



Scotch-Weld™ Epoxy Adhesive

DP105

Product Data Sheet

October 2018

Supersedes: September 2018

Product Description

3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear is a fast setting and 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.

Key Features

- 3 min worklife
- High peel strength
- Flexible
- 1:1 mix ratio
- Retains its clear, colorless properties even when cured in larger masses where many clear epoxy systems will often turn amber from the reaction exotherm.

Typical Uncured Properties

	Test Method	DP105 Clear
Base Resin		Epoxy/ Mercaptan
Colour - Base (B) - Hardener (A)		Clear Clear
Viscosity ¹ - Base (B) - Hardener (A)	ASTM D2556	2500 m Pa.s 12000 mPa.s
Work Life ²	ASTM D2471	3 minutes
Specific Gravity ³ - Base (B) - Hardener (A)		1.10 g/cm ³ 1.14 g/cm ³
Mix Ratio - by volume - by weight		1:1 1: 0.97

Footnotes:

1. Procedure involves Brookfield RVF, #7 spindle, 20 rpm and 25 °C. Measurement taken after 1 minute.
2. 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.
3. Specific gravity determinations of semifluids measured with a Fisherbrand™ Pycnometer

Typical Adhesive Performance Characteristics

Overlap Shear Strength ⁴

(Bonds cured 24 hr @ RT + 2 hrs @ 25 °C)

AIClad	13.2 MPa
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4. Overlap shear (OLS) strengths were measured on 25 mm wide 12.5 mm overlap specimens. These bonds were made individually using 25mm x 100 mm pieces of substrate. The thickness of the bond line was 125 μ -200 μ. All strengths were measured at 25 °C except were noted. (Test per ASTM D 1002-72.)

The separation rate of the testing jaws was 2.5 mm per minute for metals, 5 mm per minute for plastics and 500 mm per minute for rubbers. The thickness of the substrates were: steel, 1,5 mm; other metals, 1.3 -1.5 mm rubber, 3.2 mm.; plastics, 3.2 mm.

Bell Peel

(Bonds cured 24 hr @ RT + 2 hrs @ 25 °C)

AIClad	13,4 N/mm
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Handling / Curing Information

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

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

3. Mixing.

For Duo Pak Cartridges

3M™ Scotch-Weld™ Epoxy Adhesives DP105 Clear are 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 duopak 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.

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

5. Application to the substrates should be made within 20 minutes. Larger quantities and/or higher temperatures will reduce this working time.

6. Join the adhesive coated surfaces and allow to cure at 15 °C or above until completely firm. Heat up to 90 °C, will speed curing. These products will cure in 7 days @ 24 °C

7. Keep parts from moving during cure. Contact pressure necessary. Maximum shear strength is obtained with a 75-150 μ bond line.

8. 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.

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 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 at 90 °C ± 5 °C for 10-20 minutes. Rinse immediately in large quantities of cold running water.

Note: Read and follow supplier's environmental, health, and safety documentation for these chemicals prior to preparation of this solution.

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 (0,00254 mm or less) of primer such as 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 manufacturer's precautions and directions for use.

Storage & Shelf Life

Storage

Store at 16 °C - 25 °C and 40-65 % relative humidity in its original box.

The product can be stored up to 24 months after production.

Note: The shelf life may be shortened if the original packaging is not properly sealed or stored in an environment with high temperatures or humidity.

Precautionary Information

Refer to product label and Material Safety Data Sheet for health and safety information before using the product.

For information please contact your local 3M Office.

www.3M.com

For Additional Information

To request additional product information or to arrange for sales assistance, call.....

Address correspondence to: 3M

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