



# Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings<sup>1</sup>

This standard is issued under the fixed designation F402; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the U.S. Department of Defense.*

## 1. Scope\*

1.1 This practice covers procedures for safe handling of solvent cements, primers, and cleaners used in joining thermoplastic pipe and fittings. The procedures are general ones and include safeguards against hazards of fire and precautions for protection of personnel from breathing of vapors and contact with skin or eyes.

1.2 The word *cleaner*, when used in this practice, refers to chemical cleaners.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

**D1600 Terminology for Abbreviated Terms Relating to Plastics**

**F412 Terminology Relating to Plastic Piping Systems**

### 2.2 Other Document:

**CFR Title 49, Transportation, Parts 1 to 199<sup>3</sup>**

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.20 on Joining. Current edition approved Aug. 1, 2018. Published August 2018. Originally approved in 1974. Last previous edition approved in 2012 as F402 – 05(2012). DOI: 10.1520/F0402-18.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

## 3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminology F412, and abbreviations are in accordance with Terminology D1600, unless otherwise specified.

### 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *cleaner, chemical*—an organic solvent used to remove foreign matter from the surface of plastic pipe and fittings.

3.2.2 *primer*—an organic solvent or a blend of solvents, which enhances adhesion, applied to plastic pipe and fittings prior to application of a solvent cement.

3.2.3 *solvent cement*—an adhesive made by dissolving a plastic resin or compound in a suitable solvent or mixture of solvents. The solvent cement dissolves the surfaces of the pipe and fittings to form a bond between the mating surfaces provided the proper cement is used for the particular materials and proper techniques are followed.

## 4. Safe Handling

4.1 A number of the solvents contained in cements, primers, and cleaners are classified as airborne contaminants and flammable and combustible liquids. These products generally are composed of solvent blends which vary with manufacturers. Follow precautions given herein to prevent fire and injury to personnel. Specific safety information on a particular cement, primer, or cleaner may be found on the container label or in the Material Safety Data Sheet available from the manufacturer.

4.2 Vapors can pose serious safety hazards in the workplace. Unlike lighter-than-air gases (for example, helium, hydrogen, ammonia, and hot air), the heavier-than-air vapors found in Solvent Cements, Primers, and Cleaners don't readily dissipate into the atmosphere. These vapors will aggregate (collect) at the bottom of an enclosure (horizontal or vertical pipe) or along the floor of a room. To help mitigate this, some manufacturers allow the piping system to be filled with liquid after the initial set time has expired. Check with specific cement manufacturer for their suggestions on how quickly a system can be filled with liquid to mitigate this potential hazard. Avoid prolonged breathing of solvent vapors. When pipe and fittings are being joined in partially enclosed areas use a respirator approved for

\*A Summary of Changes section appears at the end of this standard