



Scotch-Weld™ EPX™ Adhesive DP490

Product Data Sheet

Updated : March 1996
Supersedes : November 1993

Product Description

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.

The product has excellent heat and environmental resistance.

Physical Properties

Not for specification purposes

	BASE	ACCELERATOR
Specific Gravity	1.00	1.00
Consistency	Non-sag paste	Non-sag paste
Mix Ratio By Weight By Volume	100 100	50 50
Colour	Black	Off-White
Work Life	1.5 hours minimum at 23°C	
Time to Handling Strength	4 to 6 hours at 23°C	
Time to Full Strength	7 days (test to full performance at one week)	
Standard 3M Shelf Life	15 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

Performance Characteristics

Not for specification purposes

Performance Characteristics of the Cured Adhesive.

Two cure cycles were evaluated as follows:

Cure Cycle 1	7 days at 23°C
Cure Cycle 2	24 hours at 23°C, 1 hour at 80°C

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Performance Characteristics (Cont...)

Not for specification purposes

Temperature Performance in Shear and Peel.

(Etched Aluminium) Shear Strength to BS 5350 C5, Peel Strength was floating roller peel to BS5350 C9.

Tests were performed at 23°C unless otherwise stated.

Temperature (°C)	Shear Strength (1) (N/mm ²)	Shear Strength (2) (N/mm ²)	Peel Strength DaN/cm
-55	23.7	31.6	N/A
23	30.2	28.7	9.24
80	11.9	12.7	7.32
120	2.8	3.2	N/A
150	1.9	1.7	N/A

Adhesion to Etched Aluminium after Environmental Ageing

Ageing Condition	Shear Strength (N/mm ²)
RT Control	26.2
Water at 23°C, 750 hours	25.6
50°C, 96% RH, 750 hours	22.0
120°C, 750 hours	25.3
175°C, dry heat, 120 hours	29.6
Skydroll 500B at 23°C, 750 hours	27.6
JP4 at 23°C, 750 hours	28.7
Hydraulic Oil at 23°C, 750 hours	29.5

DP490 shows good adhesion to many plastic surfaces even by simply solvent wiping.

This can be improved still further by the use of 3M Scotchbrite abrasion and/or use of the primer Scotch-Weld 3901.

Plastics	Shear Strength (N/mm ²)
Carbon Fibre Reinforced Epoxy	36.1 (cohesive)
Polyester Sheet Moulding Compound	4.3 (substrate)
Glass Fibre Reinforced Phenolic	30.3 (cohesive)
ABS (filled)	3.2 (substrate)
PVC (filled)	2.9 (substrate)
Azloy (glass filled polycarbonate)	3.0 (adhesion)
Valox (glass filled PET)	1.4 (substrate)
PMMA	3.7 (adhesion)
Noryl (tm XTRA) (glass filled PPO)	4.9 (adhesion)

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Directions for Use /Clean Up

Place the cartridge into the 3M EPX Applicator and clip into position.

Remove the resealable cap.

Expel a small quantity of adhesive and ensure both components flow freely.

Attach correct mixer nozzle (this should have 20 or more elements).

Dispense the adhesive as required.

When finished either leave the nozzle in place and store, or remove the nozzle, wipe clean the tip, and replace cap.

To re-start after storage remove the old nozzle with cured adhesive and re-fit a new nozzle, or remove the cap and fit a new nozzle.

Surface Preparation:

The degree of surface preparation depends on the bond strength required and the environment likely to be encountered by the bonded structure. For most plastics solvent wiping with 3M VHB surface cleaner, followed by abrasion with 3M Scotchbrite 7447, followed by a further solvent wipe until clean, will give good performance (except for acetal, polyethylene and polypropylene and some other low surface energy materials). This also applies to powder coat paints and other stoved paint systems.

The same surface preparation will also give good adhesion to metal surfaces. The objective is to remove loosely attached surface films such as oils, waxes, dusts, mill-scale, loose paints and all other

surface contaminants in addition to enhancing mechanical adhesion. Grit-blasting using a clean, fine grit also offers excellent adhesion on many metallic substrates.

Where humid environments are likely to be encountered by metallic substrates we recommend additional priming with 3M Scotch-Weld 3901. Alternatively, chemical conversion coating techniques combined with priming can offer the best durability.

Clean-Up:

Excess uncured adhesive can be removed with the following solvents:

3M VHB Surface Cleaner
(mild alcohol based cleaner)
3M Scotch-Grip Solvent No2. (Ketone blend)
3M Industrial Cleaner
(Aerosol).

Additional Product Information

Please contact your 3M Salesperson for additional information on the preparation of difficult surfaces, or likely exposure to aggressive environments.

Storage Conditions

Store product at 15°C to 25°C for maximum storage life.

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

Important Notice

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes.
Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.
This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



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