

Bonding KYDEX® Sheet to KYDEX® Sheet

For information applicable to KYDEX® FST please refer to 300 series technical briefs.

TB - 150-B

Introduction

Due to its excellent chemical resistance, KYDEX® thermoplastic sheet can be more difficult to cement than other plastics. Herein we discuss how to cement KYDEX® sheet to itself and other plastics, metals, and wood. Strong bonds can be obtained for most applications using the methods shown below. KYDEX® sheet can also be joined to itself or to other materials using mechanical fasteners in place of adhesives.

Solvent Cementing

When bonding KYDEX® sheet to itself, excellent joints and adhesion can be obtained using solvents in one of the following ways:

- The best joints can be obtained using viscous solvent cement consisting of about 10% KYDEX® sheet shavings or sawdust dissolved in a 50/50 mixture of tetrahydrofuran (THF) and methylethylketone (MEK). The shavings should be dissolved in the straight THF first, before adding the appropriate amount of MEK. Both of these solvents are available from lab supply companies such as Fisher Scientific (web: www.fishersci.com), Ashland Chemicals (web: www.sigmaaldrich.com), or other chemical distributors.
- Without the KYDEX® sheet shavings, a relatively fast-acting capillary adhesive can be made by using a 50/50 THF and MEK mixture. THF works well at 100%, but it tends to flash off too quickly resulting in a poor joint. The addition of MEK slows down the evaporation rate and affords greater time to work with the joint.

Adhesives

In addition to chemical solvents, good bonds (both KYDEX® sheet to itself and KYDEX® sheet to other materials) can be obtained from various commercially available adhesives. Some examples are:

- Cyanoacrylate adhesives (e.g. "Super Glue"), such as Loctite's Super Bonder 400 series Instant adhesive (contact Loctite in the US at 800-562-8483 or on the Web at www.loctite.com), yield very high joint strength for bonding KYDEX® sheet to itself or to other materials. In general these are clear adhesives. They are especially suitable for smaller areas of application where a very fast cure is desired.
- THF based adhesives by IPS work well for KYDEX® sheet to KYDEX® sheet applications. Any of the following IPS Weld-On adhesives can be used: #4052, #4007, and #1007. For more information on these products, please contact IPS in the US at (800) 421-2677, or on the web at www.ipscorp.com. These adhesives also work well for KYDEX® sheet to PVC and KYDEX® sheet to ABS applications.
- Acrylic based adhesives such as Devcon's 'Plastic Welder' or 'Plastic Welder II' can be used to form very strong bonds with KYDEX® sheet. Both of the 'Welder' products are 2-part adhesives, which are available in cartridges. The Welders produce a strong bond, which cure in about 15 minutes; the adhesive is white in colour. Also, there is a 'Composite Welder' that is good for bonding one composite to another such as KYDEX® sheet to another plastic or metal. The 'Composite Welder' is blue/green in color. You may order the 'Welder' products from Devcon in the US by calling 1-800-933-8266, in Europe by calling 44.1.933.675.299 or on the web at www.devcon.com. When using these adhesives, be sure to join your substrates immediately after applying the adhesive since they have a fast cure time.

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Adhesives (cont'd)

- Extreme Adhesives, a branch of the Adhesive Engineering & Supply, offers "Extreme 310" in black and white which is comparable to Plastic Welder. They can be reached in the US by calling (800) 888-4583, or on the web at www.extremeadhesives.com.
- Most hardware stores carry an adhesive for PVC pipe. This type of adhesive usually works well with KYDEX® sheet, when bonding one smooth side to another. It is important to realize that this adhesive does not work well for structural use and should be only used as a cosmetic adhesive.

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