



Technical Data Sheet

3M™ Scotch-Weld™ Toughened Epoxy
Adhesive LSB360NS Green

[Product Details](#)[Regulatory Info/SDS](#)

Product Description

3M™ Scotch-Weld™ Toughened Epoxy Adhesive LSB360NS Green is a two-part, 1:1 mix ratio, toughened epoxy structural adhesives which exhibits a 10 hour work life. It exhibits excellent shear and peel strengths along with good impact, durability and bonds extremely well to many surfaces including slightly oily metal and SMC. It is formulated to be non-sagging on vertical surfaces.

Product Features

- Excellent shear and peel strengths
- Easy mixing
- 10 hour work life
- Color Indication of Mixing
- Non-Sag
- 1:1 mix ratio

Technical Information Note

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

Typical Uncured Physical Properties

Attribute Name	Temperature	Value
Color		Bright Green ¹
Base Color		Yellow
Accelerator Color		Blue
Mix Ratio by Volume (B:A)		1:1
Mix Ratio by Weight (B:A)		1:1
Base Net Weight		9.9 lb/gal
Accelerator Net Weight		10 lb/gal
Base Viscosity	22 °C (72 °F)	>274 Pa·s ²
Accelerator Viscosity	22 °C (72 °F)	>103 Pa·s ²

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

² Cone and Plate; 57 RPM

Typical Mixed Physical Properties

Attribute Name	Temperature	Value
Open Time		600 min ¹
Applied Open Time	22 °C (72 °F)	~10 h ²
Applied Open Time	49 °C (120 °F)	>70 min ²
Time to Handling Strength	22 °C (72 °F)	16 h ³
Worklife	22 °C (72 °F)	~10 h ⁴
Time to Full Cure	22 °C (72 °F)	7 d

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

² Approximate time after application of adhesive that bonds can be made without adversely affecting wetting out of adhesive and ultimate performance levels.

³ Minimum time required to achieve 50 psi of overlap shear strength. Cure times are approximate and depend on adhesive

temperature.

- ⁴ Maximum time that adhesive can remain in a static mixing nozzle and still be expelled without undue force on the applicator. Cure times are approximate and depend on adhesive temperature.

Typical Physical Properties

Attribute Name	Value
Cured Color	Green

Typical Performance Characteristics

Temperature: 22 °C (72 °F)

Substrate: Cushioned Sleeve A

Attribute Name	Test Method	Value
90° Peel Adhesion	ASTM D3330	3110 N/cm (CF)

Overlap Shear Strength

Temperature: 22 °C (72 °F)

Dwell Time: 7 d

Test Method: ASTM D1002

Substrate	Surface Prep	Value
Aluminum	MEK/Abrade/MEK	3525 lb/in ² (CF) ¹
Cold Rolled Steel	MEK/Abrade/MEK	2730 lb/in ² (CF) ¹
Galvanized Steel	MEK/Abrade/MEK	3210 lb/in ² (CF) ²
Fiber-Reinforced Plastic	IPA Wipe/Abrade/IPA Wipe	3000 lb/in ² (CF) ¹
SMC	IPA Wipe/Abrade/IPA Wipe	1280 lb/in ² (SF) ¹
FRP (Epoxy)	IPA Wipe/Abrade/IPA Wipe	3000 lb/in ² (CF) ¹

¹ 1" wide 1/2" overlap samples, 1" x 4" substrates, bondline thickness 0.005-0.008in
Separation rate 0.1in/min metal, 2in/min plastic, 20in/min rubber.
Substrate thickness: steel 0.060in, other metal 0.05-0.064in, rubber 0.125in, plastic 0.125in
Cohesive Failure (CF), Adhesive Failure (AF), Substrate Failure (SF)

² 0.5in overlap, pulled at 0.1 in/min for metals and 2 in/min for plastics, substrates lightly abraded and solvent wiped, 1/16in aluminum and 1/8in plastics, composites varied.
Substrate (SF), Adhesive (AF), Cohesive (CF), Mixed (MF) Failure modes

Bell Peel

Substrate: Etched Aluminum

Test Method: ASTM D3167

Dwell Time	Temperature	Value
	-55 °C (-67 °F)	8 lb/in width (CF) ¹
	22 °C (72 °F)	31 lb/in width (CF) ¹
4 h	82 °C (180 °F)	12 lb/in width (CF) ¹

¹ 1" wide bonds. 0.02in thick; 0.065in bondline. Jaw separation rate was 6"/min.
AF: adhesive failure CF: cohesive failure SF: substrate failure

Handling/Application Information

Directions for Use

1. For highest strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. The amount of surface preparation depends on the required bond strength, environmental aging resistance desired by user. For suggested surface preparations on common substrates, see the section on surface preparation.
2. Mix thoroughly by weight or volume in the proportions specified on the product label or in the typical uncured properties section. Mix approximately 15 seconds after a 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 15-20 minutes. Larger quantities and/or higher temperatures will

reduce this working time.

5. Join the adhesive coated surfaces and allow to cure at 60oF (16oC) or above until completely firm. Heat up to 120oF - 150oF (49oC - 66oC) will speed curing.

6. Keep parts from moving during cure. Apply contact pressure if 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 the manufacturer's precautions and directions for use.

Surface Preparation

3M™ Scotch-Weld™ Toughened Epoxy Adhesives LSB360NS is designed to be used on plastic or metal surfaces. For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. The amount of surface preparation depends on the required bond strength, 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 or isopropyl 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. Wipe free of dust with oil-free solvent such as acetone or isopropyl alcohol solvents*.
2. Sandblast or abrade using clean fine grit abrasives
3. Wipe again with oil-free solvent such as acetone or isopropyl alcohol solvents*

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 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 the manufacturer's precautions and directions for use.

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.

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

Automotive Disclaimer

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

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For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550 or visit www.3M.com/structuraladhesives. Address correspondence to 3M Industrial Adhesives and Tapes Division, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55144-1000. Our fax number is 651-778-4244.

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