

PVC pipe and fittings – solvent weld jointing

Purpose

The aim of this advisory note is to dispel the myth that when jointing PVC-U and PVC-M pipes and fittings using solvent cements that priming fluid is not required. This advice is to also prevent the premature failure of PVC jointing systems and to ensure that only adequate systems are installed in plumbing installations.

How solvent cement jointing of PVC works

Solvent cement is a solution of resin in a mixture of solvents, which soften the surfaces when applied to properly prepared and primed PVC pipes and fittings. Solvent cement is not just a glue. It works by dissolving the surfaces of the spigot and socket and, together with the PVC filler in the cement, forms an integral matrix of PVC across the interface. This can only work properly if the surfaces are thoroughly cleaned by removing all traces of lubricants (particularly those used in manufacture of the components) with a primer fluid.

After cleaning the surfaces, a thin uniform coat of solvent cement is applied to both the spigot and socket and the joint is assembled while the surfaces are still wet and fluid. The cement layers combine and form a monolithic joint. The strength of the joint develops as the solvent permeates the PVC.

Importance of priming fluids

Before applying the solvent cement, it is essential to use priming fluid to achieve a satisfactory joint, as the fluid not only prepares the surfaces being joined by cleaning and degreasing, but it also removes the glazed surface from the PVC. This process allows the solvent cement to permeate into the wall of the pipe or fitting.

Solvent cements

Solvent cements are formulated for pressure and non-pressure applications. Each type of solvent cement is colour coded (for easy identification) in accordance with AS 3879:2011 *Solvent cements and priming fluids for PVC (PVC-U and PVC-M) and ABS and ASA pipes and fittings*. Green is for pressure applications and blue is for non-pressure applications. The priming fluid is red for easy identification of its application.

Solvent cement – Type P



Green solvent cement Type P

Type P is green and is used for pressurised drinking water installations. It is formulated to develop high shear strength joints and must be used with primer fluid.

Solvent cement – Type N



Blue solvent cement Type N

Type N solvent cement is blue and is used for non-pressure applications and is formulated with the gap filling properties. Only after the application of primer and solvent cement, will a full strength joint be achieved. Type N solvent cement must not be used for pressure applications.

Priming fluid



Red priming fluid

Priming fluid is red and must be used to remove grease and dirt and to etch the surface of the pipes and fittings.

Note: Priming fluid must be applied with a clean, lint free non-synthetic cloth, such as cotton, as brushing the priming fluid on or simply pouring primer over pipes and fittings will not remove grease and dirt.

Australian Standards

AS/NZS 3500 Plumbing and drainage Standards series provides that solvent cement shall not be used without priming fluid; that the priming fluid be red; and that they comply with AS/NZS 3879.

Safe use

Ensure that directions on the containers of solvent cement and primers are followed at all times and always refer to the manufacturer's Material Safety Data Sheet (MSDS).

This document has been produced and published by the Consumer, Building and Occupational Services Division of the Department of Justice. Although every care has been taken in the production of the work, no responsibility is accepted for the accuracy, completeness, or relevance to the user's purpose, of the information. Those using it for whatever purpose are advised to verify it with the relevant government department, local government body or other source and to obtain any appropriate professional advice. The Crown, its officers, employees and agents do not accept liability however arising, including liability for negligence, for any loss resulting from the use of or reliance upon the information and/or reliance on its availability at any time.