

Scotch-Weld™

EPX™ Adhesive DP100

Product Data Sheet

1993

Updated : March 1996
Supersedes : November

Product Description

DP100 clear epoxy adhesive is a clear room temperature curing, two part epoxy adhesive supplied in 3M Duo-Pak cartridge for use with the 3M EPX Applicator.

DP100 offers the following features:

Fast curing with handling strength achieved in 15 minutes at room temperature.

A clear epoxy adhesive with high flow and excellent impact resistance.

1:1 premix system.

Machineable.

Suitable for bonding clear substrates, potting and encapsulating.

Physical Properties

Not for specification purposes

	BASE	ACCELERATOR
Base	Modified Epoxy	Modified Mercaptan
Specific Gravity	1.16	1.15
Viscosity (cP at 27°C)	11,500	13,500
Colour	Clear	Clear
Work Life	3-5 minutes at 24°C	
Handling Strength	15 minutes at 23°C	
Full Strength	24 hours (test full performance at one week).	
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

T-Peel Strength	Measured on abraded, steel (0.8mm) at 24°C. 3.5 N/cm (2 piw)	
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Performance Characteristics (Cont...)
 Not for specification purposes

Overlap Shear Strength

The following strength values were obtained with DP100 when tested after 5 day cure cycle at 24°C.

Substrates solvent wiped, abraded and solvent wiped prior to bonding.

	MPa	psi
Galvanised Steel	6.7	900
Cold Rolled Steel	6.9	1000
FPL Etched Aluminium	9.0	1300
Copper	6.6	950
Stainless Steel	6.2	750
Brass	4.8	700
Acrylic	1.9	280
PVC	2.3	330
Polycarbonate	2.1	310
Neoprene/Steel	0.1	5
SBR/Steel	0.4	60
ABS	3.6	520
FRP	6.6	950

Durability

Percent of bond strength remaining after exposure to 90% relative humidity/32°C for 90 days.

All materials were solvent wiped/abraded/solvent wiped prior to bonding.

Aluminium	100	Aluminium Primed with EC1945 B/A	100
Steel	100	Steel Primed with EC1945 B/A	100
ABS	100	FRP	100
3M Primer EC1945 B/A was applied by dip-coating			
Metals were 1.6mm thick			
Plastics were 3mm thick			

Electrical Properties

Dielectric Strength (Volts/mm)	4.1 x 10 ⁴	
Volume Resistivity (Ohms/cm)	2.7 x 10 ¹⁴	

Thermal Properties

Thermal Conductivity W/m°C	Coefficient of Thermal Expansion (cm/cm°C)	
0.180	- 50°C to 30°C 60 x 10 ⁻⁶	
	50°C to 110°C 209 x 10 ⁻⁶	

Storage Conditions

Store product at 16 to 27°C for maximum storage life. High temperatures reduce normal storage life.

Rotate stock on a "first in-first out" basis.

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).

Health & Safety Information

Precautions:

Causes severe eye irritation; may cause permanent eye damage. May cause sensitisation by skin contact. Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection. Launder contaminated clothing before re-use. Avoid prolonged breathing of vapours.

Avoid inhalation of dust when grinding or cutting cured material.

First Aid:

Eye Contact:
Immediately flush eyes with copious amounts of water for at least 15 minutes, holding eyes open. Call a physician.

Skin Contact:

Wash immediately with plenty of soap and water.

For further Health and Safety Information please contact the Toxicology Department at the Bracknell Head Office on (0344) 858000.