viscosity measured using cone-and-plate viscometer; reported viscosity at 4 sec<sup>-1</sup> shear rate.

Base Resin	Epoxy
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Accelerator Resin	Amine
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Base Net Weight	9.3 to 9.7 lb/gal
Accelerator Net Weight	9.0 to 9.4 lb/gal
Mix Ratio by Volume (B:A)	2:1
Mix Ratio by Weight (B:A)	2:0.97


### Typical Mixed Physical Properties

Property	Values	Additional Information
Open Time	20 min	View 
Notes: POR=Pop Off Rubber		
Worklife, 20g mixed	15 min	View 
Temp C: 23C Temp F: 73F		
Worklife, 10g mixed	20 min	View 
Temp C: 23C Temp F: 73F		
Worklife, 5g mixed	30 min	View 
Temp C: 23C Temp F: 73F		
Time to Full Cure	2 hr	View 
Temp C: 23C Temp F: 73F		
Notes: 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

Property	Values	Additional Information
Color	Black	View 
Test Name: Cured		

### Typical Cured Characteristics

Property	Values	Additional Information
Shore D Hardness	77 (85)	<a href="#">View</a> 
Test Method: ASTM D2240  Temp C: 23C Temp F: 73F		


### Typical Performance Characteristics

Property	Values	Additional Information
Bell Peel	20 lb/in width	<a href="#">View</a> 

Test Method: ASTM D3167

Temp C: -55C  
 Temp F: -67F  
 Substrate: Aluminum

Notes: Bell peel strengths were measured on 1/2 in. wide bonds at the temperatures noted. The testing jaw separation rate was 6 in. per minute.

Bell Peel	82 lb/in width	<a href="#">View</a> 
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Test Method: ASTM D3167

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


Notes: Bell peel strengths were measured on 1/2 in. wide bonds at the temperatures noted. The testing jaw separation rate was 6 in. per minute.

Bell Peel	18 lb/in width	<a href="#">View</a> 
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Test Method: ASTM D3167

Temp C: 82C  
 Temp F: 180F  
 Substrate: Aluminum

Notes: Bell peel strengths were measured on 1/2 in. wide bonds at the temperatures noted. The testing jaw separation rate was 6 in. per minute.

Typical Curing Characteristics (OLS)	300 lb/in <sup>2</sup>	<a href="#">View</a> 
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Test Method: ASTM D1002

Dwell/Cure Time: 2.0  
 Dwell Time Units: hr  
 Temp C: 23C  
 Temp F: 72F  
 Substrate: Aluminum


Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline \*Avg bondline temperature during cure time is lower than oven temp.


Typical Curing Characteristics (OLS)	800 lb/in <sup>2</sup>	<a href="#">View</a> 
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Test Method: ASTM D1002


Dwell/Cure Time: 3.0  
 Dwell Time Units: hr  
 Temp C: 23C  
 Temp F: 72F  
 Substrate: Aluminum


Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline \*Avg bondline temperature during cure time is lower than oven temp.

Typical Curing Characteristics (OLS)	3000 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p> <p>Dwell/Cure Time: 5.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Aluminum</p> <p>Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline *Avg bondline temperature during cure time is lower than oven temp.</p>		

Typical Curing Characteristics (OLS)	3700 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p> <p>Dwell/Cure Time: 6.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Aluminum</p> <p>Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline *Avg bondline temperature during cure time is lower than oven temp.</p>		

Typical Curing Characteristics (OLS)	4500 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p> <p>Dwell/Cure Time: 24.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Aluminum</p> <p>Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline *Avg bondline temperature during cure time is lower than oven temp.</p>		

Typical Curing Characteristics (OLS)	2300 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p> <p>Dwell/Cure Time: 30.0 Dwell Time Units: min Temp C: 49C Temp F: 120F Substrate: Aluminum</p> <p>Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline *Avg bondline temperature during cure time is lower than oven temp.</p>		

Typical Curing Characteristics (OLS)	4700 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p> <p>Dwell/Cure Time: 60.0 Dwell Time Units: min Temp C: 49C Temp F: 120F Substrate: Aluminum</p> <p>Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline *Avg bondline temperature during cure time is lower than oven temp.</p>		


Typical Curing Characteristics (OLS)	3200 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Method: ASTM D1002</p>		

Dwell/Cure Time: 15.0  
Dwell Time Units: min  
Temp C: 60C  
Temp F: 140F  
Substrate: Aluminum

Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline \*Avg bondline temperature during cure time is lower than oven temp.

Typical Curing Characteristics (OLS)

4700 lb/in<sup>2</sup>

[View](#) 

Test Method: ASTM D1002

Dwell/Cure Time: 60.0  
Dwell Time Units: min  
Temp C: 60C  
Temp F: 140F  
Substrate: Aluminum

Notes: Generated using 3M™ EPX™ Applicator System with an EPX static mixer according to mfr directions. Thorough hand-mixing will give comparable results. 7mil bondline \*Avg bondline temperature during cure time is lower than oven temp.

Overlap Shear Strength 7day Aluminum

2500 lb/in<sup>2</sup>

[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: Aluminum  
Surface Preparation: MEK/Abrade/MEK

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

Overlap Shear Strength 7day Cold Rolled Steel

2200 lb/in<sup>2</sup>

[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 Copper

5000 lb/in<sup>2</sup>

[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: Copper  
Surface Preparation: MEK/Abrade/MEK

Notes: Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x 0.05-0.060in substrates. Jaw separation 0.1 in/min, 0.005-0.008in bondline. Cohesive (CF), Adhesive(AF), and Substrate(SF) Failure

Overlap Shear Strength 7day Brass

2800 lb/in<sup>2</sup>

[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: Brass  
Surface Preparation: MEK/Abrade/MEK

Notes: Overlap shear (OLS) strengths were measured on 1in wide 1/2in overlap specimens on 1in x 4in x 0.05-0.060in substrates. Jaw separation 0.1 in/min. 0.005-0.008in bondline. Cohesive (CF), Adhesive(AF), and Substrate(SF) Failure

Overlap Shear Strength 7day Stainless Steel

1800 lb/in<sup>2</sup>

[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: Stainless Steel  
Surface Preparation: MEK/Abrade/MEK

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1" x 4" x 0.060" substrate Jaw Separation 0.1in/min Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

Overlap Shear Strength 7day ABS

450 lb/in<sup>2</sup>

[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

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 ABS

550 lb/in<sup>2</sup>

[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)

400 lb/in<sup>2</sup>

[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  
Failure Mode: SF

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 Polyvinyl chloride (PVC)	360 lb/in <sup>2</sup>	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: Polyvinyl chloride (PVC) Surface Preparation: IPA Wipe/Abrade/IPA Wipe Failure Mode: SF</p> <p>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)</p>		
Overlap Shear Strength 7day Polycarbonate (PC)	440 lb/in <sup>2</sup>	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: Polycarbonate (PC) Surface Preparation: IPA Wipe</p> <p>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)</p>		
Overlap Shear Strength 7day Polycarbonate (PC)	450 lb/in <sup>2</sup>	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: Polycarbonate (PC) Surface Preparation: IPA Wipe/Abrade/IPA Wipe</p> <p>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)</p>		
Overlap Shear Strength 7day Acrylic (PMMA)	190 lb/in <sup>2</sup>	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: Acrylic (PMMA) Surface Preparation: IPA Wipe</p> <p>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)</p>		
Overlap Shear Strength 7day Acrylic (PMMA)	450 lb/in <sup>2</sup>	View 
<p>Test Method: ASTM D1002</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: 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

600 lb/in<sup>2</sup>

[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

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

1100 lb/in<sup>2</sup>

[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  
Failure Mode: SF

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)

T-Peel Adhesion -55C Aluminum

9.3 lb/in width

[View](#) 

Test Method: ASTM D1876

Test Name: T-Peel Adhesion  
Temp C: -55C  
Temp F: -67F  
Substrate: Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.

T-Peel Adhesion 23C Aluminum

50 lb/in width

[View](#) 

Test Method: ASTM D1876

Test Name: T-Peel Adhesion  
Temp C: 23C  
Temp F: 73F  
Substrate: Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.

T-Peel Adhesion 82C Aluminum

20 lb/in width

[View](#) 


Test Method: ASTM D1876


Test Name: T-Peel Adhesion  
Temp C: 82C





Temp F: 180F  
Substrate: Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.


T-Peel Adhesion 23C Etched Aluminum	60 lb/in width	<a href="#">View</a> 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 23C Temp F: 73F Substrate: Etched Aluminum</p> <p>Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.</p>		

T-Peel Adhesion 23C Etched Aluminum	50 lb/in width	<a href="#">View</a> 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 23C Temp F: 73F Substrate: Etched Aluminum</p> <p>Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.</p>		

T-Peel Adhesion 23C Cold Rolled Steel	40 lb/in width	<a href="#">View</a> 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 23C Temp F: 73F Substrate: Cold Rolled Steel Surface Preparation: Oakite degrease</p> <p>Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.</p>		


T-Peel Adhesion 23C Cold Rolled Steel	25 lb/in width	<a href="#">View</a> 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 23C Temp F: 73F Substrate: Cold Rolled Steel Surface Preparation: MEK/Abrade/MEK</p> <p>Notes: T-peel strengths were measured on 1 in. wide bonds. The testing jaw separation rate was 20 inches per minute.</p>		

### 3M™ EPX™ Pneumatic Applicator Delivery Rates


Property	Values	Additional Information
Pneumatic Applicator Delivery Rates	29.6 lb/in <sup>2</sup>	<a href="#">View</a> 

Test Name: 6mm Nozzle

Notes: 200 ml Applicator – Maximum Pressure 58 psi; Tests were run at maximum applicator pressure.

Pneumatic Applicator Delivery Rates	113 lb/in <sup>2</sup>	<a href="#">View</a> 
<p>Test Name: 10mm Nozzle</p> <p>Notes: 200 ml Applicator – Maximum Pressure 58 psi; Tests were run at maximum applicator pressure.</p>		

## Electrical and Thermal Properties

Property	Values	Additional Information
Volume Resistivity	1.6 x 10 <sup>15</sup> Ω-cm	View 
Test Method: ASTM D257		
Temp C: 23C Temp F: 73F		
Coefficient of Thermal Expansion	80 x 10 <sup>-6</sup> m/m/°C	
Coefficient of Thermal Expansion	194 x 10 <sup>6</sup> m/m/°C	

## Storage and Shelf Life

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

These products have a shelf life of 24 months from date of manufacture in original containers at room temperature.

## Bottom Matter

3M

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## Trademarks

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## Automotive Disclaimer

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## Handling/Application Information

Directions for Use

3M™ Scotch-Weld™ Epoxy Adhesive DP420 is supplied in dual syringe plastic duo- pak cartridges as part of the 3M™ EPX™ Applicator System. The duo-pak cartridges are supplied in 50 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 (see rate of strength build up).

#### 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.

3. Rinse immediately in large quantities of clear running tap water.

4. Dry – air dry approximately 15 minutes followed by force dry at 140°F (60°C) maximum for 10 minutes (minimum).

5. 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.

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

##### D. Isopropyl Alcohol Wipe Only Surface Preparation

Wipe surface with an isopropyl alcohol soaked swab.\* 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.

##### 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	<a href="https://www.3m.com/3M/en_US/p/d/b40066431/">https://www.3m.com/3M/en_US/p/d/b40066431/</a>
Safety Data Sheet SDS	<a href="https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=DP420 Black">https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=DP420 Black</a>

## Family Group

Link Tags:

- DP420 Black
- DP420NS Black
- DP420 Off White
- DP420LH

Products	Open Time	Color	Shore D Hardness
DP420 Black	20 min	Black	77 (85)
DP420LH	20 min	N/A	N/A
DP420NS Black	20 min	Black	N/A
DP420 Off White	20 min	Off-white	N/A

## ISO Statement

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

## 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, call 1-800-364-3577 or (651) 737-6501.

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