

KIWOPRINT® D 153 HV

Acrylate and dispersion based, screen printable, pressure sensitive adhesive, does not contain APEO

KIWOPRINT D 153 HV is a high quality, screen printable, pressure sensitive adhesive for the production of self-adhesion materials e.g. for the automotive and electronic industry. It is very suitable for products that have to be very resistant to aging. KIWOPRINT D 153 HV has a high shear strength, good heat and water resistance. The dried adhesive film is colourless and very resistant to yellowing.

PRECAUTIONS

For the production of self-adhesive components the following facts have to be considered:

1. Check requirements like adhesion strength, climatic load, temperature and UV-resistance.
2. Choose a suitable substrate and test for compatibility with KIWOPRINT D 153 HV (z. B. soft PVC 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 for the desired result. The coarser the mesh count, the thicker the adhesive layer and the higher the adhesive values.
5. When screen printing, water 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 should be used. The adhesive layer orients itself to the release liner and the smoother the release liner is, the smoother the adhesive layer will be after 24 hours. Also, the silicone layer must be compatible to assure a proper release from the adhesive.

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, optimal adjustment of the printing machine can determine the print result. Best printing results can be achieved using a stencil with high mesh tension (25-30 N/ cm). High air humidity facilitates the application of dispersion adhesives. During short printing breaks the stencil should only be flooded with adhesive. If printing breaks are longer than 10 - 15 min. the screen has to be cleaned from the adhesive. Water can be used to clean fresh adhesive. Dried adhesive can be removed with PREGAN 1014 E.

Stir well prior to use. KIWOPRINT D 153 HV can be thinned with up to max. 5% of water.

The adhesive can be dried by storage at room temperature or by tunnel dryer for industrial production (up to +70°C). Drying time depends on the quantity of adhesive to be dried, substrate type, drying temperature and air movement. Best values have to be determined or optimized on the respective equipment.

Notice: Completely dried adhesive layers are transparent.

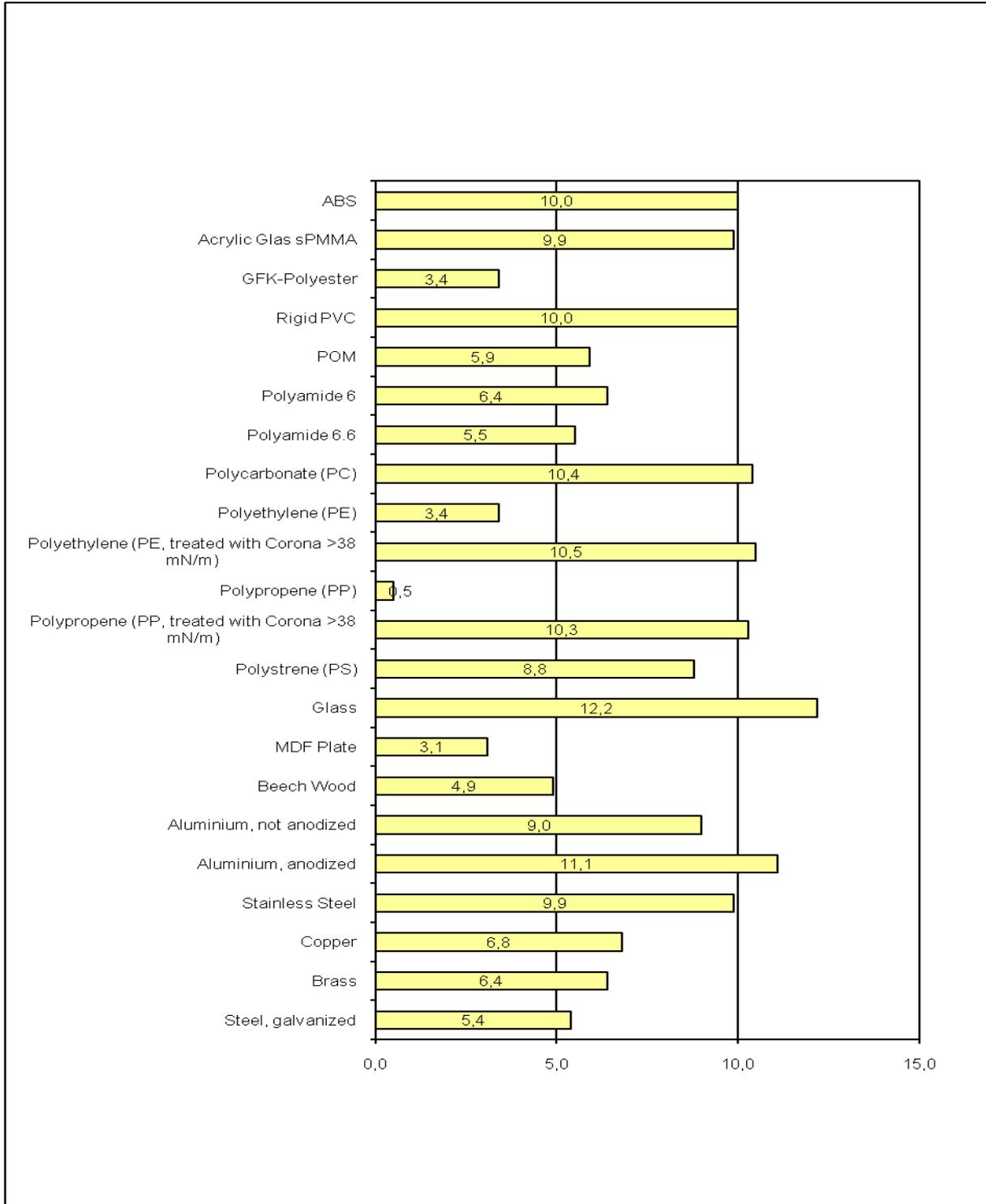
Only properly dried adhesive layers give highest bond values. For further processing the applied adhesive must be completely dry, only then should the silicone paper or film be applied. Avoid air traps between release liner and adhesive as trapped air will influence the adhesive surface.

ADHERING

Bondings of self-adhesive components produced with KIWOPRINT D 153 HV can be improved by:

1. Dust and oil free parts
2. Optimum application temperature: 20-60°C
3. Additional pressure (approx. 20N/ cm²) with a heated silicone rubber pad (40-50°C)
4. Preventing air bubbles and stretching the substrate during application
5. Flat and smooth substrate (e.g. pressure molding parts without burrs or sprue marks)
6. Sufficient adhesion surface area relative to total surface area

Peel values of KIWOPRINT D 153 HV on various substrates:



Tested according to PSTC 1. Measured 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 angle: 180°, 90 µm wet coating on 125 µm polycarbonate film, measured after 72 h-storage at ambient temperature (according DIN 50014-23/50-1). Peel speed 300 mm/min. Applied with a hand roller (according to PSTC standard: 10 pounds, rolled 5 times in each direction). Adhesion area: 2,5 x 10 cm, measurement unit: N/cm.

TECHNICAL DATA

BASIS	Aqueous acrylate dispersion
COLOUR	Wet: White Dry: Colourless, transparent
VISCOSITY	Approx. 60.000 mPas (Brookfield RVT, spindle 7, 20 r/ min, 20 °C)
SOLIDS CONTENT	Approx. 51%
pH-VALUE	Approx. 8,5
DENSITY	Approx. 1,01 g/cm ³

PEEL STRENGTH Approx. 10 N/inch (after 1 min bonding time)
 Approx. 28 N/inch (after 24 h bonding time)

Approx. 20 N (after 120 h testing climate DIN 50017-KK 40)
Approx. 9,8 N (after 5 h stored in water)

90 µm adhesive thickness onto 125 µm polycarbonate 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. 155 N/ inch² at 20°C

Approx. 120 N/ inch² (after 5 h stored in water)

90 µm adhesive thickness onto 125 µm polycarbonate 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.

**HEAT SHEAR
STRENGTH**

Approx. +120°C

90 µm wet adhesive thickness on 125 µm polycarbonate 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-RESISTANCE Good

WATER RESISTANCE Good water resistance also with high quality demands of the adhesion. Control test the for particular specifications are essential.

**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). Protect against freezing

KIWOPRINT D 153 HV should not get in contact with unprotected metal for a longer period of time.