

# KNOW THE RISKS ASSOCIATED WITH CPVC

## If your customers knew the long-term risks associated with installing CPVC in fire sprinkler systems, do you think they would tell you to use it?

The decision to install CPVC can carry significant risk and liability long after the installation is complete. If the CPVC in a fire sprinkler system fails, the installer could be liable — even if the CPVC fails because of how it's maintained years after installation. Here are the risks you need to understand and consider before using CPVC in fire sprinkler systems:

### **Risk #1: Material compatibility issues are extremely difficult (if not impossible) to control.**

Exposure of CPVC to incompatible materials — even something as basic as cologne — can cause environmental stress cracking (ESC), leaks and even system failure during a fire. And because the list of incompatible materials (see sidebar) keeps expanding, it's quite possible that a substance used when installing CPVC in a system one month ago is now deemed incompatible. Over time, this issue could raise the cost to insure contractor work and the building.

### **Risk #2: Improper physical contact with installed CPVC can never be fully prevented.**

Extreme care must be taken to avoid improper contact with CPVC following installation. Seemingly harmless actions, such as resting a datacomm line on CPVC, can cause system failure years later. But how can you prevent other workers, owners or occupants from doing these things? The risk of improper physical contact poses a threat throughout the life of the system, and is beyond the control of the installer and engineer.

### **Risk #3: Installing CPVC incorrectly can have serious consequences.**

Stringent guidelines must be adhered to when installing CPVC. Because the guidelines are extremely complex and continually evolve, the installer must commit to ongoing education and re-certification in order to avoid making installation mistakes that yield improper seals. The most common installation mistakes include:

- Incorrectly handling the product with hands or equipment containing residues or traces of incompatible substances
- Installing in temperatures too cold for adhesive to set properly
- Using too much, too little or the incorrect adhesive
- Applying the incorrect antifreeze
- Incorrect pipe support spacing
- No allowance for thermal expansion
- Forming connections that incorporate incompatible gaskets, steel piping coatings, pipe dope, Teflon® products, lubricants and more

### **Risk #4: Proper testing of systems containing CPVC can be limited.**

Recently, several manufacturers of CPVC determined they will no longer certify their product for use in fire sprinkler systems if compressed air is used to test system integrity. Even when compressed air testing is permissible, it's a challenge because the recommended psi level differs based on protocol from NFPA and each CPVC manufacturer. Likewise, pressure testing with water must be completed precisely and according to the direction of individual manufacturers. Together, the limits and uncertainties regarding testing increase the costs associated with installing CPVC, as well as the installer's future liability.

### **CPVC compatibility**

As CPVC risk awareness grows, manufacturers of materials supposedly compatible with CPVC have begun withdrawing from the certification process. And the list of materials known to be incompatible with CPVC continues to grow. As of March 2014, the following materials should never come in contact with CPVC:

- Acetone
- Antifreeze
- Caulks
- Cooking oils
- Dishwashing liquids
- Fire-stopping systems
- Flexible wiring & cables
- Fragrances/perfumes
- Fungicides
- Grease
- Insecticides
- Leak detector
- Mold cleaners
- Mold inhibitors
- Molten solder
- Oil- or solvent-based paint
- Pipe clamps
- Pipe tape
- Polyurethane (spray-on) foam products
- Residual oils with HVAC applications
- Rubber & flexible materials containing plasticizers
- Sleeving material
- Solder flux
- Solvent cements
- Spray-on coatings
- Termiticides
- Thread sealants
- WD-40

## You can never be 100% confident that CPVC will perform

Following installation, you can't control the many factors that can threaten the integrity of a fire sprinkler system containing CPVC. As a result, the CPVC could leak or fail during a fire—and the installer could be held liable, even if he installed it correctly. Remember, all it takes is one fire to destroy a hard-earned reputation.

## The assurance of 100% steel systems

A growing number of contractors believe that the risks of installing CPVC just aren't worth it anymore. Many of the risks associated with CPVC can be fully eliminated if systems use 100% steel fire sprinkler pipe. When you install 100% steel fire sprinkler systems, you are guaranteed total compatibility. With the dependability of total compatibility, you can rest assured that the fire sprinkler system you installed will perform.

Steel has been the material of choice since fire sprinklers began protecting life and property more than 100 years ago. In fact, many of those early systems are still in service because they were properly installed and remain compliant for life. The advantages of using 100% steel in fire sprinkler systems include:

- 100% compatibility with other materials
- Ease of fabrication and installation
- Competitive cost per foot
- Recyclability and sustainability
- Multiple applications, from risers to cross-mains to branches

Systems that combine steel and CPVC pipe can be safe and effective, but it's important that the cost savings of a hybrid system are weighed against the risks.

FM Global has listed Wheatland products as compatible for use in hybrid systems.\* However, Wheatland has never warranted compatibility between its steel pipe products and CPVC products because such a warranty would be impossible. Wheatland does not know, nor has it ever known, the composition of parent materials that various manufacturers use to produce CPVC.

## The Wheatland position

Wheatland guarantees its steel pipe is 100% compatible with fire sprinkler systems that use only steel pipe. We believe fire protection should be simple. That's why we focus on two key components:

- **Good materials**— Our steel is recognized industry-wide as the safest, surest choice for fire sprinkler systems.
- **Compatibility**— 100% steel systems are compatible with everything.

## Know better. Know Wheatland.

### Have questions?

Bob Bussiere, general manager, fire sprinkler pipe, is available to help you understand the issues.

**Please contact Bob Bussiere at 401.256.7434 or [bob.bussiere@wheatland.com](mailto:bob.bussiere@wheatland.com) to schedule a call or meeting.**

### About Wheatland Tube

At Wheatland Tube, we work hard to keep contractors and engineers informed of these safety and financial risks. We led the discussion around the CPVC compatibility certification policy changes that took effect in January 2013, and we continue to communicate with the industry about the many evolving rules and regulations regarding this product.

\* Wheatland assures its complete confidence in FM Global. These statements are made by FM Global based on their testing, not by Wheatland Tube.

