



# 3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear

Last Revision Date: October, 2017

## Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear is available in larger containers like 3M™ Scotch-Weld™ Epoxy Adhesive 105 B/A Clear.

3M™ Scotch-Weld Epoxy Adhesive DP105 Clear is a fast setting, very flexible 1:1 mix ratio epoxy adhesive/sealant. Its flexibility when cured makes it ideal for applications involving dissimilar surfaces where thermal coefficient of expansion may be a problem. It is also unique in that it retains its clear, colorless properties longer than most 5 minute epoxies.

## Product Features

- 4 minute worklife
- High peel strength
- Flexible
- 1:1 mix ratio
- Clear

## 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	Clear	View

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

Base Color	Clear
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Accelerator Color	Clear
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Base Viscosity	1,000-5,000 cP	View
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Test Method: 3M C1d

Temp C: 27C  
Temp F: 80F

Notes: Procedure involves Brookfield RVF, #7 spindle, 20 rpm. Measurement taken after 1 minute rotation.

Accelerator Viscosity	8,000-16,000 cP	View
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Test Method: 3M C1d






Temp C: 27C

Temp F: 80F

Notes: Procedure involves Brookfield RVF, #7 spindle, 20 rpm. Measurement taken after 1 minute rotation.


Base Resin	Epoxy
Accelerator Resin	Mercaptan
Base Net Weight	9.1 to 9.5 lb/gal
Accelerator Net Weight	9.4 to 9.8 lb/gal
Mix Ratio by Volume (B:A)	1:1
Mix Ratio by Weight (B:A)	1:0.97

### Typical Mixed Physical Properties

Property	Values	Additional Information
Open Time	5 min	<a href="#">View</a> 
Notes: Maximum time allowed after applying adhesive to one substrate before bond must be closed and fixed in place. Cure times are approximate and depend on adhesive temperature. For hotmelts: The approximate bonding range of a 1/8" bead of molten adhesive on a non-metallic surface.		
Exotherm max temp	37 °C (98 °F)	<a href="#">View</a> 
Test Condition: 2g mass		
Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.		
Exotherm max temp	98 °F	<a href="#">View</a> 
Test Condition: 2g mass		
Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.		
Exotherm time to reach max temp	5 min	<a href="#">View</a> 
Test Condition: 2g mass		
Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.		
Exotherm max temp	110 °C (230 °F)	<a href="#">View</a> 

Test Condition: 20g mass

Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.

Exotherm max temp	230 °F	View 
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Test Condition: 20g mass

Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.

Exotherm time to reach max temp	3 min	View 
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Test Condition: 20g mass

Notes: Exotherm determined using the stated mass mixed for 1 minute and then by electronic thermocouple measuring the peak temperature and time to that temperature.

Worklife, 2g mixed	5 min	View 
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Test Method: 3M C3180

Temp C: 23C  
Temp F: 73F

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.

Worklife, 20g mixed	4 min	View 
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Test Method: 3M C3180

Temp C: 23C  
Temp F: 73F

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.

Worklife	3 to 4 min	View 
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Test Method: 3M C3180

Temp C: 23C  
Temp F: 73F

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.

Time to Handling Strength	20 min	View 
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Temp C: 23C  
Temp F: 73F

Notes: Minimum time required to achieve 50 psi of overlap shear strength. Cure times are approximate and depend on adhesive temperature.

Tack Free Time	10 min	View 
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Test Method: 3M C3173

Notes: Involves dispensing 0.5 gram amount of adhesive onto substrate and testing periodically for no adhesive transfer to metal spatula.

Time to Full Cure	0.33 hr	View 
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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.

Time to Full Cure	48 hr	<a href="#">View</a> 
Temp C: 23C Temp F: 73F		
Rate of Strength Buildup 1hr	250 lb/in <sup>2</sup>	<a href="#">View</a> 
Test Method: ASTM D1002		
Test Name: Overlap Shear Strength Dwell/Cure Time: 1 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Etched Aluminum		
Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1 in. x 4 in. pieces of substrate. The separation rate of the testing jaws was 0.1 in. per minute for metals, 2 in. per minute for plastics and 20 in. per minute for rubbers. The thickness of the substrates were: steel, 0.060 in.; other metals, 0.05-0.064 in.; rubber, 0.125 in.; plastics, 0.125 in.		
Rate of Strength Buildup 6hr	500 lb/in <sup>2</sup>	<a href="#">View</a> 
Test Method: ASTM D1002		
Test Name: Overlap Shear Strength Dwell/Cure Time: 6 Dwell Time Units: hr Temp C: 23C Temp F: 72F Substrate: Etched Aluminum		
Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1 in. x 4 in. pieces of substrate. The separation rate of the testing jaws was 0.1 in. per minute for metals, 2 in. per minute for plastics and 20 in. per minute for rubbers. The thickness of the substrates were: steel, 0.060 in.; other metals, 0.05-0.064 in.; rubber, 0.125 in.; plastics, 0.125 in.		
Rate of Strength Buildup 1day	1000 lb/in <sup>2</sup>	<a href="#">View</a> 
Test Method: ASTM D1002		
Test Name: Overlap Shear Strength Dwell/Cure Time: 1 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Etched Aluminum		
Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1 in. x 4 in. pieces of substrate. The separation rate of the testing jaws was 0.1 in. per minute for metals, 2 in. per minute for plastics and 20 in. per minute for rubbers. The thickness of the substrates were: steel, 0.060 in.; other metals, 0.05-0.064 in.; rubber, 0.125 in.; plastics, 0.125 in.		
Rate of Strength Buildup 7day	2000 lb/in <sup>2</sup>	<a href="#">View</a> 
Test Method: ASTM D1002		
Test Name: Overlap Shear Strength Dwell/Cure Time: 7 Dwell Time Units: day Temp C: 23C Temp F: 72F Substrate: Etched Aluminum		
Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1 in. x 4 in. pieces of substrate. The separation rate of the testing jaws was 0.1 in. per minute for metals, 2 in. per minute for plastics and 20 in. per minute for rubbers. The thickness of the substrates were: steel, 0.060 in.; other metals, 0.05-0.064 in.; rubber, 0.125 in.; plastics, 0.125 in.		
Rate of Strength Buildup 1month	2000 lb/in <sup>2</sup>	<a href="#">View</a> 
Test Method: ASTM D1002		

Test Name: Overlap Shear Strength  
 Dwell/Cure Time: 1  
 Dwell Time Units: month  
 Temp C: 23C  
 Temp F: 72F  
 Substrate: Etched Aluminum

Notes: Overlap shear (OLS) strengths were measured on 1 in. wide 1/2 in. overlap specimens. These bonds were made individually using 1 in. x 4 in. pieces of substrate. The separation rate of the testing jaws was 0.1 in. per minute for metals, 2 in. per minute for plastics and 20 in. per minute for rubbers. The thickness of the substrates were: steel, 0.060 in.; other metals, 0.05-0.064 in.; rubber, 0.125 in.; plastics, 0.125 in.

## Typical Physical Properties


Property	Values	Additional Information
Color	Clear	View 
Test Name: Cured		

## Typical Cured Characteristics

Property	Values	Additional Information
Shore D Hardness	27	View 

Test Method: ASTM D2240

Temp C: 23C  
 Temp F: 73F

Tensile Strength	600 lb/in <sup>2</sup>	View 
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Test Method: ASTM D882

Dwell/Cure Time: 2 hr Room Temperature, plus 2 hr @ 160°F(71°C)


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

Weight Loss by Thermal Gravimetric Analysis (TGA)	1 %	View 
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Test Method: ASTM E1131

Temp C: 117C  
 Temp F: 243F

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.

Thermal Shock Resistance	Pass 5 cycles without cracking	View 
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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.

Weight Loss by Thermal Gravimetric Analysis (TGA)	289 °C (552 F)	View 
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Test Method: ASTM E1131

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.

Weight Loss by Thermal Gravimetric Analysis		
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(TGA)







552 F

View 

Test Method: ASTM E1131

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.

## Typical Performance Characteristics

Property	Values	Additional Information
Elongation	120 %	View 
<p>Test Method: ASTM D882</p> <p>Dwell/Cure Time: 2 hr Room Temperature, plus 2 hr @ 160°F(71°C)</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>		
T-Peel Adhesion -55C Etched Aluminum	3 lb/in width	View 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: -55C Temp F: -67F 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>		
T-Peel Adhesion 23C Etched Aluminum	35 lb/in width	View 
<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 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>		
T-Peel Adhesion 49C Etched Aluminum	5 lb/in width	View 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 49C Temp F: 120F 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>		
T-Peel Adhesion 66C Etched Aluminum	2 lb/in width	View 
<p>Test Method: ASTM D1876</p> <p>Test Name: T-Peel Adhesion Temp C: 66C Temp F: 150F 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>		
T-Peel Adhesion 82C Etched Aluminum	1 lb/in width	View 



Test Method: ASTM D1876

Test Name: T-Peel Adhesion  
 Temp C: 82C  
 Temp F: 180F  
 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.

Solvent Resistance Acetone 1hr

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Acetone 1hr

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Acetone 1month

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Acetone 1month

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Isopropyl Alcohol 1hr

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Isopropyl Alcohol 1hr

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Isopropyl Alcohol 1month

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Isopropyl Alcohol 1month

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Freon TF 1hr

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Freon TF 1hr

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Freon TF 1month

A

[View](#) 

Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Freon TF 1month

Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed n the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.


Solvent Resistance Freon TMC 1hr


A


[View](#) 


Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C)  
 Environmental Condition: Freon TMC 1hr


Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.

Solvent Resistance Freon TMC 1month	B	<a href="#">View</a> 
<p>Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C) Environmental Condition: Freon TMC 1month</p> <p>Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.</p>		

Solvent Resistance 1, 1, 1 - Trichloroethane 1hour	A	<a href="#">View</a> 
<p>Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C) Environmental Condition: 1, 1, 1 - Trichloroethane 1hour</p> <p>Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.</p>		

Solvent Resistance 1, 1, 1 - Trichloroethane 1month	A	<a href="#">View</a> 
<p>Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C) Environmental Condition: 1, 1, 1 - Trichloroethane 1month</p> <p>Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.</p>		

Solvent Resistance RMA Flux 1hr	A	<a href="#">View</a> 
<p>Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C) Environmental Condition: RMA Flux 1hr</p> <p>Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.</p>		


Solvent Resistance RMA Flux 1month	A	<a href="#">View</a> 
<p>Dwell/Cure Time: 24hr @ RT + 2hr @ 160F(71C) Environmental Condition: RMA Flux 1month</p> <p>Notes: Solvent resistance was determined using cured samples (1/2 in. x 4 in. x 1/8 in. thickness) immersed in the test solvent for 1 hour and 1 month. After the allotted period of time, the sample was removed and visually examined for surface attack as compared to the control. Key: A - Unaffected - no change to color or surface texture. B - Slight attack - noticeable swelling of surface. C - Moderate/severe attack - extreme swelling of surface.</p>		

## Electrical and Thermal Properties

Property	Values	Additional Information
Glass Transition Temperature (Tg)	15 °C (59 °F)	<a href="#">View</a> 

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)	59 °F	<a href="#">View</a> 
<p>Test Condition: Mid-Point</p> <p>Notes: Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 68°F (20°C) per minute. Second heat values given.</p>		



Glass Transition Temperature (Tg)	8 °C (46 °F)	View
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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)	46 °F	View
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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	9.2	View
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Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Test Condition: 1 KHz

Dissipation Factor 1KHz	0.22	View
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Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Test Condition: 1 KHz

Thermal Conductivity	0.35 x 10 <sup>-3</sup> Cal/s/cm/°C (14.7 W/m/K)	View
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Test Method: C177

Temp F: 110F

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

Thermal Conductivity	14.7 W/m/K (0.085 (btu-ft)/(h-ft <sup>2</sup> -°F))	View
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Test Method: C177

Temp F: 110F

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

Thermal Conductivity	0.085 (btu-ft)/(h-ft <sup>2</sup> -°F)	View
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Test Method: C177

Temp F: 110F

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

Volume Resistivity	1.5 x 10 <sup>10</sup> Ω-cm	View
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Test Method: ASTM D257

Temp C: 23C

Temp F: 73F

Coefficient of Thermal Expansion	181 x 10 <sup>-6</sup> m/m/°C	View
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Test Condition: Above Tg(40-140°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

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Store 3M™ Scotch-Weld™ Epoxy Adhesive DP-105 Clear at 60-80°F (15-27°C) for maximum shelf life.

These epoxy adhesive products have a shelf life of 24 months in their unopened bulk containers. Shelf life is determined from the date of manufacture.

## Industry Specifications

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</17309570/summary-dp-105-j387359-bd170831zbs-en-45545-2-2013a1-2015-annex-c.PDF> target="\_blank"> EN 45545 test report for details (ISO 5659-2, ISO 9239-1, ISO 5660-1, ISO 5658-2)

## Trademarks

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

## Handling/Application Information

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### Directions for Use

1. 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 directly depends on the required bond strength and the environmental aging resistance desired by user. For specific surface preparations on common substrates, see the following section on Surface Preparation.

2. Uses gloves to minimize skin contact. Do not use solvents for cleaning hands.

3. Mixing

### For Duo-Pak Cartridges

3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear is supplied in a dual syringe plastic Duo-Pak cartridge as part of the 3M™ Scotch-Weld™ 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 mixing nozzle to the Duo- Pak cartridge and begin dispensing the adhesives. 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.

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

5. Application to the substrates should be made within 3 minutes. Larger quantities and/or higher temperatures will reduce this working time.

6. 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 48 hours @ 75°F (24°C).

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

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

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

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

### 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 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. Vapor Degrease: 3M™ Novec™ condensing vapors for 5-10 minutes.

2. 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.

3. Acid Etch: Place panels in the following solution for 10 minutes at 150°F ± 5°F (66°C ± 2°C).

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

4. Rinse: Rinse panels in clean running tap water.

5. Dry: Air dry 15 minutes; force dry 10 minutes at 150°F ± 10°F (66°C ± 5°C).

6. 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.\*

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

- For small or intermittent applications the 3M™ Scotch-Weld™ 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/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.

## References

Property	Values
3m.com Product Page	<a href="https://www.3m.com/3M/en_US/company-us/all-3m-products/~//3M-Scotch-Weld-Epoxy-Adhesive-DP105/?N=5002385+3293242301&amp;rt=rud">https://www.3m.com/3M/en_US/company-us/all-3m-products/~//3M-Scotch-Weld-Epoxy-Adhesive-DP105/?N=5002385+3293242301&amp;rt=rud</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=DP105">https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&amp;msdsLocale=en_US&amp;co=ptn&amp;q=DP105</a> Clear

## 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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