

KIWOPRINT® UV 27

Screen printable, pressure sensitive adhesive based on UV-cross-linking polymers, removable without residues

KIWOPRINT UV 27 is a high quality, screen print applied, pressure sensitive adhesive for the production of articles of paper, cardboard and plastic foils which can be removed repeatedly. KIWOPRINT UV 27 has good ageing resistance. The cross-linked film is slightly yellowish and conditionally resistant to UV-light. Very good water resistance

PRECAUTIONS

For the production of self-adhesive materials the following has to be considered:

1. Check requirements such as adhesion strength, climatic load, temperature and UV-resistance.
2. Choose a suitable substrate and test for compatibility with KIWOPRINT UV 27 (e.g. soft PVC-film may interact with the adhesive layer).
3. If direct contact between printing ink and adhesive may occur, test for compatibility, as some inks may interact with the adhesive layer.
4. When screen printing, the selection of the mesh type is essential in determining the desired result. The coarser the mesh count, the thicker the adhesive and the better the wetting of the substrate. For technical applications stencils with a mesh of 43 to 77 threads/ cm are commonly used.
5. When screen printing, solvent resistant emulsions of the AZOCOL range must be used. Ask KIWO for advice.
6. Choose a suitable release liner. Very smooth silicone paper or siliconized film of medium release should be used.

The compatibility of the adhesive to each component i.e. carrier, ink, release liner, adhesion partner, etc. as well as the job specifications must be tested before use in production. Focus should be on the long-term compatibility of the adhesive with the used inks and substrates. In order to achieve an even and reproducible removal of the different printing inks it is recommended to apply a colourless, well-adhering varnish, e.g. Maraflex FX No. 910 on the complete surface. The influences of the release liner and the quality of the substrate (roughness, silicone release agents, plasticizer migration) must be tested as well.

PROCESSING

When storing for a longer period of time additives may separate on the surface, stir well prior to use.

When screen printing, optimal press adjustment can determine the quality of the resulting print, e.g. air bubbles in the adhesive layer can be avoided. Best printing results can be achieved with a high mesh tension (25-30 N/cm). The snap-off should be 3-5 mm, the printing speed slow to medium. The printing

image produced using KIWOPRINT UV 27 is very smooth. In general, it is bubble free. Due to the light sensitivity of the liquid adhesive it is recommended to process the adhesive under yellow light or at least not in directly illuminated areas. Thinning with solvents or monomer reducers is neither reasonable nor necessary.

Drying of UV-pressure sensitive adhesives is not done in the conventional way. KIWOPRINT UV 27 chemically cross-links when exposed to UV-light. Use common UV-curing units normally used for UV printing inks. The optimum curing range should be established using one's own production equipment and conditions. It is absolutely necessary to control the UV-power permanently during production to guarantee uniform product quality. Only properly cross-linked adhesive films give highest bond values.

CLEANING KIWOSOLV L 72

TECHNICAL DATA

BASE UV-reactive polymers

COLOUR Colourless

VISCOSITY Approx. 3000 mPas (Brookfield RVT, spindle 4, 20 r/min, 20°C)

SOLIDS CONTENT 100%

DENSITY Approx. 1,06 g/cm³

**CROSS-LINKING/
UV LIGHT REACTION** Below technical data of the adhesive layer were determined with test samples which were cross-linked as follows:

Lamp type: 120 W/ cm, mercury vapor lamp
Mesh: 77-55 (T)
Radiation dose 450 mJ/ cm²

PEEL STRENGTH < 1 N/inch (after 24 h bonding time)

Screen printing 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 5x in each direction) and measured after the corresponding bonding time at 23°C. Adhesion area: 2,54 x 10 cm.

**DYNAMIC
SHEAR STRENGTH** Approx. 110 N/ inch²

Screen printing 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. 3500 sec

Screen printing 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.

HEAT SHEAR STRENGTH

>160°C

Screen printing onto 50 µm polyester film. 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 minutes by 5°C until the sample falls off the substrate.

HEALTH HAZARDS/ ENVIRONMENTAL PROTECTION

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

STORAGE

1 year (at 20-25°C and tightly closed original container)

Notice: Do not store or transport at over 40°C.

Protect against direct sun exposure or other UV-light sources.