

KIWOPRINT® L 4000

1. DESCRIPTION

Crosslinking, solvent based pressure sensitive adhesive

KIWOPRINT L4000 is a high quality pressure sensitive adhesive used for the production of self adhering materials made of cardboard, rigid PVC, polycarbonate, polyester, polyethylene, polypropylene, glass, metal and industrial foams to self adhering items. Materials bonded with KIWOPRINT L4000 are very difficult to remove or even permanent depending on the substrate type. Recommended for use in areas where the adhesive is exposed to light e.g. for displays behind glass, transparent films, decals, etc. Bondings are resistant to water, diluted watery acids and alkali solutions, as well as to many mineral oils.

Materials coated with KIWOPRINT L4000 can be stored for a minimum of 1 year without any decrease of adhesive strength, if covered with a suitable silicon release paper and kept dry and dark at room temperature.

2. APPLICATION/ PROCESSING

METHOD

Screen printing, roll coating, or brush. When screen printing use a medium shore squeegee (~70 durometer / Shore A).

The optimal printing temperature is around 20°C / 68°F; though, it is suitable for application at higher room temperatures such as: 20 - 28°C or 68 - 82°F.

MESH SELECTION

Range: 27 - 77 threads/cm or 70 - 196 threads/in. The coarser the mesh, the higher the adhesive strength. In general, meshes between 34 - 43 threads/cm or 86 - 110 threads/in are common.

Adhesive coverage is approx. 35 g/m² or 285.7 ft²/kg when applied to polyester using 43 threads/cm or 110 threads/in mesh, depending on application conditions.

STENCIL SELECTION

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

REDUCING/ CLEANING

KIWOPRINT L4000 is ready to use. If thinning/cleaning is desired, use KIWOSOLV L 14. Test all modifications before using in production.

DEFOAMING

Depending on the ink formulation, KIWOPRINT L 4000 may exhibit wetting or flow problems when printed in direct contact with ink. These problems can generally be avoided by adding 0.5 - 2.0% KIWOMIX ZL 1058. Note: too much KIWOMIX ZL 1058 will noticeably reduce peel strength and may actually hinder flow out.

DRYING

KIWOPRINT L4000 is slow drying. At room temperature or using conventional tunnel dryers for industrial production. The adhesive

must be completely dry and transparent before a release liner is applied or further processing undertaken.

DIE-CUTTING

After cross-linking, KIWOPRINT L4000 may be die-cut. Cross-linking occurs within 2-3 days at room temperature; though it can be cross-linked quickly at 90°C or 194°F for 3 min.

Die cutting before the adhesive has cross-linked will cause adhesive to accumulate on the blade of the die.

BACKLIT PARTS

Back-lit windows should not be covered with adhesive as this will change the light intensity.

NOTICE

The suitability of the adhesive together with each component i.e. substrate, ink, liner, adhesion partner etc. must be tested before production parts are made. Special attention should be paid to long term compatibility with component materials. Also one must check the influences of the line material and the state or nature of the substrate's structure or roughness. Silicone release agents, plasticizer migration etc. must be checked for and ruled out before one continues.

3. TECHNICAL DATA

Screen printed on 50µ polyester film. Peel strength & tack values resulting from smooth adhesive layers.

Screen mesh	27-120/cm	36-90/cm	43 T/cm	77 T/cm
	70-120/in	92-90/in	110 T/in	196 T/in
Drying at 20°C or 68°F	80 min.	60 min.	50 min.	30 min.
Drying at 70°C or 158°F	2.8 min.	2.2 min.	2 min.	1 min.
Dry Coating Thickness (*1)	15 µ	9 µ	8 µ	6 µ
Tack value (*2)	~ 1000g ~ 35.3 oz	~ 550g ~ 19.4 oz	~ 500g ~ 17.6 oz	~ 400g ~ 14.1
Peel Strength: 15 min. (*3)	~ 5.0 N/cm 2.9 lb/in	~ 4.0 N/cm 2.3 lb/in	~ 3.0 N/cm 1.7 lb/in	~ 2.5 N/cm 1.4 lb/in
Peel Strength: 72hr (*3)	~ 7.5 N/cm 4.3 lb/in	~ 6.0 N/cm 3.5 lb/in	~ 5.0 N/cm 2.9 lb/in	~ 4.0 N/cm 2.3 lb/in

(*1) Difference measurement per DIN 50981, with PERMASCOPE M 11 thickness guage by Helmut Fischer GmbH + Co.

(*2) 90µ wet film thickness. Measured with Polyken Tack Tester, 1 sec. adhering, pull-off speed: 1 cm/sec.

(*3) Peel strength per PSTC-1; measured in N/cm. Peel angle 180°, measured 15 min. and 72 hrs. after adhering. Measured on a Lloyd type L 500 by Lloyd Instruments, load cell 100 N [or 22.7 Lbs] / Class 1, DIN 51221 for tension & pressure. Peel speed: 300mm/min. Bonded to polished stainless steel (material 1.4301) with hand roller as per PSTC-Standard: roller weight 10 lbs, 5 times each direction. Bonding area: 2.5 x 10 cm or 1 x 4 inches.

4. PROPERTIES

BASE: Acrylic polymer in solvent solution

COLOR: Colorless to slightly yellow

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

Tested with 10 x 2.5 cm or 4 x 1 in adhesive area, 90µ wet adhesive thickness, polyester bonded to stainless steel, 30g load.

VISCOSITY: Approx. 70 sec.
(Cup per DIN EN ISO, 4mm nozzle)

SOLIDS CONTENT: Approx. 38%

DENSITY: Approx. 0.93 g/ccm

VOC: 576 g/l
4.80 lbs/Gal

PRECAUTIONS/
ENVIRONMENTAL
IMPACT: Please see the MSDS

STORAGE: 9 mo. @ 20-25°C / 68-77°F in properly closed original container

5. PACKAGING

4.5 kg = Approx. 1.278 Gal
180 kg = Approx. 51.12 Gal

6. ADHESION

Adhesion 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.

7. Additional information

For additional product information, please visit our web site at www.kiwo.com. All products mentioned in this technical data sheet are available through KIWO Inc. and its distributor network. For further information contact your KIWO distributor or KIWO direct.

Thank you for choosing **KIWO**.