
Screen Stretching with KIWOBOND Screen Frame Adhesives:

KIWOBONDS are a family of two component polyurethane frame adhesives. Frame adhesives require a slightly rough surface to grab hold of or bond well to. Sand blasted surfaces provide the best tooth for adhesion and provide the best reliability, but ground or sanded surfaces also work fine. When grinding or sanding frames be careful not to create too little or too much roughness, which can weaken the adhesive bond.

When re-stretching used frames, it is not necessary to remove the old adhesive, only contaminants like dirt, oil, or ink. You can apply KIWOBOND frame adhesive on top of old layers of KIWOBOND as long as the surface is smooth and clean. Uneven layers need to be removed with KIWO PREGAN DL adhesive remover or by sandblasting, grinding, or sanding.

KIWOBOND's have a limited pot life and should be mixed in working quantities just prior to use and should be covered when not in use. Ketchup type bottles make great containers for dispensing and extending the pot life by keeping the adhesive more air tight.

Troubleshooting Adhesion Problems:

- 1) Difficult bonding surface – Some frames are difficult to bond to because the surface is too smooth, too rough, too small, or because aluminum oxide formed on the surface. If mesh releases from the frame and the frame is clean with little to no adhesive residue, it may be caused by aluminum oxide, which can be virtually undetectable. Frame adhesives do not adhere well to aluminum oxide.

ALUMINUM OXIDE INDICATOR TEST: Use 10% dilution of copper sulfate into water e.g. 1 gram copper sulfate into 10 grams of water, mix and then add a few drops onto the frames surface. Use a few sprinkles of simple table salt as a catalyst to activate the reaction process.

If aluminum oxide is present, the liquid does not change color immediately. If no aluminum oxide is present, the liquid immediately turns brown.

KIWO's PREGAN PASTE, a caustic haze remover, can be used to chemically etch the surface of frames and to deep clean the surface removing difficult contaminants like aluminum oxide.

To improve bonding results, apply a primer coat of the two-component mixed KIWOBOND adhesive first using a brush, foam pad, or scraper applicator and allow it to dry before placing the frame in the stretcher.

For best bonding results on difficult surfaces, e.g. narrow or smooth bonding surfaces and some aluminum alloys, apply only the KIWODUR hardener (without mixing with KIWOBOND) as the primer coat.

- 2) Unclean or contaminated frame – Be sure to degrease frame to remove loose particles and oils. Common degreasing agents can be used and/or acetone. Be sure the bonding surface is dry before applying adhesive. As mentioned above, PREGAN PASTE may be

used to deep clean the frame's surface or to remove aluminum oxide. Thoroughly rinse the frame and dry prior to use.

- 3) Frame position in stretcher – If the frame is sitting too high above the clamp jaws of the screen stretcher, the steep angle of the mesh pulling over the frame causes the mesh to lift at the inside edge of the frame right where we need the best bond. The frame should be positioned only about ¼” above the clamp jaw.
- 4) Improper mixing ratios – All KIWOBOND frame adhesives are two-component consisting of the adhesive (KIWOBOND) and the hardener/catalyst (KIWODUR). All KIWOBONDS have a mixing ratio of 20% KIWODUR to 80% KIWOBOND **by weight**. **NOTE:** If mixing by volume, the mixing ratio is 10% KIWODUR hardener to 90% KIWOBOND adhesive.
- 5) Failure to get enough adhesive through the mesh – The adhesive becomes thicker during its pot life which may make it more difficult to penetrate through the small mesh openings of the finest meshes. Consider adding KIWO Reducer L72 to adhesive to lower the viscosity making it easier to flow through the mesh.
- 6) Poor bond at the inside edge of the frame – Place weights on the mesh a few inches away from the frame after stretching to hold the mesh down and in firm contact with the frame. This will assure a good bond at this critical area.
- 7) Imperfect mesh to frame contact – If you see a slight ripple in the mesh when applying frame adhesive, this means the mesh is lifting away from the frame and the KIWOBOND will not be able to secure the mesh to the frame properly at that spot. This is often seen in the corners of the frame where the welds have been ground down leaving low spots on the surface. If it improves surface contact, push the mesh down with your fingers close to the bonding area and work the adhesive in quickly while blowing onto the surface (or use a fan pointing away from you) to create a quick tack in this area.
- 8) Uneven frame surface caused by inconsistent layer of frame adhesive – One big advantage of using KIWOBOND frame adhesives is you can glue on top of old adhesive layer without removing it first, although the old layer must be flat and uniform to assure adequate bonding.
- 9) Incomplete drying – KIWOBOND frame adhesives are urethane based, which offer advantages over cyanoacrylate (CA) instant setting adhesives. For example, CA adhesives must be removed from the frame - usually by grinding - before gluing again and they form razor sharp edges. Urethane adhesives do require longer drying times. Most KIWOBONDS require approximately 5-10 minutes to dry before cutting loose from the stretcher. Variables such as the level of screen tension, mesh count, amount of adhesive, and humidity may alter drying times, therefore double check bond strength by gently pressing upward from underneath the mesh near the frame to assure sufficient adhesion.
- 10) Incomplete curing – Although the “cut-away” time in the stretcher is usually about 5-10 minutes, it takes up to 72 hours to achieve complete cross-linking of the adhesive. This doesn't mean we can't use the frame, only that it has not reached its maximum strength

and chemical resistance until then. Don't expose the screen to harsh chemicals within this time period.

- 11) Chemical incompatibility with ink wash – Very aggressive solvents will soften frame adhesives over time, especially when they are flooded onto the screens as in the case of automatic ink washout systems or solvent dip tanks. These solvents should be thoroughly rinsed from the screen as soon as possible.
- 12) Incomplete solvent removal – Many new, safer solvents (low VOC & vapor pressure, high flashpoint varieties) evaporate very slowly, which means they linger on the frames surface for a long period of time. Residual solvent may become trapped in voids or cracks in the adhesive layer where it will continue to soften the adhesive between uses. Be sure to rinse the frames bonding surface area thoroughly to reduce this risk and be sure to degrease this area when reclaiming screens.
- 13) Failure to add enough KIWODUR (hardener), or to mix it thoroughly with the KIWOBOND (adhesive) – This makes the adhesive layer soft and not solvent resistant, but this pretty uncommon.
- 14) Adding extra KIWODUR (hardener) does not make it harden/dry faster. If too much KIWODUR is added, the excess does not have enough of the KIWOBOND adhesive available to complete its reaction, thus may in fact take longer to dry.

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