



Scotch-Weld™ DP490

Product Data Sheet

Date: November 2016
Supersedes: October 1996

Product Description

Scotch-Weld™ DP490 is a black, thixotropic, gap filling two component epoxy adhesive with particularly good application characteristics.

It is designed for use where toughness and high strength are required and shows special benefits in the construction of composite assemblies.

Key Features

- Cures at room temperature; cure rate may be accelerated by the application of mild heat.
- Convenient 2:1 mix ratio by volume
- Mixed adhesive is low flow for ease of application
- Toughened epoxy system with good elevated temperature resistance

Physical Properties

	Base	Accelerator
Base resin - Base (B) - Hardener (A)	Toughened epoxy	Modified amines
Specific Gravity	1.04 g/cm ³	1.03 g/cm ³
Viscosity	70000 mPas	150000 mPas
Work life strength	170 min	
Mix Ratio - by volume - by weight	100 100	50 50
Colour	Black	Off white

(1) Density measured using pycnometer at 23 °C.

(2) Viscosity measured using Brookfield RVF viscometer at 24 °C; reported viscosity at 20 rpm using spindle 7.

(3) Maximum time that adhesive can remain useable after a mix of 100g at 23 °C.

Performance Characteristics

Overlap Shear (MPa) ⁽⁴⁾

Aluminium 2024T3 FPL Etched	DP 490
-55 °C	25 CF
23 °C	31 CF
80 °C	14 CF

(4) Overlap shear values measured using EN-2243-1; adhesive allowed to cure for 24 hours at 23 ± 2 °C and 30 min at 80 ± 3 °C; 12.5 mm overlap; 90-150 µm bond line thickness; samples pulled at 2.5mm/min s; all samples are FPL Etched Aluminium 2024T3 1.6 mm thick.

Failure modes:

AF: adhesive failure

CF: cohesive failure

SF: substrate failure

**Performance
Characteristics**

Floating Roller Peel (N/cm width) ⁽⁵⁾

Aluminium 2024T3 FPL Etched	DP 490
23 °C	60 CF

(5) Floating roller peel values measured using EN 2243-2; adhesives allowed to cure for 24 hours at 23 ± 2 °C and 30 min at 80 ± 3 °C; 25 mm wide samples; 150-200 µm bond line thickness; samples pulled at 150 mm/min; aluminium surfaces etched; substrates used were 1.6 mm thick and 0.5 mm thick aluminium.

Failure modes:

AF: adhesive failure

CF: cohesive failure

SF: substrate failure

Directions for use

For high strength structural bonds, paint, oils, dust, mould release agents and other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental ageing resistance desired by user. For specific surface preparations on common substrates, see following information.

Use glove to minimise skin contact. Do not use solvents for cleaning hands

Mixing

For Duo Pack Cartridges

DP 490 is supplied in a dual syringe plastic Duo-Pak cartridge as part of the EPX™ Applicator System. To use, simply insert the Duo-Pak cartridge into the EPX applicator and start plunging 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 adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after uniform colour is obtained.

Surface Preparation:

For high strength structural bonds, paint, oils, dust, mould release agents and other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental ageing 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 abrasive.
3. Wipe again with solvent to remove loose particles

Aluminium

1. Alkaline Degrease: Oakite 164 water solution (10 %) at 85 ± 5 °C 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 65 ± 3 °C
 - Sodium Dichromate 44.8g
 - Sulphuric Acid, 66°Be 332g
 - 2024-T3 aluminium (dissolved 1.5g)
 - Tap water adjust to 1 litre
3. Rinse: rinse panels in clean running tap water.
4. Dry: air dry 15 minutes; force dry 10 minutes at 65 ± 5 °C
5. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastic/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 (2.5 µm or less) of primer such as Scotch-Weld EC-3901 Primer to the glass surfaces to be bonded and allow the primer to dry before bonding.

(* Note: When using solvents, extinguish all ignition sources and observe manufacturer's directions and precautions for handling such materials.

Storage & Shelf Life

Store 3M™ DP490 at 16 °C - 27 °C and 45-65 % Relative Humidity or refrigerate for maximum shelf life. Rotate stock on a "first in-first out" basis.

Product can be stored up to 48 months from date of production. when stored in the original carton

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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