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Reinhardt Technik Gmbh
Metering, Mixing & Dispensing Systems

PANACOL ELOSOL ADHESIVES

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Technical Data Sheet

Penloc 1:1

Penloc 1:1 is a high strength, toughened acrylic adhesive, which will bond metals, plastics, wood, glass and composites to themselves or in any combination.

Penloc 1:1 is a unique two part adhesive. It is applied direct from the cartridge as '2' overlapping beads, eliminating the need for mixing or via a minimixer nozzle or minitip. It produces clean, no waste applications and allows stop start production without blockage.

TYPICAL PROPERTIES

Colour (mixed) Grey opaque
Viscosity 3,000
Specific gravity 1.01
Temperature Range -55°C to 125°C

Handling strength 3-5 minutes
Working strength 30-60 minutes
Full strength 24 hours

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 desicator for 24 hours.

OTHER METALS: Washed with Trichloroethylene, washed with acetone, then dried in desiccator for 24 hours.

PLASTICS: Washed with methanol, dried in desiccator for 24 hours.

TABLE ONE

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

TABLE TWO

MATERIAL	KN	KG/IN^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 / Acrylic* (Chromated)	3.18	318
Aluminium / Polycarbonate* (Chromated)	3.00	300
Acrylic / Acrylic*	2.12	212
Acrylic* / Polycarbonate	2.27	227
Polycarbonate / Polycarbonate*	3.07	307

TABLE TWO Continued

Komacel / Komacel* 0.65 65.6

Zintec / Zintec 5.00 >500

N.B. Tensometer had testing facility up to 5.00KN

*Denotes substrate failure of particular material.

ADDITIONAL DATA

In addition to the manufacturer's published data on the tensile shear strengths achievable on similar materials under ideal conditions, Eurobond have commissioned further tests on material combinations found within the Sign Industry, prepared and bonded under typical workshop conditions (see under 'Surface Preparation' following). Results are given in Table 2.

Surface Preparation

All surfaces should be abraded with medium grit emery paper, cleaned with Isopropyl alcohol and wiped dry with a clean cloth. **DO NOT** use petroleum based products such as Methylated Spirits or White Spirits to clean surfaces as these will degrade the adhesive over time and lead to bond 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 >500 kg/inch^2, the limit of the tensometer used being 5Kn, and the samples remaining intact.

N.B.

Bonded area was one square inch in each case.

Chemical Resistance

Steel to steel dipped for 7 days.

Blank not dipped	283kg/cm²	0% loss.
Petrol	246kg/cm²	13
Water	225kg/cm²	20
Caustic Soda 10%	223kg/cm²	21
Xylene	195kg/cm²	31
Ethyl Acetate	91kg/cm²	68