

Plastic Piping Standards

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Many commercial, industrial and governmental standards or specifications are available to assist the design engineer in specifying plastic piping systems. Standards most frequently referred to and most commonly called out in plastic piping specifications are ASTM Standards. These standards also often form the basis of other standards in existence. Below is a list and description of those standards most typically applied to industrial plastic piping.

ASTM Standard D-1784

(American Society for Testing and Materials)

This standard covers PVC and CPVC compounds used in the manufacture of plastic pipe, valves, and fittings. It provides a means for selecting and identifying compounds on the bases of a number of physical and chemical criteria. Conformance to a particular material classification in this standard requires meeting a number of minimum physical and chemical properties.

ASTM Standards D-1785 and F-441

These standards cover the specification and quality of Schedule 40, 80 and 120 PVC (D-1785) and CPVC (F-441) pressure pipe. Outlined in these standards are dimensional specifications, burst, sustained and maximum operating pressure requirements and test procedures for determining pipe quality with respect to workmanship and materials.

ASTM Standards D-2464 and F-437

These standards cover PVC (D-2464) and CPVC (F-437) Schedule 80 threaded pressure fittings. Thread dimensional specifications, wall thickness, burst, material quality, and identification requirements are specified.

ASTM Standard D-2466

These standards cover Schedule 40 PVC (D-2466) threaded and socket pressure fittings. Stipulated in the standard are thread and socket specifications, by lengths, wall thickness, burst material, quality and identification requirements.

ASTM Standards D-2467 and F-439

Standards D-2467 (PVC) and F-439 (CPVC) cover the specification of Schedule 80 socket type pressure fittings, including dimensions and physical requirements.

ASTM Standard D-4101

(Formerly D-2146)

This standard covers the specifications for propylene (PP) plastic injection and extrusion materials.

ASTM Standard D-3222

This standard covers the specifications for PVDF fluoroplastic molding and extrusions materials.

ASTM Standard D-2657

This standard covers the procedures for heat-fusion bonding of polyolefin materials.

ASTM Standards D-2564 and F-493

These standards set forth requirements for PVC (D-2564) and CPVC (F-493) Solvent Cement including a resin material designation and resin content quality standard. Also included in these standards are test procedures for measuring the cement quality by means of burst and lap shear tests.

ASTM Standard F-656

This standard covers the requirements for primers to be used for PVC solvent cemented joints of pipe and fittings.

ASTM Standard D-2855

This standard describes the procedure for making joints with PVC pipe and fittings by means of solvent cementing. The following are standards of other groups that are commonly encountered in industrial thermoplastic piping design.

ANSI B1.20.1 (was B2.1)

(American National Standards Institute)

This specification details the dimensions and tolerance for tapered pipe threads. This standard is referenced in the ASTM standard for threaded fittings mentioned above.

ANSI B16.5

This specification sets forth standards for bolt holes, bolt circle, and overall dimensions for steel 150# flanges.

NSF Standard 14

(National Sanitation Foundation)

This standard provides specifications for toxicological and organoleptic levels to determine the suitability of plastic piping for potable water use. It additionally requires adherence to appropriate ASTM Standards and specifies minimum quality control programs. To meet this standard, a manufacturer must allow third party certification by NSF of the requirements of this standard.

Technical assistance regarding standards, applications, product performance, design, and installation tips are available from FABCO.

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