



UK DISTRIBUTORS OF
REINHARDT-TECHNIK
Metering & Mixing
Dispensing Systems



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Technical Data Sheet

PENLOC 1:1 (GTi)

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, 380ml cartridges and 5Kg bulk container kits (2.5kg part A + 2.5kg part B).

Typical Properties

Colour when mixed	Translucent grey
Viscosity	3000 cps
Specific gravity	1.01
Temperature range	-55°C and +125°C
Cure to handling strength	3-5 minutes depending on ambient temperature
Cure to full strength	1 hour.

Test Results

The test results shown on table 1 on page 2, 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.

Table One

Material	Tensile Shear Kg/cm²
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

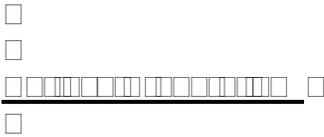
In addition to the manufacturer's published data on the tensile shear strengths achievable on similar materials under ideal conditions, Eurobond Adhesives Ltd commissioned further independent tests on material combinations found specifically within the commercial signage industry. The materials were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

Table Two

Material	KN	Kg/Inch²
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.



All surface should be abraded with medium grit emery paper, cleaned with Isopropyl alcohol and wiped dry with a clean low lint cloth. Do not use methylated or white spirits to clean substrates as these will degrade the adhesive and over time will cause or lead to failure. This degree of preparation is designed to represent typical working practices as opposed to laboratory conditions where solvent cleaning and chemical etching of surfaces might be employed.

All metal to metal samples produced tensile shear strengths of >500kg/inch², the limitation of the tensometer used being >500kg/inch² and the samples remaining intact.

NB.
Bonded area was one square inch in each case.



Steel to steel dipped for 7 days.

Blanked not dipped	283 kg/cm ²	0% loss
Petrol	246 kg/cm ²	13% loss
Water	225 kg/cm ²	20% loss
Caustic Soda 10%	223 kg/cm ²	21% loss
Xylene	195 kg/cm ²	31% loss
Ethyl Acetate	91 kg/cm ²	68% loss

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