

KIWOPRINT L4002

1. DESCRIPTION

Crosslinking, solvent based pressure sensitive adhesive

KIWOPRINT L4002 is a crosslinking, high performance screen printable adhesive especially suitable for bondings which will be exposed to direct sunlight. Excellent for use in the production of decals, automotive moisture barriers and instrument panels. Depending on the characteristics of the substrate, materials bonded with KIWOPRINT L4002 are very difficult to remove or even permanent. Excellent UV light and aging resistance.

2. PEEL AND TAC VALUE

TACK VALUE *2	~800g
PEEL VALUE: 15 min *3	17.5 N/cm 3.97 lb/in*
PEEL VALUE: 72hr *3	35 N/cm 7.94 lb/in*

TACK *1: 90µ wet film thickness. Measured with Polyken Tack Tester, 1 sec. adhering, pull-off speed: 0.5 cm/sec.

Note: Slightly lower values may result from screen printing due to mesh structure/ mesh thickness.

*2: Bonding area 2.5cm x 10cm or approx. 1 x 4 in. 90µ wet adhesive film on polyester. 180° peel angle. Measured with Yugscherbank BE-T-EX according to ASTM. Bonded to polished stainless steel (raw material 1.4301) with hand roller as per PSTC standard: roller weight 10 lbs, 5 times each direction.

* lb/in values were calculated from N/in measurement.

Note: The peel value for KIWOPRINT L4002 depends on the surface structure of the resulting adhesive film among other variables. Surface structure may vary due to differences in application.

3. SUBSTRATES

Rigid PVC, glass, metal, cardboard and industrial foams as well as polycarbonate, polyester, polyethylene and polypropylene and other industrial plastics can be used with KIWOPRINT L4002. *Polystyrene may also be used, though it must be noted the solvent may craze the surface. If visibility of the crazed surface is not a problem, the crazing may actually contribute to higher peel strength.* **NOTE:** Test all substrates for compatibility. (i.e. plasticizers in soft PVC may soften the adhesive resulting in lower adhesion.)

4 RESISTANCE

The adhesive is resistant to water, diluted watery acids and solutions, as well as mineral oils.

5. MESH SELECTION

Range: 54 - 110 threads/in or 21T – 43 threads/cm. The coarser the mesh, the higher the adhesive strength. •Commonly used: 60 - 92 tpi or 24- 36 tpcm.

6. STENCIL SELECTION

Solvent-resistant direct emulsions must be used such as KIWOCOL POLY-PLUS S, HV, SWR or KIWOCOL 31.

7. REDUCING

KIWOPRINT L4002 is ready to use when printing at/ around 20°C or 68°F. At higher working temperatures KIWOPRINT L4002 should be thinned with approximately 5% Mecotherm Thinner or KIWOSOLV L 74 (formerly Reducer L74) to avoid the spider webbing/ string formation. KIWOSOLV L 14 S (formerly Reducer L 14 S) can also be substituted when needed. Test all modifications before using in production.

8. DEFOAMING

KIWOMIX ZL 1059 can be used if the adhesive foams during printing or if the adhesive exhibits wetting problems when printed over ink.

The proper ratio is: 0.5-3% KIWOMIX ZL 1059 to 100% KIWOPRINT L4002. Start with a minimum amount (.5 to 1%) of KIWOMIX. Increase only as needed. Use of more than 3% KIWOMIX will noticeably reduce peel strength and may actually hinder flowout.

Test all modifications before using in production.

9. ADHESIVE COLORS

Pigmenting the adhesive can reduce the peel strength; therefore, it is not recommended.

Kiwoprint TC or L products colored with dye are available in full batch quantity (~800 Kg) on special order.

10. APPLICATION METHOD

Screenprinting, roll coating, or brush. When screenprinting use a medium shore squeegee(60-70 durometer/ ShoreA).

The optimal printing temperature is around 20°C / 68°F

11. DRYING

By room temperature or conventional IR dryers. Drying time depends on type and quantity of adhesive, substrate, drying temperature, and air movement.

Highest bonding strength is achieved only when all the solvent is evaporated from the adhesive film.

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12. CLEANING

Wet/Dry: Mecotherm Thinner
KIWOSOLV L74 (formerly Reducer L74)

13. DIE CUTTING

After crosslinking, KIWOPRINT L4002 may be die-cut.

Crosslinking occurs within 2-3 days at room temperature; though it can be crosslinked quickly at 90°C or 194°F for 3 min.

Die cutting before the adhesive has crosslinked will cause adhesive to accumulate on the blade of the die.

14. BACKLIT PARTS

Backlit windows should not be covered with adhesive as this will change the light intensity.

15. PHYSICAL PROPERTIES

BASE: Acrylic polymer in solvent containing butylacetate

COLOR: colorless to slightly yellow

TEMPERATURE RESISTANCE: -22°F to +140°F under 30g load
-30°C to +60°C under 30g load

Tested with 10 x 2.5 cm or 4 x 1 in adhesive area, 90µ wet film of adhesive, polyester substrate bonded to stainless steel.

Higher temperatures are possible when there is no load.

VISCOSITY: Approx. 75 sec. (DIN cup, 4mm nozzle)

SOLIDS CONTENT: Approx. 50%

DENSITY: Approx. 0.95 g/ccm

VOC: 475 g/l
3.95 lbs/Gal

PRECAUTIONS/
ENVIRONMENTAL IMPACT: Please see the MSDS

STORAGE: 1 year at 20°C / 68°F in properly closed original container

16. PACKAGING

4.5 kg =Approx. 1 Gal

17. STORAGE OF PRINTED PARTS:

Articles coated with KIWOPRINT L4002 remain stable for at least one year, without showing any remarkable loss of adhesion strength, if stored correctly. Correct storage means covered with suitable silicon paper in dry, dark conditions at normal room temperatures (approx. 20°C or 68°F).

18. ADHESION:

Bonding with KIWOPRINT L4002 can be improved by:

- A. Using parts free of mold release agents or substances such as fats, oil, wax dust impregnations, etc. (Make sure all parts that come in contact with the adhesive are dry.)
- B. Optimum application temperature : 20-60°C.or 68-140°F
- C. Additional pressure (approx.: 3-4 bar) with a heated silicone rubber pad 40-50°C.or 104-122°F
- D. Preventing air bubbles and stretching the substrate during application.
- E. Flat and smooth substrate (i.e. pressure molding parts without burrs or sprue marks.)
- F. Sufficient adhesion surface area relative to total surface area.

19. PRECAUTIONS:

The following recommendations need to be considered:

- A. Check the specifications/ requirements such as tack values, peel strength, climate, temperature and UV resistance.
- B. Choose a suitable substrate and test for compatibility with the KIWOPRINT L4002. Example: soft PVC may interact with the adhesive layer.
- C. If direct contact between printing ink and adhesive will occur, test for compatibility, as some inks may interact with the adhesive layer. . Long term compatibility with the applied printing inks and substrates is of special importance. Also, test the influences of the liner material and the substrate plasticity (roughness, residues from separating agents and plasticiser migration.)

All products mentioned in this technical data sheet are available through KIWO. For further information contact KIWO at 1-800-KIWO-USA.

Thank you for choosing KIWO.

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