

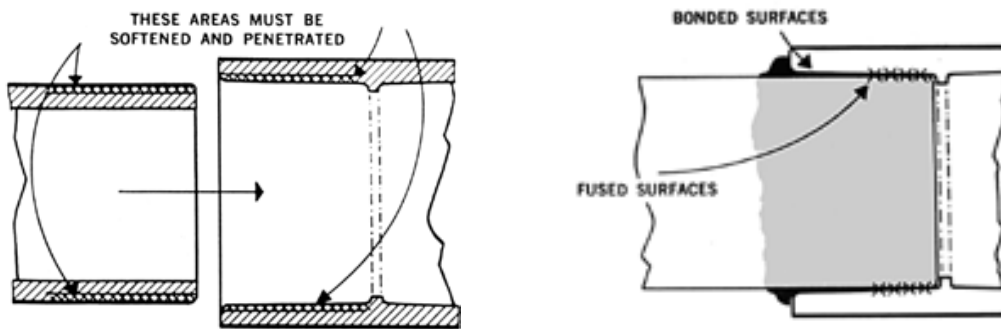


## Welding Plastic Pipe?

Ask any installer how to join CPVC and you'll hear words like gluing and cementing. You probably won't hear the most accurate term – welding. Solvent welding is similar to traditional welding in that the primer is the torch or heat source and the cement is the solder or filler. Of course, in fire protection, we use one-step cements – but that should not take away from the idea that the process is more than just simply gluing two things together.

Understanding the basic principles of solvent cementing is important to doing the job right. Applying cement softens the CPVC surface to a semi-fluid state. The resulting fusing of the two semi-fluid surfaces creates a new bond that is stronger than the original pipe.

When the pipe is pushed home into the fitting, the end of the pipe and the fitting are fused together. In the loose part of the fitting, the cement will fill in and bond both the pipe and the fitting together. Sufficient cement must be added for both fusing and bonding to occur. Done correctly, the pipe and fitting will not come apart.



Pictures Courtesy of IPS Corporation

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### ***Size Does Matter!***

The size of the cement applicator, or dauber, used to spread the cement is important to the proper application of cement. Applicators are good for use on pipes up to twice the applicator's diameter. For example, a ¾ inch applicator is good for up to a 1½ inch diameter pipe. The applicator that comes with the cement canister may not be the right size, or only size, needed for the project. Stock applicators of different sizes, making sure the correct sizes are always available to the installer.

### ***Order Matters Too!***

If cement is applied in the correct order to the pipe and fitting, you will never have cement drips in the pipe and/or fitting interior surfaces. First apply a heavy coat of cement to the pipe, aggressively work the cement around the pipe with the applicator. After the pipe cement is applied, aggressively apply a medium coat of cement to the fitting. Reapply a second light layer of cement to the pipe, if required as outlined in the manufacturer's installation instructions.

By applying the cement to the pipe first, the extra cement is pushed back onto the pipe by the fitting rather than into the interior of the fitting/pipe. *Skeptical?* Try this experiment. Pour the cement directly on the pipe. Go ahead – put as much cement as you want onto the pipe. Then push the pipe into a fitting. All the extra cement is pushed out with no drips on the interior surfaces. *Still not convinced?* Reverse the correct application order (heavy coat on the fitting, medium coat on the pipe), push the pipe into the fitting, and see the interior drips.

### ***More is Not Always Better -***

#### ***Too Much Cement Applied to a Fitting is a Recipe for Disaster!***

If too much cement is applied to the fitting, drips will be created on the inside of the fitting or pipe. Excess cement on inside surfaces can cause stress cracking because the solvents cannot evaporate as readily inside the pipe as on the exterior surface.

On the pipe exterior, the excess cement should be wiped off the pipe. Wipe around the socket entrance to remove excess cement and to promote curing.

### ***Hold on Tight!***

After applying cement, immediately insert the pipe into the fitting socket, while rotating the pipe one-quarter turn until the pipe bottoms out at the fitting stop. To create a strong weld, the pipe must be 'driven home' or pushed all the way into the fitting. The fitting is tapered and the pipe must be completely pushed into the fitting so the fusing process can occur between the pipe and the fitting.

Each cement joint must be ***HELD FOR AT LEAST 30 SECONDS*** to avoid push-out. Keep in mind, the pipe and fitting have been softened to a semi-fluid state. By nature, the pipe will want to pull out of the fitting. Holding for 30 seconds will ensure the pipe end and fitting surfaces fuse together.

***Pipe, fitting, and cement manufacturers all supply instructional literature and also offer training. Installation manuals must be read and understood. It is important that installers know the proper technique and reasons behind each important step in the process.***