Technical data sheet

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Manufacturer:	3M DEUTSCHLAND GMBH
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SCOTCH-WELD DP490

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Scotch-Weld™ DP490

Product Data Sheet

Date: February 2020
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Product Description

Scotch-Weld™ DP490 is a black, thixotropic, gap filling two components epoxy adhesive with particularly good application characteristics.
It is designed for use where toughness and high strength are required.

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
- Suitable for Composite assemblies

Typical Uncured Properties

	Base	Accelerator
Base	Toughened epoxy	Modified amine
Colour	Black	Off-White
Mix Ratio **- by volume** **- by weight**	 100 100	 50 50

	Test Method	Units	Base	Accelerator
Specific Gravity	ISO 2811.1	g/cm^3	1.04	1.02
Viscosity	ISO 2555	mPas	313 000	78 000
Work Life (1)	-	min	approx. 163	

(1) Maximum time allowed after applying adhesive to one substrate before bond must be closed and fixed in place.

Performance Characteristics

	Test Method	Units	Product
Overlap Shear Strengths **-55 °C** **23 °C** **80 °C**	ISO 4587	MPa	 22.5 CF 30.8 CF 13.3 CF
Peel Strength (2)	EN 2243-2	N/25 mm	42.7 CF
Slump Resistance (3)	-	mm	0.5

(2) 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 thick and 0.5 mm thick aluminium.
(3) A bead of 1/16'' thickness and 25,4 mm width applied on an aluminium substrate which is then placed vertically. The slump resistance is measured by the increase of the bead width

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
<u>For Duo Pack Cartridges</u>
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:

<u>Steel</u>
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 39 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, go to www.3M.be/bonding or www.3M.nl/bonding.

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