

ASTM STANDARD UPDATED FOR
POLYPROPYLENE PRESSURE PIPING SYSTEMS

Pressure and Chlorine Ratings Revised

IRVING, Texas - August 27, 2024 - Recent revisions led by the Plastics Pipe Institute, Inc. (PPI) Building & Construction Division resulted in improvements to the latest edition of the ASTM Standard, F2389 *Standard Specification for Pressure-Rated Polypropylene (PP) Piping Systems*, which establishes requirements for polypropylene (PP-R and PP-RCT) piping system components including pipe, fittings, valves, and manifolds. The standard applies to hydronic heating and cooling, chilled water, water service lines, hot-and-cold water distribution, irrigation systems, and other related fluid transport applications.

Originally issued in 2004, revisions to the latest edition of the standard published in July 2024, F2389-24a, include:

- Pressure-temperature ratings used for PP pressure pipe systems are clarified and harmonized by adding new definitions for “design stress” and “design coefficient” and then applying requirements for these factors in a new Section 5.6.1.
- Oxidative stability (i.e., chlorine resistance) classifications are revised from CL-TD and CL-R to Classes 0, 1, 3, and 5 for consistency with other pressure pipe standards (e.g., ASTM F876).
- Marking requirements are also revised.

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According to Lance MacNevin, P. Eng., director of engineering for PPI's Building & Construction Division, “As a result of these recent revisions, pressure ratings will be more consistent

throughout the industry and classifications for resistance to hot chlorinated water will be consistent with other piping materials.”

MacNevin continued, “Polypropylene (PP) is a versatile piping material that is used in a wide range of applications. Two types of PP are used for pressure piping systems: PP-R (polypropylene random copolymer) and PP-RCT (polypropylene random copolymer with modified crystallinity and temperature resistance). With their high temperature and pressure capabilities, PP-R and PP-RCT pipes are suitable for demanding pressure piping applications, such as plumbing, hydronics, and chilled water in commercial high-rise buildings or data centers.”

PPI is the non-profit North American trade association representing the plastic pipe industry, including several manufacturers of PP pipes and fitting systems. PPI formed the Polypropylene Pressure Pipe Steering Committee in 2018 to collaborate on industry standards such as F2389, coordinate research programs, develop technical publications, and create educational information about these systems. The recent revisions to F2389 are the latest result of cooperation between PPI member firms, intended to help to grow this market in a technically correct and responsible manner.

The revised standard is available directly from ASTM at: <https://www.astm.org/f2389-24a.html>

Additional information and data about the use and installation of PP is available from the PPI Building & Construction Division at <http://www.plasticpipe.org/buildingconstruction>

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Photo follows...



PP-R and PP-RCT pipes and fittings discussed in the recently updated ASTM Standard F2389-24a are available in diameters from 16 mm to 710 mm, also known as nominal diameters 3/8 to 28 inches. Photo courtesy of PPI.

About PPI:

The Plastics Pipe Institute, Inc. (PPI) is the major North American trade association representing the plastic pipe industry and is dedicated to promoting plastic as the materials of choice for pipe and conduit applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in the development and design of plastic pipe and conduit systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods.