



NSF ORD 10222

CPVC Pipe and Fittings for Chemical Waste Systems

Background and Rational

CPVC pipe and fittings systems are a viable technology for chemical waste systems and have been tested and certified for use in the U.S. These systems have been NSF Listed for use in the U.S. since 2003. Prior the existence of an American National Standard for CPVC pipe and fitting systems for chemical waste, NSF certified products to NSF/ANSI 14 using a Special Engineered Specification SE 1004. Later, IAPMO developed an Interim Guide Criteria, IGC 210. Recently, ASTM F2618 was developed as the U.S. national standard for this technology. There is no Canadian standard with a scope covering CPVC pipe and fittings for chemical waste applications.

Certification Organizations A search of the Canadian Advisory Council on Plumbing (CACCP) participating certification organization's website revealed no certification organizations certifying CPVC pipe and fittings systems for use in chemical waste applications for the Canadian market.

Standard Development Organizations A search of the Standards Council of Canada site found no standard or Other Recognized Document (ORD) for CPVC pipe and fittings for chemical waste systems. CSA B181.3 addresses only polyolefin and polyvinylidene fluoride PVDF laboratory drainage systems. While CSA B181.2 addresses CPVC material for drainage, it does not appropriately address the chemical waste applications. CSA has confirmed that they do not have an ORD or certification program for these products.

Barrier to Product Certification in Canada There is no Canadian standard for these products. The US standard has not been adopted in Canada. The National Plumbing Code of Canada references the following under the corrosion-resistant materials section:

- (1) *Pipes and fittings to be used for drainage and venting of acid and corrosive wastes shall conform to,*
- (a) *ASTM A518/518M, "Corrosion-Resistant High-Silicon Iron Castings",*
 - (b) *ASTM C1053, "Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications", or*
 - (c) *CAN/CSA-B181.3, "Polyolefin Laboratory Drainage Systems".*

Construction and Performance

CPVC pipe and fitting systems for use in chemical waste applications shall be tested and certified to ASTM F2618 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings for Chemical Waste Drainage Systems.

Approximate number of certifications expected: There is an estimated four certifications expected to the ORD.

Proposed effective date for the ORD's application: The proposed effective date for the ORD is immediately following successful ballot and ballot notification of regulatory members of the Canadian Advisory Council on Plumbing.

Testing Reproducibility: The test methods required in ASTM F2618 are similar or identical to test methods referenced in other CSA and ASTM Standards for which laboratory accreditations exist to CAN-P-4 General Requirements for the Accreditation of Calibration and Testing Laboratories.

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1. Purpose:

This Other Recognized Document (ORD) defines the product specific requirements for Chlorinated Poly Vinyl Chloride (CPVC) Chemical Waste Systems. This is established to satisfy the requirements of an ORD as defined by Standards Council of Canada CAN-P-1500M Additional Requirements for Certification Bodies. This will aid certification organizations in certifying products to ASTM F2618 for use in Canada.

2. Scope and Application:

This specification covers the requirements, testing, marking for CPVC pipe, fittings and solvents used in chemical applications for use in Canada.

3. Reference Documents:

ASTM F2618 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings for Chemical Waste Drainage Systems.

4. Requirements:

4.1 Product shall comply with all requirements of ASTM F2618.

4.2 Governmental/Military Procurement requirements S1 and S2 shall not apply.

4.3 Section 8.2 of ASTM F2618 shall be modified as follows: 8.2 *CPVC Compound Chemical Resistance*— Pipe and fitting materials shall be evaluated in accordance with Test Method D543 practice A, procedures I and II, using the chemicals listed in Table 4. Weight change shall not exceed 2% nor shall apparent tensile strength change by more than 10%. ~~In cases where there is a change in the apparent tensile strength greater than 10%.~~ In cases where there is a change in the apparent tensile strength greater than 10%, a further evaluation shall be made after the test specimen is removed from the chemical and conditioned for 72 h. If after 72 h, there is a minimum of 50% recovery of tensile strength as compared to the unexposed specimen, and that figure is within $\pm 10\%$ of the original tensile strength of the unexposed specimen, the test shall be considered acceptable.

[Note: This section is being revised to delete a typographical error in the product standard.]

5. Product Marking:

5.1 Product marking shall comply with ASTM F2618 and any printed markings shall be of a contrasting color from the pipe, fitting or label.

5.2 Pipe Marking: In addition to the pipe marking of ASTM F2618, pipe shall also bear an appropriate code identifying the day, month, and year of production, the extrusion line, and the compound designation. For pipe made by a multiple head, extrusion technique with intermediate storage before marking, a code indicating the week, rather than the day, of production is acceptable. In instances where the manufacturer has more than one plant location or produces for other suppliers or distributors, an identifying symbol shall be used.

5.3 Fitting Marking: In addition to fitting marking of ASTM F2618, fittings shall be marked with ASTM F2618 designation.