



SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT NSF /ANSI Standard 14

CPVC Corrosive Waste Drainage System

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Scope of Specification:

Testing, marking, in-plant QC and annual testing requirements for CPVC Corrosive Waste Drainage Systems. Currently the CPVC systems are not covered by the scope of ASTM F1412 or ASTM F1673 standards and shall be covered by this SE document. Corrosive waste drainage system consists of pipe, fittings and solvent cement. The interchangeability of pipe and fittings defined by different manufacturers' systems is not addressed in this specification.

Testing Requirements:

Conformance Criteria	Reference Standard	Requirement
Material	ASTM D1784	Standard Specification, CPVC Cell Class 23447
Dimensions and Tolerances – Pipe	Manufacturer's Specifications	Manufacturer's Specifications
Dimensions and Tolerances – Fittings	Manufacturer's Specifications	Manufacturer's Specifications
Chemical Resistance	ASTM D 543, Practice A—Immersion Test, Prodedures I & II, using chemicals/concentrations listed in Test Method 1, Chemical Resistance, Table 1.	Weight change +/- 2%, tensile strength change +/- 10%. In cases where there is a change in the apparent tensile strength greater than 10%, a further evaluation shall be made after removal from the chemical, and conditioning for 72 h. If after 72 h there is a minimum of 50% recovery of the tensile strength as compared to the exposed specimen, and that figure is within +/-10% of the original tensile strength of the unexposed specimen, it shall be considered acceptable.
Water Absorption	ASTM D 570	Weight change +/- 0.5% when tested in accordance with Test method 2, Water Absorption listed below.
Mechanical Joint - Transition Fittings	ASTM F1412, Section 6.5	Standard Specification
Flattening - Pipe	ASTM D 2412,	No splitting, cracking or breaking when the pipe is tested in accordance with Test Method 3, Flattening, below.
Impact Resistance – Pipe & Fittings	ASTM D 2444	Manufacturer's Specifications using Test Method 4, Impact Resistance, below
Workmanship, Finish & Appearance	Manufacturer's Specifications	Test Method 5, Workmanship, Finish and Appearance, below
Solvent Cement	ASTM F493	Standard Specification

Test Methods

1.Chemical Resistance: Product evaluation is made in accordance with ASTM D 543 test method using the following chemicals and concentrations listed in Table 1

Table1: Chemical Resistance Test Criteria

Chemical	Concentration
Acetic Acid	5%
Acetone	5%
Ammonium Hydroxide	10%



Nitric Acid	40%
Sodium Hydroxide	60%
Sulfuric Acid	30%
Hydrochloric Acid	20%

Test Methods (continued):

2. Water Absorption-Weigh three cleanly cut specimens having smooth edges to the nearest 0.001 g and immerse in distilled water at 73.4 +/- 1.8 F (23 +/- 1C) for 24 h +1/2-0 h, in accordance with Test Method D570. Remove the specimens, wipe dry with a clean, dry cloth, and reweigh immediately. Calculate the average percent gain in weight to the nearest 0.1% on the basis of the initial weight.
3. Flattening-Flatten three specimens of pipe 6 in (152 mm) long, between parallel plates in a suitable press until the distance between the plates is 40% of the original outside diameter of the pipe. The rate of vertical displacement shall be uniform and such that the flattening is completed within 2 to 5 min. On removal of the load, examine the specimens for evidence of splitting, cracking, or breaking.
4. Impact Resistance- Test 10 specimens. When 9 or 10 specimens pass, accept the lot. When 4 or more specimens fail, reject the lot. When 2 or 3 specimens of 10 fail, test 10 additional specimens. When 17 of 20 specimens tested pass, accept the lot. When 7 or more of 20 fail, reject the lot. When 4, 5 or 6 of 20 fail, test 20 additional specimens. When 32 of 40 specimens pass, accept the lot. When 9 or more of 40 specimens fail, reject the lot. Failure in the test specimens shall be shattering or any crack or break extending entirely through the pipe wall visible to the unaided eye.
5. Workmanship, Finish & Appearance- The manufacture of fittings and pipe shall be in accordance with good commercial practice so as to produce fittings meeting the requirements of this specification. Fittings and pipe shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or injurious defects. The fittings and pipe shall be as uniform as commercially practicable in opacity, density, and other physical properties.

Product Marking:

All product marking shall be applied in such a manner that they remain legible under normal handling and installation.

Fittings shall be individually marked with the following as a minimum:

- Manufacturer's name or trademark
- Raw material designation (CPVC)
- Nominal inch size (i.e., 1-1/2)
- Mark of the laboratory making the evaluation for corrosive waste application (NSF cw SE)

Pipe lengths shall be marked with the following as a minimum:

- Manufacturer's name or trademark
- Raw material designation (CPVC)
- Nominal inch size (i.e., 1-1/2)
- Manufacturing production code Mark of the laboratory making the evaluation for corrosive waste application (NSF cw SE)

Solvent Cement container or labels shall each be marked per ASTM F493.

In-plant Q.C. Requirements:

The following tests are to be performed at start-up and designated frequencies thereafter.

Test	Frequency
Dimensions – Fittings:	
Interference Fit	24-hours
Wall thickness	Weekly
Threads	Weekly
Impact Resistance – Fittings	Weekly
Dimensions - Pipe:	
Diameter	Weekly



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Wall Thickness	Weekly
Impact Resistance - Pipe	Weekly
Solvent Cement	Per NSF-14 QC Table

Note: Fitting Pattern Laying Length dimensions are to be checked at each Mold Tooling Qualification. Tooling Qualifications are made to each new mold tool and after any alterations or repairs to the tool.

Authorization is for two years only pending the incorporation of this product into an existing Standard, or the acceptance of a new Standard.

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