Technical Information

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KIWOPRINT® L 4002

1. DESCRIPTION

Crosslinking, solvent based pressure sensitive adhesive

KIWOPRINT L 4002 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 L 4002 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. Bondings are resistant to water, diluted watery acids and alkali solutions, as well as to many mineral oils.

Materials coated with KIWOPRINT L 4002 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).

MESH SELECTION
Range: 21 - 43 threads/cm or 54 - 110 threads/in. The coarser the mesh, the higher the adhesive strength. In general, meshes between 24 – 36 threads/cm or 60 - 92 threads/in are common.

Adhesive coverage is approx. 55 g/m^2 or 181.8 ft^2/kg when applied to polyester using 36 threads/cm or 92 threads/in mesh, depending on application conditions.

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

REDUCING/ CLEANING
The ideal printing temperature is approx. 20°C / 68°F. At higher working temperatures KIWOPRINT L 4002 must be thinned with approx. 5% KIWOSOLV L 74 to avoid string formation or webbing.

Test all modifications before using in production. Reducing the adhesive can negatively influence printing characteristics and peel strength.

DEFOAMING
Depending on the ink formulation, direct contact with KIWOPRINT L 4002 may cause wetting or flow disturbances. These can generally be avoided by adding 0.5 – 2.0% KIWOMIX ZL 1059. Note: too much KIWOMIX ZL 1059 will noticeably reduce peel strength and may actually hinder flow out.

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. Drying time depends on the adhesive quantity, type of carrier, drying temperature and air circulation. Only completely dried adhesive films provide the best bond results.

DIE-CUTTING
After cross-linking, KIWOPRINT L 4002 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 liner 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

PEEL STRENGTH

Initial peel (15 minutes bonded):	~ 17.5 N/cm ; 9.992 lb/in
24 hr. peel strength:	~ 35 N/cm ; 19.985 lb/in

Peel angle 180°, Measured on a shear tension meter by BE-T-EX per ASTM. Bonding area: 2.5 x 10 cm or 1 x 4 inches, 90µ adhesive wet film thickness with hand roller onto polyester film.

Notice: The peel strength depends on the surface structure of the adhesive film (which differs depending on the method of application) and the applied coating thickness.

TACK STRENGTH
Approx. 800 g.

Measured with Polyken Tack Tester. 90µ wet film thickness with hand coater onto polyester film.

Notice: When screen printing, slightly lower values can be achieved due to the mesh structure of different meshes.

4. PROPERTIES

BASE:	Acrylic polymer in solvent solution
COLOR:	Colorless to slightly yellow
TEMPERATURE RESISTANCE:	-30℃ to +60℃ -22℉ to +140℉

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. 1000 mPas (Rheomat STV, measuring system C III, 20℃)
SOLIDS CONTENT:	Approx. 50%
DENSITY:	Approx. 0.95 g/ccm
VOC:	408 g/l 3.4 lbs/Gal
PRECAUTIONS/ ENVIRONMENTAL IMPACT:	Please see the MSDS
STORAGE:	9 mo. @ 20-25℃ / 68-77℉ in properly cl osed 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℃.or 68-140 ℉

C. Additional pressure (approx.: 3-4 bar) with a heated silicone rubber pad 40-50℃.or 104-122℉

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.

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