



Bay Area Garden Railway Society

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Introduction to Glues, Cements and Adhesives

Solvent Cements: These are usually one part and actually melt and weld the plastic together. They are totally waterproof since there is no "glue" left after they evaporate away.

TAP Acrylic Cement and Weld-On Cements: These water-thin cements are used to melt and weld Acrylic and Polycarbonate plastics together. The cement chemically attacks the plastic, melts it and then evaporates away leaving no residue behind. These fast acting cements take an initial set fairly quickly but require at least 24 hours to reach a full cure. Special mention has to be given to **Weld-on #16**. This cement is thickened to a syrup consistency and will fill in slight gaps. This cement bonds many different plastics and should be in everyone's glue arsenal.

MEK: Methyl Ethyl Ketone is used to solvent weld ABS and Styrene. Weld-On #16 contains MEK as one of the ingredients.

Glues and Adhesives can be one part or two parts. When using these it is very important to have proper surface preparation. Make sure the surfaces being glued fits together well and that they are clean with absolutely no oils or waxes present.

General Purpose Glue: these one-part glues are normally solvent based and usually contain Acetone or MEK. These glues cure by evaporation.

QuickGrip, Weldit and **527** are good examples of these types of glues. I've had excellent results with these glues and they are rated waterproof by the manufacturers.

Epoxies: These are a 2-part, usually 1-1 mix that cures by a heat forming chemical reaction. TAP carries everything from a 25ml tubes to 2 gallon kits. Epoxies do not shrink and have some gap filling properties. The general rule with epoxies is that the longer the cure the stronger the holding power. My favorite is the **DEVCON 5-Minute Epoxy GEL**. A similar adhesive is **DEVCON Plastic Welder**. It is a 2-part Acrylic Adhesive that is even stronger than epoxy and has a strong solvent in it that helps it bond to plastic materials. Epoxies are also available in a putty and clay form, my favorite being **Magic Sculpt**.

E-6000 is a highly flexible adhesive that is often the best glue to use. It is similar to Silicone but stronger and more flexible. It is very effective when gluing dissimilar materials together that have different expansion and contraction characteristics. This one part adhesive comes in Black and Clear and is easy to use once you learn a few tricks. For vertical surfaces use E-6100.

Adhesive Tapes and other specialty glues. Clear "bond" tapes (VHB) are very strong and waterproof. **3M Fastbond** water-based contact adhesive. ACC "Superglues" should not be used outdoors. Vinyl glues melt the vinyl together. What should you use when you need something to stay together but still take them apart? Try super strong **Neo-Magnets!**