

## KIWOPRINT® L 1050

### Solvent based screen printable, pressure sensitive adhesive

KIWOPRINT L 1050 is a high-quality pressure-sensitive adhesive for the production of wet and dry transfers. Materials bonded with KIWOPRINT L 1050 can be stored for a minimum of 1 year without any decrease of adhesive strength, if covered with a suitable silicone paper and kept dry and dark at room temperature. In general, the adhesive films are sufficiently light fast. Trials are absolutely essential if direct influence of sunlight is expected. Bondings made with KIWOPRINT L 1050 are water resistant.

#### PREPARATION

Observe the following advice when producing self-adhesive materials:

1. Check the requirements, such as e.g. requested adhering strength, climatic strain, temperatures and UV resistance.
2. Choose the correct substrate and test compatibility with KIWOPRINT L 1050 (e.g. soft PVC film influences the adhesive layer).
3. In case of a direct contact of KIWOPRINT L 1050 with the printing inks, check compatibility of the inks. Kind and type of ink can influence the adhesive.
4. The correct choice of the mesh count is decisive for screen printing applications. The coarser the mesh, the higher is the build-up thickness and therefore the adhesion strength. For the production of temporary tattoos usually a mesh of 68 to 100 threads/ cm is used.
5. For screen printing applications, solvent resistant emulsions of the AZOCOL range can be used. Ask KIWO for advice.
6. Choose the correct covering material. For surfaces of KIWOPRINT L 1050, silicone liners with medium separation values are suitable.

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 made for the long-term compatibility with the 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.

#### APPLICATION

When screen printing, optimum adjustment of the printing machine determines the print result. Best results are achieved with stencils with high tension (25-30N/cm). Snap-off should be medium (2-4 mm), print velocity average to high (from 400 mm/s). This largely prevents the formation of bubbles. During short printing breaks the stencil should be flooded with adhesive. If the printing breaks are longer than 5 - 10 min. the screen has to be cleaned.

Stir well before use. KIWOPRINT L 1050 should not be thinned for application. Thinning with KIWOSOLV L 17 is possible, however, thus solids content, coating thickness and consequently the adhesive strength is reduced.

The adhesive can be dried at room temperature or in tunnel dryer for industrial production. Temperatures of up to +70°C can be applied without damaging the adhesive. Drying time depends on the applied adhesive thickness, kind of substrate, drying temperature and air flow. Test and optimize the most suitable values at your facility.

Only completely dry adhesives achieve highest bonding values. For further processing the applied adhesive must completely be dry; only then should the silicone paper be applied. A bubble-free laminating of the liner is recommended, as enclosed air influences the adhesive layer.

To avoid die cutting problems, the adhesive layer should end 0,5 – 1,0 mm in front of the punch line. Back-lit areas will not be printed as the adhesive film has an influence on the light intensity.

## **ADHERING**

Adhesion of self-adhesive products with KIWOPRINT L 1050 can be promoted by the following factors:

1. Substrate and adhering partners should be free of dust and stripping agents.
2. Optimum adhering temperature: 20-50°C.
3. Additional contact pressure (approx. 20 N/ cm<sup>2</sup>) with a heated silicone-rubber stamp (40-50°C).
4. Tension- and bubble free adhesion.
5. Even and smooth substrate (e.g. injection moulding part without holes and edges).
6. Sufficient adhesion area, compared to the total area.

## **TECHNICAL DATA**

<b>BASIS</b>	Synthesis caoutchouc
<b>COLOUR</b>	Wet: Transparent to slightly yellowish Dry: Transparent
<b>VISCOSITY</b>	1.300 mPas (Brookfield RVT, spindle 2, 20 r/min, 20°C)
<b>SOLIDS CONTENT</b>	Approx. 45,5%
<b>DENSITY</b>	Approx. 0,92 g/cm <sup>3</sup>
<b>FLASH POINT</b>	Approx. +25°C
<b>PEEL VALUE</b>	Approx. 10 N/ inch (after 1 min bonding time) Approx. 17 N/ inch (after 24 h bonding time)

90 µm adhesive thickness onto 50 µm polyester film. Tested according to PSTC 1. Measured at 23°C with peel tester type L 500 from Lloyd

Instruments. Load cell 100 N, class 1, DIN EN ISO 7500-1 for tension and pressure, peel speed 300 mm/min., peel angle: 180°. Applied to polished stainless steel using a hand roller (10 pounds, rolled 5 x in each direction) and measured after the corresponding bonding time at 23°C. Adhesion area: 2,54 x 10 cm.

**DYNAMIC  
SHEAR STRENGTH**

Approx. 146 N/ inch<sup>2</sup>

90 µm adhesive thickness onto 50 µm polyester film. Measured at 23°C with peel tester type L 500 from Lloyd Instruments, load cell 2500 N, class 1, DIN EN ISO 7500-1 for tension and pressure, peel speed 0,1 inch/min. Bonded onto a 50 µm polyester film using a hand roller (10 pounds, rolled 5x in each direction). Adhesion area: 1 x 1 inch. Measurement after 24 hours.

**STATIC  
SHEAR STRENGTH**

Approx. 60 s

90 µm adhesive thickness onto 50 µm polyester film. Bonded onto a 50 µm polyester film using a hand roller (10 pounds, rolled 5x in each direction). Adhesion area: 1 x 1 inch. Measurement after a bonding time of 24 hours. After 15 min. tempered in a drying cabinet at +105°C the shear stress was tested by hanging an extra weight of 1 kg onto the sample.

**TACK VALUE**

Approx. 800 g

90 µm adhesive thickness onto 50 µm polyester film. Measured with Polyken Tack-Tester at 23°C, adhesion: 1 s, peel speed; 0,5 cm/s. Measured with specimen holder A.

**HEAT PEEL  
RESISTANCE**

Approx. +60°C

90 µm adhesive thickness onto 50 µm polyester film. Applied to polished stainless steel using a hand roller (10 pounds, rolled 5x in each direction), adhesion area: 2,54 x 10 cm. The bond is stabilised in a drying cabinet headfirst, temperature induced stress was tested by hanging a 30 g weight onto the sample (peel angle: 90°). Measurement at 40°C, temperature is then increased every 15 min. by 10°C until the sample falls off of the polished stainless steel.

**HEAT  
SHEAR STRENGTH**

Approx. +90°C

90 µm wet adhesive thickness on 50 µm polyester film and dried at 50°C. Tested according to ASTM D 4498 (SAFT = Shear Adhesion Failure Temperature). Bonded onto a 50 µm polyester film using a hand roller (10 pounds, rolled 5x in each direction). Adhesion area: 1 x 1 inch. Test after 24 h earliest. After drying for 15 min in a drying cabinet at +40°C, shear strength is tested by hanging a 500 g weight onto the sample. Test is started at 40°C, temperature is then increased every 10 min. by 5°C until the sample falls off the substrate.

**UV RESISTENCE  
REDUCING/  
CLEANING**

Conditionally  
KIWOSOLV L 17

**HEALTH HAZARDS/  
ENVIRONMENTAL  
PROTECTION**

When working with KIWOPRINT TATTOO L 1050 ensure sufficient ventilation of the working areas.

Please follow further information given in the material safety data sheet.

**STORAGE**

9 months (at 20 - 25°C and tightly closed original container)