

Polyvinyl Chloride Alloy

Adhesive and Solvent Bonding

Georgia Gulf: Polyvinyl Chloride Alloy

Rigid vinyl can be easily bonded to virtually all materials including other thermoplastics and metal, as well as itself. Common adhesives such as epoxies, urethanes and acrylics perform well with vinyl.

Solvent Cement Bonding

Solvent bonding is a very effective method for joining several rigid vinyl parts or other thermoplastics soluble in the same solvent. The procedure involves treating the surface to be bonded with a small amount of solvent to etch the contact area. A fixture is recommended to hold mated parts together until the solvent has evaporated and the parts joined. It is important that the mating surfaces fit well so that pressure can be evenly distributed over the entire surface area to be bonded.

A 5 to 20 percent solution of PVC resin in methylene chloride and THF provides an effective solvent bonding system. Proper ventilation of the work area and adherence to plant safety should always be followed when working with solvents. The amount of cement should be kept to a minimum and applied only to clean surfaces to insure high quality aesthetics and proper bonding.

Contact Adhesive Bonding

Many adhesives are available from varied sources that work well with rigid vinyl. The following procedure should be followed with the use of solvent cement or contact adhesive:

Cleaning

Step 1 Clean surfaces to be bonded with MEK or methylene chloride.

Application

Step 2 Apply contact cement to both sides. Allow proper "set up" time and apply solvent cement to one side.

Clamping/Fixture

Step 3 Clamp or fixture mating surfaces together (minimum 60-90 seconds). Longer clamp time may be necessary dependent upon bonding system and nature of the bonding surface area.

Drying

Step 4 For application to be used at room temperature, dry at ambient for 24 hours. Follow manufacturers instructions for contact adhesives.

Solvent Cement/Contact Adhesive Surface Joint Design

Performance of parts mated by a solvent or contact adhesive can be greatly enhanced by proper joint design of the mating surfaces. A strong surface bond is directly related to the size of the surface mating area.

Bonded joints under compression perform optimally; therefore, compression should be utilized whenever possible in joint design. Under conditions of tension, lap joints perform with more reliability due to increased surface contact area in lap joint configurations.

Reference: *Georgia Gulf Vinyl*, supplier technical report - Georgia Gulf, 1991.