



FlameTech

Fire Performance Piping for Visual Leak Detection Systems

Low Flame and Smoke Translucent Containment Piping

A recent breakthrough in material technology has resulted in unique piping with good optical properties and exceptional fire performance characteristics.

Applications

Harvel® FlameTech™ has been developed for use as containment piping in visual leak detection systems in areas where flame spread and smoke generation are of concern (i.e., containment piping installed in return air plenum applications). Major building and mechanical codes require that combustible piping installed within an air plenum must have a maximum flame spread of 25 and a maximum smoke development rating of 50. Based on large-scale burn testing of finished piping products conducted by ULC, Harvel® FlameTech™ piping meets this fire performance requirement and is Listed by ULC for surface burning characteristics.



In addition to excellent fire performance properties, Harvel® FlameTech™ translucent piping offers good optical qualities. This enables its use as containment piping for high-purity piping runs where quick identification of primary tubing and visual leak detection are critical. Primary tubing can be readily identified and inspected visually through the pipe wall. Utilizing a flashlight or alternate light source greatly enhances this unique attribute.

Harvel® FlameTech™ Containment Piping Offers the Following Benefits:

- Good fire performance characteristics – low flame spread and low smoke generation during fire exposure
- High heat distortion temperature
- Chemical distribution tubing can be continually monitored for leaks by visual inspection
- Requires fewer monitoring sensors and other costly equipment compared to conventional “opaque” systems
- Good chemical resistance
- Heat-formable for on-site fabrication of belled ends, sweeps and bends
- Joined using conventional solvent cement joining techniques
- Installs quickly and reliably using inexpensive joining tools
- Compatible with conventional Harvel Clear™ PVC piping products
- Lower overall installed costs compared to alternative materials where fire performance requirements are a concern

Dimensions

Harvel® FlameTech™ piping is available in sizes from 1/2" through 2" diameters and is produced to IPS Schedule 40 dimensions per ASTM D1785 as follows:

Nominal Pipe Size	O.D.	Min. Wall	Average I.D.	Nom. Weight (lb/ft)
1/2"	.840	.109	.608	.190
3/4"	1.050	.113	.810	.253
1"	1.315	.133	1.033	.371
1-1/4"	1.660	.140	1.364	.502
1-1/2"	1.900	.145	1.592	.599
2"	2.375	.154	2.049	.803

Standard lengths – 10 or 20 feet, available belled-one end as an option

Fire Performance Rating

Harvel® FlameTech™ piping has been evaluated and Listed for Surface Burning Characteristics by Underwriters Laboratories of Canada (CAN/ULC Standard S102.2). This is a large-scale test conducted on 24-foot lengths of dry piping to evaluate flammability characteristics compared to known non-combustibles (asbestos cement board) and known combustibles (red oak). Harvel® FlameTech™ piping has a maximum flame spread rating of 0 and a maximum smoke generation of 25 when tested in accordance with this standard. Testing has shown that Harvel® FlameTech™ piping meets the maximum flame spread (25) and maximum smoke generation (50) values for combustible materials installed within an air plenum as called out by major building codes. Harvel® FlameTech™ out-performs the fire performance characteristics of alternate plastic piping materials typically used for visual leak detection.

Material	Flame Spread	Smoke Generation
Asbestos Cement Board	0	0
Harvel® FlameTech™	0	25
Conventional PVC	0-25	80-225
Red Oak	100	100

As a listed product, each pipe length is marked with the flame spread and smoke generation values for easy identification in the field.

Physical Performance

Harvel® FlameTech™ piping is produced from an unique translucent version of CPVC material that has been optimized to address fire performance issues. As a result, this product exhibits characteristics similar to those of conventional Harvel CPVC piping with regard to joining techniques, field fabrication, chemical resistance, and other beneficial physical properties. Harvel® FlameTech™ piping is heat-formable for on-site fabrication of belled ends, sweeps and bends. The maximum service temperature of this product is 200°F.

Joining Techniques

Harvel® FlameTech™ piping is joined using conventional solvent cement joining techniques providing a quick, strong, leak tight seal. This product is intended for use in non-pressure applications only, therefore either conventional Schedule 40 PVC (clear) and/or conventional Schedule 80 CPVC (opaque) molded fittings can be solvent cemented to Harvel® FlameTech™ piping using existing solvent cementing techniques. CPVC solvent cement (such as IPS 713) and primer (such as P-70) must be utilized when joining molded fittings to Harvel® FlameTech™ pipe (clear PVC or opaque CPVC). Details on proper solvent cementing techniques are available and must be referenced for proper assembly and optimum joint integrity.

Hangers and Supports

Support location and spacing are dependent on the pipe diameter, operating temperature of the system and the location of any concentrated stress loads (i.e., valves, and any other heavy system components). Proper support location is critical to ensure deflection is kept to a minimum. Hangers used must have an adequate load-bearing surface free of any rough or sharp edges that could damage the pipe. They must also not restrict linear movement of the system due to the effects of thermal expansion and contraction.

Maximum Support Spacing in Feet

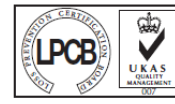
Pipe Size	Temperature °F					
	73	100	120	140	160	180
1/2"	5	4-1/2	4-1/2	4	2-1/2	2-1/2
3/4"	5	5	4-1/2	4	2-1/2	2-1/2
1"	5-1/2	5-1/2	5	4-1/2	3	2-1/2
1-1/4"	5-1/2	5-1/2	5-1/2	5	3	3
1-1/2"	6	6	5-1/2	5	3-1/2	3
2"	6	6	5-1/2	5	3-1/2	3

System Design

Systems utilizing Harvel® FlameTech™ piping are to be designed and installed using existing industry standards for the installation of rigid thermoplastic piping. Factors such as operating temperatures, proper support spacing, chemical resistance, thermal expansion and contraction, handling and storage, and joining must be taken into consideration and addressed with appropriate design techniques. The use of this product to address code compliance issues regarding any local, state, or national code requirements concerning its use is the responsibility of the end user. Additional information is available from Harvel.

Caution Areas

Although Harvel® FlameTech™ maintains its physical properties when exposed to many substances, exposure to certain chemicals can affect the clarity of the pipe over time. Certain nitrogen-containing organics, bleaches, oxidative agents and acids may result in discoloration. Exposure to sunlight (U.V.R.) will also affect clarity. These facts should be considered and testing under actual use conditions is recommended. Harvel Plastics, Inc. does not recommend the use of this product for pressurized fluid applications or for the transportation or storage of compressed air or gases. Standard threading or grooving of Harvel® FlameTech™ is not recommended due to insufficient wall thickness.



Harvel Plastics, Inc.
Quality Systems Certificate Nos. 270455
Assessed to ISO 9001

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