Scotch-Weld™

EPX™ Grey Epoxy Adhesive DP110

Product Data Sheet

Updated : March 1996
Supersedes : November 1993

Product Description

DP110 grey epoxy adhesive is a room temperature curing, two part epoxy adhesive supplied in 3M Duo-Pak cartridge for use with the 3M EPX Applicator.

DP110 offers the following features:

Fast curing with handling strength achieved in 20 minutes at room temperature.

A toughened epoxy adhesive with good peel strength.

1:1 premix system allowing gap filling.

High adhesion to metals..

Suitable for bonding metals and PCB mounting.

Physical Properties

Not for specification purposes

	BASE	ACCELERATOR
Base	Modified Epoxy	Modified Mercaptan
Specific Gravity	1.12	1.11
Viscosity (cP at 27°C)	40,000 - 90,000	30,000 - 70,000
Colour	White	Black
Work Life	9 - 15 minutes at 24°C.	
Handling Strength	20 minutes at 23°C	
Full Strength	2 days (test to 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. 7.5 N/cm	

Date : March 1996
EPX Grey Epoxy Adhesive
DP110

Performance Characteristics (Cont...)

Not for specification purposes

Overlap Shear Strength

The following strength values were obtained with DP110 grey when tested after 5 day cure cycle at 24°C.

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

	MPa	psi
Galvanised Steel	17.9	2600
Cold Rolled Steel	17.2	2500
FPL Etched Aluminium	24.1	2300
Copper	12.1	1750
Stainless Steel	16.9	2450
Brass	16.9	2450
Acrylic	3.3	390
PVC	2.7	480
Polycarbonate	4.6	660
Neoprene/Steel	0.35	50
SBR/Steel	0.55	80
ABS	4.7	680
FRP	9.7*	1400*

* Denotes substrate failure

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
ABS	100	FRP	60

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)	3.9×10^4	
Volume Resistivity (Ohms/cm)	1.9×10^{12}	

Thermal Properties

Thermal Conductivity W/m°C	0.180	
Coefficient of Thermal Expansion (cm/cm/°C)		
- 50°C to 30°C	80×10^{-6}	
50°C to 110°C	200×10^{-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.

Date : March 1996
EPX Grey Epoxy Adhesive
DP110

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.

Specialty Tapes & Adhesives

3M United Kingdom PLC
3M House,
28 Great Jackson Street,
Manchester,
M15 4PA

Customer Service :

Tel 0161 236 8500
Fax 0161 237 1105

3M Ireland
3M House, Adelphi Centre,
Upper Georges Street,
Dun Laoghaire,Co. Dublin,
Ireland

Customer Service :

Tel (01) 280 3555
Fax (01) 280 3509