

EUROBOND Penloc 1:1

Product Description

Penloc 1:1 is a fast curing, 2-part toughened acrylic structural adhesive. Penloc will bond almost any material including most metals, plastics, glass, wood, concrete, GRP, modern composites, stone, jewels and much more in any combination. It can be applied either direct from the cartridge as two overlapping beads or for more critical applications the cartridge can be fitted with a 'Minimixer' nozzle or a 'Minitip'.

Penloc will cure to a handling strength in approx. 3 to 5 minutes depending on the ambient temperature and will fully cure in one hour. Penloc can be applied to untreated surfaces, but for best results we recommend lightly abrading both surfaces to remove any dirt or debris and cleaning with Isopropyl alcohol prior to bonding. Penloc will tolerate usual weathering and temperatures between -55 C and +125 C but it is not recommended for prolonged immersion in water.

Penloc is an exceptional adhesive and can be used for industrial, domestic and consumer applications. Penloc is available in 12ml, 25ml, 50ml, 400ml cartridges and 5Kg bulk container kits (2.5kg part A + 2.5kg part B).

Curing Properties

Curing	Time
Pot life	2-3 mins
Mixing ratio	1:1
Handling strength Approx	5 min
Full strength	1 hour
Setting Time	4 min

Technical Data

Resin	Acrylate
Appearance (Mixed)	Transparent, grey
Part A	Green
Part B	Pink

Uncured material

Viscosity [mPas] (Brookfield LVT, 25°C, Sp 4, 30rpm) PE-Norm 001	5 000
Density [g/cm ³] PE-Norm 004	1,2
Flash point [°C] PE-Norm 050	10

Contact Details

TECHSiL Limited
Unit 34, Bidavon Industrial Estate, Waterloo Road, Bidford on Avon, Warwickshire, B50 4JN
+44(0)1789 773232 | sales@techsil.co.uk | www.eurobond-adhesives.co.uk

Cured material

Hardness shore D PE-Norm 006	55
Temperature resistance [°C]	-40 - 150
Shrinkage [%] PE-Norm 031	<1
Water absorption [mass %] PE-Norm 016	<9
Glass transition temperature DSC [°C] PE-Norm 009	50 - 55
Young's modulus E [MPa] PE-Norm 056	462
Tensile strength [MPa] PE-Norm 014	8
Elongation at break [%] PE-Norm 014	4
Lap shear strength (steel/steel) [MPa]	27
Lap shear strength (stainless steel/stainless steel) [MPa]	21
Lap shear strength (Al/Al) [MPa]	22
Lap shear strength (PC/PC) [MPa]	*5
Lap shear strength (PMMA/PMMA) [MPa]	*3
Lap shear strength (polyester/polyester) [MPa]	3
Lap shear strength (PVC/PVC) [MPa]	8
Lap shear strength (ABS/ABS) [MPa]	*8

* substrate failure

Test Results

The test results shown were achieved after the following surface preparation; Steel: polished with emery paper, washed with acetone and dried in a desiccator for 24 hours. Other metals tested were washed with Trichloroethylene or acetone and dried in a desiccator for 24 hours. Plastics were washed with Methanol and dried in a desiccator for 24 hours

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Material	Tensile Shear Kg/cm ²
Steel/Steel	276
Zinc Chromate/Zinc Chromate	180
Nickel/Nickel	193
Chrome/Chrome	162
Brass/Brass	228
Stainless Steel/Stainless Steel	204
Copper/Copper	244
Aluminium/Aluminium	224
Zinc/Zinc	214
Epoxy FRP/Epoxy FRP	84*
Phenol FRP/Phenol FRP	65*
PVC/PVC	35*
Polyester/Polyester	31
Styrol/Styrol	24
ABS/ABS	47
PA-6 (Nylon 6)	20
Glass	50

Additional Data

In addition to the manufacturer's published data on the tensile shear strengths achievable on similar materials under ideal conditions, Techsil Ltd commissioned further independent tests on material combinations found specifically within the commercial signage industry. The materials were prepared and bonded under typical workshop conditions. The result are given below.

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Material	KN	Kg/Inch ²
Aluminium/Aluminium(Mill finish)	>5.00	>500
Aluminium/Aluminium (Chromated finish)	>5.00	>500
Stainless steel/Aluminium (Mill finish)	>5.00	>500
Stainless steel/stainless steel	>5.00	>500
Aluminium (Chromated) / Acrylic*	3.18	318
Aluminium (Chromated) / Polycarbonate*	3.00	300
Acrylic/Acrylic*	2.12	212
Acrylic*/Polycarbonate	2.27	227
Polycarbonate/Polycarbonate*	3.07	307
Komacel/Komacel*	0.65	65.6
Zintec/Zintec*	5.00	>500

NB. Tensometer had testing facility up to 5.00KN

*Denotes substrate failure of particular material.

Transport/Storage/Shelf Life

Trading unit	Transport	Storage	Shelf-life*
Cartridge	at room temperature max. 25°C	at room temperature max. 25°C	at delivery min. 4,5 months max. 9 months
Other packages			

*Store in original, unopened containers!

Instructions for Use

Surface preparation

The surfaces to be bonded should be lightly abraded, free of dust, oil, grease or other dirt in order to obtain an optimal and reproducible bond.

For cleaning we recommend using Techsil Surface cleaning wipes or liquid IPA. Substrates with low surface energy (e.g. polyethylene, polypropylene) must be pre-treated in order to achieve sufficient adhesion.

Application

Our products are supplied ready to use. Depending on packaging they can be applied by hand directly from the container or semi or fully automatically. With automated application from the cartridge the adhesive is conveyed by a compressed air-operated displacement plunger via a valve in the needle.

The cartridge must be raised 2 minutes vertically (tip up) before opening, to allow trapped air to rise. The cap should be kept for re-closure.

For adhesive packaged in white 50ml cartridges unscrew cap, snap off plug and apply mixer nozzle. For adhesive packaged in black 12ml or 50ml cartridges press green cap down firmly on a hard surface to pierce cartridge. Remove cap and fit our unique Mini mixer nozzle.

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With "bead on bead" application, both components are dosed one "on top" of the other. When dosing with a "Microstatic Mixer", both components are mixed in the nozzle.

Adhesive and substrates should be warmed up to room temperature prior to processing. After application bonding of the parts should be done quickly.

For safety information refer to our safety data sheet.

DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy themselves as to the suitability of such information for their particular use.

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