Skill and knowledge are required on the part of the operator to obtain a good quality joint. Arrow recommends the following solvent welding techniques be followed, in addition to instructions on product labels.

STANDARD PRACTICE FOR SOLVENT WELDING PLASTIC PIPING SYSTEMS: PVC, CPVC, ABS

A: SUMMARY OF PRACTICE

1. To consistently make good joints, the following should be clearly understood and adhered to:
    a. The joining surfaces must be softened (dissolved) and made semi-fluid.
    b. Sufficient cement must be applied to fill the gap between pipe and fitting.
    c. Assembly of pipe and fittings must be made while the surfaces are still wet and fluid.
    d. Joint strength develops as the cement dries. In the tight part of the joint the surfaces will tend to fuse together; in the loose part the cement will bond to both surfaces.
2. Penetration and dissolving can be achieved by the cement itself, by a suitable primer, or by the use of both primer and cement. A suitable primer will penetrate and dissolve the plastic more quickly than cement alone. In cold weather, more time and additional applications are required.
3. More than sufficient solvent cement to fill the loose part of the joint must be applied. Besides filling the gap, adequate solvent cement layers will penetrate the surfaces and also remain wet until the joint is assembled.
4. Once assembled, the completed joints should not be disturbed until they have cured sufficiently to withstand handling. Joint strength develops as the cement dries. Refer to Handling and Cure Time Schedules.
5. The techniques described herein can be used to produce consistent, strong pressure-tight joints. However, skill and knowledge on the part of the operator are required to obtain a good quality joint.

B: SOLVENT WELDING PREPARATION

1. *Cut the pipe square.* This is important to provide for maximum bonding area of joining surfaces. The pipe can be cut with fine-tooth hand or power saw with miter box or guide, as well as tubing cutter and other tools designed for cutting plastic pipe.
2. *Chamfer and/or deburr pipe*. Rough edges of the pipe may remove the cement and scrape softened material from the fitting socket, and result in a leaking joint.
3. *Test Dry Fit of the Joint.* Insert the pipe into the fitting socket and check that the interference occurs about 1/3 to 2/3 of the socket depth. A tight fit is essential to ensure a good joint is made. If the fit is loose or wobbly, use other fittings or pipe which give a proper fit.
4. *Cleaning.* Use a clean dry rag to wipe any dirt, moisture or other foreign material from pipe and fitting surfaces to be joined.
5. *Applicator Size.* Select an applicator that is ½ the size of the pipe diameter. Dauber applicators will provide for adequate coverage on pipe and fittings roughly twice the diameter of the dauber-ball. Swab applicators are recommended on pipe diameters 3" and above.

C: SOLVENT CEMENT APPLICATION

Solvent Cement, Primers and Cleaners are fast drying, and therefore should be applied as quickly as possible, consistent with good workmanship. It may be necessary for two workers to perform this operation for larger sizes of pipe.

1. Apply primer to the inside of the fitting socket. Use a scrubbing motion to ensure penetration. (Primer should NEVER be used on ABS pipe and fittings)
2. Apply primer to the pipe end, equal to depth of fitting socket. Apply liberally and vigorously, to ensure entire surface is well softened.
3. Again, apply primer to the inside of fitting socket. Proceed to Step 4 without delay.
4. Apply solvent cement to pipe, equal to depth of fitting socket, while Primer is still wet. Apply enough solvent cement to fill the gap between the pipe and fitting.
5. Apply solvent cement lightly to inside of fitting socket, to prevent puddling and solvent damage to inside of fitting / pipe wall.
6. Apply a second even layer of solvent cement to pipe end. Proceed to Step 7 without delay.
7. Insert the pipe and fitting immediately while both the inside socket surface and pipe end are soft and wet with solvent cement. Turn the pipe and fitting ¼ turn during assembly (not after the pipe has bottomed).
8. Hold pipe and fitting together for approximately 30 seconds to avoid push out.
9. After assembly, wipe excess cement from the pipe at the end of the fitting socket.