



Caution Areas

Chemical Compatibility (Page 1 of 2)

Harvel® CPVC industrial, plumbing, and fire sprinkler piping systems have been used successfully for more than 45 years in new and retrofit construction. Harvel CPVC products are ideally suited for these applications due to their outstanding corrosion resistance. CPVC Fire Sprinkler Products resist attack from a wide range of chemicals that are corrosive to metallic piping. This important property has resulted in CPVC being the material of choice for use in corrosive-piping applications for many years due to its inherent corrosion resistance and exceptional chemical resistance to a wide range of chemicals. Properly designed, installed and cared for, Harvel CPVC piping systems will perform without issue and will bring the property owner years of safety and security.

As with any piping material, there are however, certain chemicals that can be detrimental to CPVC. Occasionally some of these chemicals may be found in certain construction products and specific site preparations. **CPVC materials can be damaged by contact with chemicals found in some construction and ancillary products such as thread sealants, anti-freeze solutions, fire stop materials, etc. It is important to verify the compatibility of materials that come in contact with the CPVC system to ensure long-term performance.**

ALWAYS CHECK with Harvel (the pipe manufacturer), and the manufacturer of the CPVC fittings and solvent cement if you have questions regarding chemical compatibility. Harvel currently publishes a chemical resistance guide for our piping products, which can be found on-line at <http://www.harvel.com/tech-support-chem.asp>.

Certain CPVC material manufacturers also provide detailed chemical resistance data on their CPVC compounds, and also provide an on-going chemical compatibility program where a list of acceptable and unacceptable products is maintained. If chemical compatibility with CPVC remains in question, it is recommended to isolate the suspect product from direct contact with CPVC pipe or fittings.

Harvel® manufactures CPVC Fire Sprinkler Piping Products from BlazeMaster® CPVC compounds (i.e. Harvel BlazeMaster). BlazeMaster® is a trade name of the raw material (CPVC compound) that is used by Harvel to manufacture the pipe.

- Chemical compatibility information pertaining to CPVC pipe and fittings manufactured from BlazeMaster® CPVC compounds can be found on-line at <http://www.blazemaster.com/chemical-compatibility/products-Americas.asp> Users of BlazeMaster CPVC products should visit this website and review the BlazeMaster System Compatibility information. The BlazeMaster System Compatibility Program tests and monitors ancillary products on an ongoing basis to ensure chemical compatibility with BlazeMaster CPVC products and those products that are compatible carry a compatibility mark to assist the user in identifying acceptable ancillary products.

CPVC Compatibility Concerns:

Thread Sealants: Some thread paste sealants contain solvents, oils or other chemical additives that can cause damage to CPVC. Only compatible thread sealants and tapes should be used with CPVC. Refer to Harvel's Installation Instructions for additional information on threaded connections.

Fire Stops Materials: Some fire stop sealants contain solvents, plasticizers or other chemical additives that can cause damage to CPVC. Only compatible fire stop materials should be used with CPVC.

Anti-Freeze Solutions: DO NOT USE GLYCOL BASE ANTI-FREEZE SOLUTIONS. The use of improper anti-freeze solutions such as ethylene glycol, propylene glycol and/or contaminated glycerin solutions can cause stress cracking of CPVC resulting piping system failure. Anti-Freeze solutions of U.S.P. or C.P. grade GLYCERIN are acceptable for use with CPVC fire sprinkler products. Refer to appropriate NFPA Standards concerning Anti-Freeze Systems and Harvel's Installation Instructions for additional information.

Soldering/Hot Work: Soldering of metallic components in close proximity to CPVC piping will cause damage to CPVC piping systems. Direct contact with heat (open flame), solder, and soldering flux is not recommended. These types of products should be isolated from direct contact with CPVC piping products. CPVC contact with solder flux can cause cracks, leaks and breaks in the piping system. Any CPVC pipe or fittings that have solder flux on them (as identified by staining or discoloration of the pipe and fittings) should be removed and replaced with new CPVC materials.

Flexible Wire: Direct contact with flexible wire and cable should be avoided as the insulation for the wire and cable can contain plasticizers that can cause CPVC piping systems to crack, leak or break. The finished installation should be inspected to verify that the fire sprinkler system is not being used to support wire or cable, and that runs of wire and cable have not been pulled over the installed CPVC system. Additionally, the CPVC piping systems should not be supported with electrical cable or flexible wiring, and all hanger support recommendations should be followed. Section 334.30 of the National Electric Code (2002 Edition) requires wire and cable to be secured by staples, cable ties, straps, or hangers. Air ducts, pipes and ceiling grid are not acceptable supports for wire and cable.



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Chemical Compatibility (Page 2 of 2)

Steel Pipe Transitions: Transitions from steel pipe to CPVC pipe can be made through a variety of methods such as threaded, flanged, and grooved transition components. Occasionally the steel pipe may contain residual oils that were used to aid in the metal cutting process. Some of the oils used for this purpose may be incompatible with CPVC. These cutting oils should be removed from the steel pipe prior to connecting to CPVC pipe by fully cleaning the inside and outside of the pipe before it is assembled in the fire sprinkler system. Care should be taken when selecting cleaning agents to avoid further contamination of the pipe with such elements as surfactants. If cutting oil is used consult with the manufacturer of the cutting oil for a specific recommendation as to compatibility with CPVC. Cutting oils that are listed in the BlazeMaster® compatibility program have been tested and confirmed to be acceptable for use with CPVC.

Paint: Oil or solvent-based paints may be chemically incompatible with CPVC. Water-based acrylic or latex paint is the preferred paint to use on CPVC pipe and fittings. Approval from the Authority Having Jurisdiction must be obtained prior to covering/painting the markings on the product (i.e. product identification, listing marks, etc.) and to change color of the pipe and fittings from its identifiable orange.

Cooking Oils and Grease: When CPVC pipe is installed in kitchen areas the pipe must be protected from contact with grease or cooking oils. Certain cooking oils can cause the CPVC piping to crack, leak or break when applied to the piping system. Consideration must be given to not only protecting the pipe from direct contact with cooking oils and/or grease, but also contact that may occur from airborne grease or oil from the environment such as cooking. Exposed piping in areas where CPVC pipe might come in contact with cooking oils and grease should be protected using a soffit system or with a complete coating of high quality water based paint that fully protects the piping system.

Rubber and Flexible Materials: CPVC is typically not compatible with rubber and flexible plastic materials as these materials often contain certain types of plasticizers which when placed in contact with CPVC can cause the piping system to crack, leak or break. (Incompatible plasticizers include, but are not limited to, phthalates, adipates, trimellitates, dibenzoates, etc.) Incompatible rubber and flexible plastic materials can be found in hoses and tank linings and in the fluids that come in contact with them.

Spray On Coatings: Certain types of spray-on coatings that form a peelable film to protect fixtures during construction may be incompatible with CPVC. Care should be used to protect exposed piping from over-spray when this type of protective coating is applied.

Termiticides and Insecticides: When performing installations under-slab or where the presence of insecticides or termiticides is likely, care should be taken to isolate CPVC pipe from direct contact with large quantities (what is the quantity) of these chemicals. CPVC can be damaged when termiticides or insecticides are injected into the annular space between the pipe wall and sleeving material trapping the termiticide against the pipe wall. Termiticide applications per label instructions in an open-air environment, such as slab pretreat applications, should not pose a problem. However, puddling of termiticides on or near CPVC pipe may cause failures. In areas where puddling is more likely, such as areas near tub boxes and retreat applications, extra care should be taken to avoid puddling of termiticides. Before using an insecticide or termiticide, be sure to consult the manufacturer's installation guide for proper application instructions. For a listing of insecticides or termiticides that are included in the BlazeMaster System Compatible Program, refer to the BlazeMaster website at <http://www.blazemaster.com/chemical-compatibility/products-Americas.asp>. Additional precautions need to be taken when retreat applications are required. Termiticide retreatment is usually required when the concrete slab has been broken to relocate a pipe. The following recommendations should followed in retreat applications:

- Remove all the plastic barrier material that was installed prior to the initial concrete pour from the area to be retreated. Do not reinstall the plastic barrier material.
- After the pipe has been relocated, the soil should be pretreated before it is placed in the hole around the pipe. Do not apply termiticide directly to the retreat area.

In situations where sleeving is required, the pipe should be protected with a compatible sleeving material extending at least 12" above and below the soil. The top of the sleeving should be securely taped to the pipe with a compatible tape product. Backfill over underground piping prior to termiticide spraying.

Mold Abatement and Fungicides: Building restoration projects used to repair water damage often include the use of mold abating products such as fungicides. These products can damage CPVC piping systems and can cause cracks, leaks, or breaks in the system. When performing repairs or modifications care should be taken to isolate the CPVC piping system from direct contact with fungicide products. When repairs are made to an existing system, and the possibility exists that fungicides will be applied to treat damp drywall and wood framing surrounding the repair site, exposed piping should be sleeved with a compatible plastic sleeving or pipe insulation material to prevent direct contact of the fungicide with the CPVC piping system.