



**Summary of Substantive Changes  
between the 2009 and the 2016 editions of  
ASTM F1412 “Polyolefin Pipe and Fittings for Corrosive Waste Drainage  
Systems”**

**Presented to the IAPMO Standards Review Committee on May 16, 2016**

**General:** The changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Expanded the scope of the standard to include Dimension Ratio Iron Pipe Sizes (DR IPS) (see Section 1.2).
- Referenced F2620 as a new joining method for polyethylene and part of scope within section 1.4, and added F2620 as referenced standard in section 2.
- Removed schedule classifications of polyolefin pipe within section 4, and also in title of Table 1 by deletion of ‘Schedule 40 and 80’.
- Added new SDR 17 and 26 values for polyolefin pipe within Table 3 ‘Wall Thickness and Tolerances for Polyolefin Pipe SDR 17 and 26, in. (mm)’ with reference to Table 3 in section 6.1.1 within ‘Dimensions and Tolerances’ requirements.
- Retitled former Table 3 to now become Table 4 for same contents.
- Pipe product marking requirements were updated to include DR sizes within section 10.2.2.6.

Section 1, Scope: Expanded the scope of the standard to include Dimension Ratio Iron Pipe Sizes (DR IPS) and added titles of existing standards for pipe joining methods for different materials.

*1.2 Pipe is produced in Schedule 40 and 80 IPS sizes, and in DR IPS sizes for two polyolefins, polyethylene (PE) and polypropylene (PP).*

*1.4 Pipe and fittings are joined by the heat fusion method (Practice D2657 for PP butt and saddle fusion, Practice F2620 for PE butt, saddle and socket fusion and Practice F1290 for polyolefin electrofusion) or by using mechanical joints recommended by the manufacturer.*

## *2. Referenced Documents*

### *2.1 ASTM Standard:*

*D1600 Terminology for Abbreviated Terms Relating to Plastics*

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*F1498 Specification for Taper Pipe Threads 60° for Thermoplastic Pipe and Fittings*  
*F2620 Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings*



4. Classification

4.1 General—This specification covers ~~Schedule 40 and 80~~ polyolefin pipe made from polyethylene or polypropylene in iron pipe sizes.

6. Requirements Requirements

6.1 Dimensions and Tolerances—Pipe:

6.1.1 Dimensions and tolerances for pipe shown in ~~Table 1, and Table 2,~~ and Table 3 and shall be measured in accordance with Test Method D2122. The tolerance for out-of-roundness shall apply only to pipe prior to shipment.

6.2.4 The average minimum diameters of waterways of fittings excluding adapters shall be as specified in ~~Table 3~~4.

10. Product Marking

10.2.2.5 This designation “F1412”, with which the fitting pipe complies.

10.2.2.6 Schedule size or DR (40 or 80, SCH40, SCH80, or SDR XX, whichever is applicable).

**TABLE 1 Outside Diameters and Tolerances for Polyolefin Pipe**  
*Schedules ~~40 and 80~~, in. (mm)*

Nominal Pipe Size	Average Outside Diameter	Tolerance	Out-of-Roundness (maximum minus minimum)
1¼	1.660 (42.16)	±0.005 (±0.13)	0.050 (1.27)
1½ <sup>A</sup>	1.750 (44.45)	±0.010 (±0.25)	0.060 (1.52)
1½	1.900 (48.26)	±0.006 (±0.15)	0.060 (1.52)
2	2.375 (60.32)	±0.006 (±0.15)	0.070 (1.78)
3	3.500 (88.90)	±0.008 (±0.20)	0.080 (2.03)
4	4.500 (114.30)	±0.009 (±0.23)	0.100 (2.54)
6	6.625 (168.28)	±0.011 (±0.28)	0.100 (2.54)
8	8.625 (219.08)	±0.015 (±0.38)	0.150 (3.81)
10	10.750 (273.05)	±0.015 (±0.38)	0.150 (3.81)
12	12.750 (323.85)	±0.015 (±0.38)	0.150 (3.81)

<sup>A</sup>Not an IPS size. Pipe shall be used with compatible fittings designed for this outside diameter. The wall thickness is the same as 1 1/2 in. IPS Schedule 40 shown in ~~Table 2~~.



**TABLE 3 Wall Thickness and Tolerances for Polyolefin Pipe SDR 17 and 26, in. (mm)**

*Note 1: For fittings, the wall thickness is a minimum value, except that a 10 % variation resulting from core shift is allowable. In such a case, the average of the two opposite wall thicknesses shall equal or exceed the value shown in the Table 3.*

<u>Nominal Pipe Size</u>	<u>SDR 26</u>		<u>SDR 17</u>	
	<u>Minimum</u>	<u>Tolerance</u>	<u>Minimum</u>	<u>Tolerance</u>
<u>2</u>	<u>0.091 (2.32)</u>	<u>+0.020 (+0.51)</u>	<u>0.140 (2.32)</u>	<u>+0.017 (+0.43)</u>
<u>3</u>	<u>0.135 (3.42)</u>	<u>+0.020 (+0.51)</u>	<u>0.206 (3.43)</u>	<u>+0.025 (+0.63)</u>
<u>4</u>	<u>0.173 (4.40)</u>	<u>+0.021 (+0.53)</u>	<u>0.265 (4.40)</u>	<u>+0.032 (+.81)</u>
<u>6</u>	<u>0.255 (6.47)</u>	<u>+0.031 (+0.78)</u>	<u>0.390 (6.47)</u>	<u>+0.047 (+1.19)</u>
<u>8</u>	<u>0.332 (8.43)</u>	<u>+0.040 (+1.01)</u>	<u>0.507 (8.43)</u>	<u>+0.061 (+1.55)</u>
<u>10</u>	<u>0.413 (10.50)</u>	<u>+0.050 (+1.26)</u>	<u>0.632 (10.50)</u>	<u>+0.076 (+1.93)</u>
<u>12</u>	<u>0.490 (12.46)</u>	<u>+0.059 (+1.50)</u>	<u>0.750 (12.46)</u>	<u>+0.090 (+2.29)</u>

**TABLE 3.4 Average Waterway Diameter, in. (mm)**

<u>Nominal Pipe Size</u>	<u>Unthreaded Fittings, min</u>	<u>Threaded Male Adapters</u>	
		<u>Min</u>	<u>Max</u>
1¼	1.227 (31.17)	1.220 (31.00)	1.280 (32.50)
1½	1.446 (36.73)	1.458 (37.00)	1.501 (38.10)
2	1.881 (47.78)	1.915 (48.60)	1.946 (49.40)
3	2.820 (71.63)	2.849 (72.30)	2.983 (75.70)
4	3.737 (94.92)	3.806 (96.60)	3.972 (100.80)
6	5.646 (143.41)	5.851 (148.50)	6.005 (152.40)
8	7.490 (190.25)	.....	.....
10	9.407 (238.94)	.....	.....
12	11.197 (284.40)	.....	.....