



NSF International
Special Engineered Specification
NSF SE 9167

**Metric Sized PVC
Potable Water Pipe**





SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT NSF SE 9167

Metric Sized PVC Potable Water Pipe

1. Purpose:

This specification defines the minimum product specific requirements for Metric Sized PVC Potable Water Pipe.

2. Scope of Specification:

This specification identifies the application, reference documents, testing requirements, material requirements, product marking, and in-plant quality control testing for metric sized PVC potable water pressure pipe.

3. Application:

Products meeting the requirements of this specification are for use in potable water pressure applications.

4. Reference Documents:

ASTM Standards:

ASTM D618 – Practice for Conditioning Plastics for Testing
ASTM D1598 – Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure
ASTM D1599 – Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings
ASTM D1600 – Terminology for Abbreviated Terms Relating to Plastics
ASTM D1784 – Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785 – Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D2122 – Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
ASTM D2672 – Specification for Joints for IPS PVC Pipe Using Solvent Cement
ASTM D2837 – Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials
ASTM D3139 – Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
ASTM F412 – Terminology Relating to Plastic Piping Systems
ASTM F441 – Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80

NSF Standards:

NSF/ANSI Standard 14 – Plastic Piping System Components and Related Materials
NSF/ANSI Standard 61 – Drinking Water Systems Components – Health Effects

5. Materials:

5.1 – PVC – PVC material used in the production of pipe meeting this specification shall meet or exceed a 12454-cell class when tested against ASTM D1784.
5.2 – Post Industrial recycled material is not authorized to be used in the production of fittings certified against this requirement.
5.3 – Rework material shall be from the same formulation and from the same facility.
5.4 – Pipe intended for use as water reclaim shall be purple in color.
5.5 – HDS Requirements - PVC pipe produced against this specification shall meet the requirements for Hydrostatic Design Stress identified in ASTM D1785 Section 4.2

6. Testing Requirements:

6.1 – Dimensions –
PVC pipe produced against this specification shall meet the dimensions as specified by the manufacturer of the pipe or ISO 1452-2
6.2 – Pressure Tests
PVC pipe produced against this specification shall meet the requirements of either 6.2.1 or 6.2.2. Pressures sustained and burst are calculated using fiber stress provided in the footnote under Table 3, 4, 5 or 6 in ASTM D1785.
6.2.1 – Pressure Tests



6.2.1.1 – Sustained Pressure test – PVC pipe produced against this specification shall meet the 1000 hour 73° F sustained pressure requirements identified in ASTM D1785 Section 8.4 and Table 3, 4, or 5 of ASTM D1785. Pressure can be calculated from foot-note under table 3, 4 or 5.

6.2.1.2 – Short Term Pressure test (Burst) – PVC pipe produced against this specification shall meet the 73° F short term pressure (burst) requirements identified in ASTM D1785 Section 8.5 and Table 6 of ASTM D1785. Pressure can be calculated from foot-note under table 6.

6.2.2 – Regression Testing

PVC pipe produced against this specification shall meet the requirements of ASTM D1785 Section 8.4.1.

6.3 – Pipe Flattening

PVC pipe produced against this specification shall meet the flattening requirements of ASTM D1785 Section 8.6

6.4 – Extrusion Quality

PVC Pipe produced against this specification shall meet the extrusion quality requirements of ASTM D1785 Section 6.5

6.5 – Potable Water Requirements – Products for use in potable water applications shall comply with the applicable section(s) of NSF/ANSI Standard 61.

7. Product Marking:

The following minimum requirements shall be permanently and legibly marked on the print strip of the Pipe:

- Manufacturer or the manufacturer’s authorized trademark
- The designation of the material used to produce the fitting
- Type of PVC (1120, etc)
- Schedule of pipe along with the pressure rating
- Size
- NSF pw – SE
- Lot number

This information shall be repeated at no more than 5’ intervals

8. In-plant Q.C. Requirements:

The following tests are to be performed at start-up and at the designated frequencies thereafter. These tests shall be performed in accordance with Section 5 of this document:

Test	Potable water
acetone	annually
burst pressure	24 h ¹
dimensions	
pipe OD	2 h
pipe wall thickness	2 h
pipe out-of-roundness	2 h
flattening resistance	annually
sustained pressure	annually

¹ If one material is continuously used in several machines or sizes, then when a steady-state operation is obtained on each machine, sample selection shall be from a different extruder each day and rotated in sequence among all machines or sizes.