

Technical Data Sheet

3M™ Scotch-Weld™ Epoxy Adhesive DP190 Gray

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP190 Gray is a 1:1 by volume mix ratio of 3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A Gray and exhibits good peel, shear and environmental aging properties.

Available in bulk containers as 3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A.

Product Features

- 90 minute worklife
- High shear and peel strength
- Flexible
- 1:1 mix ratio
- Gray
- Recognized as meeting UL 94 HB

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	Gray	View 

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

Base Color	White
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Accelerator Color	Gray
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Base Viscosity	75,000-150,00 cP	View 
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Temp C: 23C
Temp F: 72F

Accelerator Viscosity	40,000-80,000 cP	View 
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Temp C: 23C
Temp F: 72F

Base Resin	Epoxy
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Accelerator Resin

Amine

Base Net Weight

11.0 to 11.4 lb/gal

Accelerator Net Weight

10.6 to 11.0 lb/gal







Mix Ratio by Volume (B:A)

1:1


Mix Ratio by Weight (B:A)


1.06:1


Typical Mixed Physical Properties


Property	Values	Additional Information
Open Time (min)	90 min	View 
<p>Notes: 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 1/8" bead of molten adhesive on a non-metallic surface.</p>		
Worklife, 20g mixed	90 min	View 
<p>Test Method: 3M C3180</p> <p>Temp C: 23C Temp F: 73F</p> <p>Notes: Procedure involves periodically measuring a 2 gram mixed mass for self leveling and wetting properties. This time will also approximate the usable worklife in an 3M™ EPX™ Applicator mixing nozzle.</p>		
Worklife	90 min	View 
<p>Test Method: 3M C3180</p> <p>Temp C: 23C Temp F: 73F</p> <p>Notes: Procedure involves periodically measuring a 2 gram mixed mass for self leveling and wetting properties. This time will also approximate the usable worklife in an 3M™ EPX™ Applicator mixing nozzle.</p>		
Time to Handling Strength	8 to 12 hr	View 
<p>Temp C: 23C Temp F: 73F</p> <p>Notes: Minimum time required to achieve 50 psi of overlap shear strength. Cure times are approximate and depend on adhesive temperature.</p>		
Tack Free Time	6 hr	View 
<p>Test Method: 3M C3173</p> <p>Notes: Involves dispensing 0.5 gram amount of adhesive onto substrate and testing periodically for no adhesive transfer to metal spatula.</p>		
Time to Full Cure	7 day	View 


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.


Time to Full Cure	8 to 12 hr	View 
<p>Temp C: 23C Temp F: 73F</p> <p>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.</p>		

Rate of Strength Buildup 1hr	10 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 1.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Etched Aluminum</p> <p>Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in</p>		


Rate of Strength Buildup 6hr	50 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 6.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Etched Aluminum</p> <p>Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in</p>		

Rate of Strength Buildup 1day	1000 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 1.0 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Etched Aluminum</p> <p>Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in</p>		


Rate of Strength Buildup 7day	2000 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: 72F Substrate: Etched Aluminum</p> <p>Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in</p>		

Rate of Strength Buildup 1month	2200 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 1.0 Dwell Time Units: month Temp C: 23C Temp F: 72F Substrate: Etched Aluminum</p>		


Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in


Rate of Strength Buildup 3month	2500 lb/in ²	View 
<p>Test Method: ASTM D1002</p> <p>Test Name: Overlap Shear Strength Dwell/Cure Time: 3.0 Dwell Time Units: month Temp C: 23C Temp F: 72F Substrate: Etched Aluminum</p> <p>Notes: 1 in wide 1/2 in overlap specimens with 1 in x 4 in substrates. 0.005-0.008in bondline. Jaw separation 0.1 in/min. Substrate thickness 0.05-0.064 in</p>		


Typical Physical Properties


Property	Values	Additional Information
Color	Gray	View 
<p>Test Name: Cured</p>		

Typical Cured Characteristics

Property	Values	Additional Information
Shore D Hardness	60	View 
<p>Test Method: ASTM D2240</p> <p>Temp C: 23C Temp F: 73F</p>		

Tensile Strength	3500 lb/in ²	View 
<p>Test Method: ASTM D882</p> <p>Dwell/Cure Time: 2.0 Dwell Time Units: hr Temp C: 23C Temp F: 72F Environmental Condition: +2 hr @ 160F(71C)</p> <p>Notes: Samples were 2 in. dumbbells with 0.125 in. neck and .030 in. sample thickness. Separation rate was 2 inches per minute.</p>		

Weight Loss by Thermal Gravimetric Analysis (TGA)	1%	View 
<p>Test Method: ASTM E1131</p> <p>Temp C: 247C Temp F: 477F</p> <p>Notes: Weight loss by Thermal Gravimetric Analysis reported as that temperature at which 5% weight loss occurs by TGA in air at 5°C (9°F) rise per minute.</p>		

Weight Loss by Thermal Gravimetric Analysis (TGA)	5%	View 
<p>Test Method: ASTM E1131</p> <p>Temp C: 337C Temp F: 639F</p> <p>Notes: Weight loss by Thermal Gravimetric Analysis reported as that temperature at which 5% weight loss occurs by TGA in air at 5°C (9°F) rise per minute.</p>		

Thermal Shock Resistance

Pass 5 cycles without cracking


View 

Test Method: 3M C3174

Test Condition: Potted Washer Olyphant Test, 100°C [air] to -50°C [liquid]

Notes: Involves potting a metal washer into a 2 in. x 0.5 in. thick section and cycling this test specimen to colder and colder temperatures.

Typical Performance Characteristics

Property	Values	Additional Information
Elongation (%)	30 %	View 

Test Method: ASTM D882

Dwell/Cure Time: 2.0


Dwell Time Units: hr

Temp C: 23C

Temp F: 72F

Environmental Condition: +2 hr @ 160F(71C)

Notes: Samples were 2 in. dumbbells with 0.125 in. neck and .030 in. sample thickness. Separation rate was 2 inches per minute.

T-Peel Adhesion -55C Etched Aluminum	3 lb/in width	View 
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Test Method: ASTM D1876

Test Name: T-Peel Adhesion

Temp C: -55C

Temp F: -67F

Substrate: Etched Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds at 73°F (23°C). The testing jaw separation rate was 20 inches per minute. The substrates were 0.020 in. thick. Samples dwelled for 24 hrs at 23C + 2 hrs at 71C before testing.

T-Peel Adhesion 23C Etched Aluminum	20 lb/in width	View 
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Test Method: ASTM D1876


Test Name: T-Peel Adhesion

Temp C: 23C

Temp F: 73F

Substrate: Etched Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds at 73°F (23°C). The testing jaw separation rate was 20 inches per minute. The substrates were 0.020 in. thick. Samples dwelled for 24 hrs at 23C + 2 hrs at 71C before testing.

T-Peel Adhesion 49C Etched Aluminum	10 lb/in width	View 
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Test Method: ASTM D1876

Test Name: T-Peel Adhesion

Temp C: 49C

Temp F: 120F

Substrate: Etched Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds at 73°F (23°C). The testing jaw separation rate was 20 inches per minute. The substrates were 0.020 in. thick. Samples dwelled for 24 hrs at 23C + 2 hrs at 71C before testing.

T-Peel Adhesion 66C Etched Aluminum	4 lb/in width	View 
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Test Method: ASTM D1876









Test Name: T-Peel Adhesion

Temp C: 66C

Temp F: 150F

Substrate: Etched Aluminum

Notes: T-peel strengths were measured on 1 in. wide bonds at 73°F (23°C). The testing jaw separation rate was 20 inches per minute. The substrates were 0.020 in. thick. Samples dwelled for 24 hrs at 23C + 2 hrs at 71C before testing.


T-Peel Adhesion 82C Etched Aluminum	2 lb/in width	View 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 82C Temp F: 180F Substrate: Etched Aluminum</p> <p>Notes: T-peel strengths were measured on 1 in. wide bonds at 73°F (23°C). The testing jaw separation rate was 20 inches per minute. The substrates were 0.020 in. thick. Samples dwelled for 24 hrs at 23C + 2 hrs at 71C before testing.</p>		
Solvent Resistance Acetone 1hr	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Acetone 1hr</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Acetone 1month	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Acetone 1mo</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Isopropyl Alcohol 1hr	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Isopropyl Alcohol 1hr</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Isopropyl Alcohol 1month	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Isopropyl Alcohol 1mo</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Freon TF 1hr	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Freon TF 1hr</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Freon TF 1month	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Freon TF 1mo</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Freon TMC 1hr	A	View 
<p>Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Freon TMC 1hr</p> <p>Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.</p>		
Solvent Resistance Freon TMC 1month	A	

View 

Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + Freon TMC 1mo

Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.

Solvent Resistance 1, 1, 1 - Trichloroethane 1hour A

View 

Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + 1, 1, 1 - Trichloroethane 1hr

Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.

Solvent Resistance 1, 1, 1 - Trichloroethane 1month A

View 

Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + 1, 1, 1 - Trichloroethane 1mo

Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.

Solvent Resistance RMA Flux 1hr A

View 

Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + RMA Flux 1hr

Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.

Solvent Resistance RMA Flux 1month A

View 

Environmental Condition: 24hr @ RT + 2hr @ 160F(71C) + RMA Flux 1mo


Notes: Cured OLS samples immersed in solvent and after dwell, examined for surface attack compared to control. A: Unaffected, no color or texture change B: Slight attack, slight swelling of surface. C: Moderate/severe attack, extreme swelling of surface.

3M™ EPX™ Pneumatic Applicator Delivery Rates

Property	Values	Additional Information
Pneumatic Applicator Delivery Rates	11.9 g/min	View 

Test Condition: 200 ml Applicator – Maximum Pressure 58 psi.

Notes: Tests were run at a temperature of 70°F ± 2°F (21°C ± 1°C) and at maximum applicator pressure.

Pneumatic Applicator Delivery Rates	46 g/min	View 
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Test Condition: 200 ml Applicator – Maximum Pressure 58 psi.

Notes: Tests were run at a temperature of 70°F ± 2°F (21°C ± 1°C) and at maximum applicator pressure.

Pneumatic Applicator Delivery Rates	16.9 g/min	View 
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Test Condition: 48.5/50 ml Applicator – Maximum Pressure 50 psi.

Notes: Tests were run at a temperature of 70°F ± 2°F (21°C ± 1°C) and at maximum applicator pressure.

Electrical and Thermal Properties

Property	Values	Additional Information
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Glass Transition Temperature (Tg)

20 °C

View 

Test Condition: Mid-Point

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Glass Transition Temperature (Tg)

68 °F

View 

Test Condition: Mid-Point

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Glass Transition Temperature (Tg)

7 °C


View 

Test Condition: Onset

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Glass Transition Temperature (Tg)

45 °F

View 

Test Condition: Onset

Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.

Dielectric Constant 1KHz

6.5

View 

Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Test Condition: 1 KHz

Dissipation Factor 1KHz

0.09

View 

Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Test Condition: 1 KHz

Thermal Conductivity

90.9 x 10⁻² Cal/s/cm/°C

View 

Test Method: C177

Temp F: 110F

Notes: Thermal conductivity determined using C-matic Instrument using 2 in. diameter samples.

Thermal Conductivity

38.1 W/m/K

View 

Test Method: C177

Temp F: 110F

Notes: Thermal conductivity determined using C-matic Instrument using 2 in. diameter samples.

Thermal Conductivity

0.22 (btu-ft)/(h-ft²-°F)

View 

Test Method: C177

Temp F: 110F

Notes: Thermal conductivity determined using C-matic Instrument using 2 in. diameter samples.

Volume Resistivity

5.0 x 10¹² Ω-cmView 

Test Method: ASTM D257

Temp C: 23C

Temp F: 73F

Coefficient of Thermal Expansion

62

View 

Test Condition: Below Tg(41-68°F [5-20°C] range)

Notes: TCE determined using TMA Analyzer using a heating rate of 10°C per minute. Second heat values given.

Coefficient of Thermal Expansion

177

View 

Test Condition: Above Tg(167-284°F [75-140°C] range)

Notes: TCE determined using TMA Analyzer using a heating rate of 10°C per minute. Second heat values given.

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 in their unopened original containers from date of manufacture.

Industry Specifications

UL 94 HB

Automotive Disclaimer

Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, including, but not limited to, automotive electric powertrain battery or high voltage applications. This product does not fully adhere to typical automotive design or quality system requirements, such as IATF 16949 or VDA 6.3. This product may not be manufactured in an IATF certified facility and may not meet a Ppk of 1.33 for all properties. The product may not undergo an automotive production part approval process (PPAP). Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's automotive application and for conducting incoming inspections before use of the product. Failure to do so may result in injury, death, and/or harm to property. No written or verbal statement, report, data or recommendation by 3M related to automotive use of the product shall have any force or effect unless in an agreement signed by the Technical Director of 3M's Automotive Division. Customer assumes all responsibility and risk if customer chooses to use this product in an automotive electric powertrain battery or high voltage application, and 3M will not be liable for any loss or damage arising from or related to the 3M product or customer's use of the product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity or recall costs), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability. In no event shall 3M be liable for any damages in excess of the purchase price paid for the product.

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Bottom Matter

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Trademarks

3M, Scotch-Weld and EPX are trademarks of 3M Company.

Handling/Application Information

Application Equipment

For smaller or intermittent applications, the 3M™ EPX™ Applicator is a convenient method of application.

For larger applications these products may be applied by use of flow equipment. Two part meter/mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems may be desirable because of their variable shot size and flow rate characteristics and are adaptable to many applications.

Directions for Use

1. For high strength structural bonds, paints, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation necessary directly depends on the required bond strength and the environmental aging resistance desired by the user. For suggested surface preparations on common substrates, see the section on surface preparation.

2. Mixing

For Duo Pak Cartridges

3M™ Scotch-Weld™ Epoxy Adhesives DP190 Gray is supplied in a dual syringe plastic duo-pak cartridge as part of the 3M™ EPX™ Applicator system. To use, simply insert the duo-pak cartridge into the EPX applicator and start the plunger into the cylinders using light pressure on the trigger. 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 automatic mixing of Part A and Part B is desired, attach the EPX applicator mixing nozzle to the duo-pak cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after uniform color is obtained.

For Bulk Containers

Mix thoroughly by weight or volume in the proportions specified in the typical uncured properties section. Mix approximately 15 seconds after uniform color is obtained.

3. For maximum bond strength, apply adhesive evenly to both surfaces to be joined.

4. Application to the substrates should be made within 75 minutes. Larger quantities and/or higher temperatures will reduce this working time.

5. Join the adhesive coated surfaces and allow to cure at 60°F (16°C) or above until completely firm. Heat up to 200°F (93°C) will speed curing. These products will cure in 7 to 14 days @ 75°F (24°C).

6. Keep parts from moving during cure. Contact pressure necessary. Maximum shear strength is obtained with a 3-5 mil bond line.

7. Excess uncured adhesive can be cleaned up with ketone type solvents.*

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

Adhesive Coverage (typical): A 0.005 in. thick bondline will yield a coverage of 320 sqft/gallon.

Surface Preparation

For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation necessary directly depends on the required bond strength and the environmental aging resistance desired by the user.

The following cleaning methods are suggested for common surfaces:

Steel:

1. Wipe free of dust with oil-free solvent such as acetone, isopropyl or alcohol solvents.*

2. Sandblast or abrade using clean fine grit abrasives.

3. Wipe again with solvent to remove loose particles.

4. If a primer is used, it should be applied within 4 hours after surface preparation.

Aluminum:

1. Alkaline Degrease: Oakite 164 solution (9-11 oz./gallon water) at 190°F (87°C) ±

10°F for 10-20 minutes. Rinse immediately in large quantities of cold running water.*

2. Acid Etch: Place panels in the following solution for 10 minutes at 150°F (65°C)

± 5°F.*

Sodium Dichromate 4.1 - 4.9 oz./gallon

Sulfuric Acid, 66°Be 38.5 - 41.5 oz./gallon

2024-T3 aluminum (dissolved) 0.2 oz./gallon minimum

Tap water as needed to balance

3. Rinse: Rinse panels in clear running tap water.

4. Dry: Air dry 15 minutes; force dry 10 minutes at 150°F (65°C) ± 10°F.

5. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastics/Rubber:

1. Wipe with isopropyl alcohol.*

2. Abrade using fine grit abrasives.

3. Wipe with isopropyl alcohol.*

Glass:

1. Solvent wipe surface using acetone or MEK.*

2. Apply a thin coating (0.0001 in. or less) of 3M™ Scotch-Weld™ Metal Primer EC3901 or equivalent to the glass surfaces to be bonded and allow the primer to dry before bonding.

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

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b5005321034/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=DP190 Gray

Family Group

Link Tags:

- DP190 Translucent
- DP190 Gray

Products	Worklife	Time to Handling Strength	Shore D Hardness
DP190 Translucent	80 min	6 hr	35
DP190 Gray	90 min	8 to 12 hr	60

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.

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

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