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An American National Standard

Standard Practice for Qualification of Polyethylene Saddle Fusion Joints[1]

This standard is issued under the fixed designation F 905; 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.

1. Scope

1.1 This practice describes test criteria suitable for qualification of polyethylene saddle fusion joints. These tests may be conducted by suppliers or users to qualify saddle fusion joints in accordance with the requirements found in the Department of Transportation (DOT) Code of Federal Regulations (CFR) Title 49, Part 192.283. If desired, these tests may also be conducted by users to qualify personnel making saddle fusion joints per DOT CFR 49, Part 192.285.

1.2 The impact resistance test described is a nonstandard test. This is not the only test that may be used to qualify saddle fusion joints per DOT regulations.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1598 Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure[2]

D 2513 Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings[2]

D 2683 Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing[2]

D 3261 Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing[2]

2.2 *DOT Document:*

49 CFR, Part 192, Minimum Federal Safety Standards for Gaslines[3]

3. Significance and Use

3.1 The tests described in this practice are intended to present a method of satisfying the requirements of DOT CFR Title 49, Parts 192.283 and 192.285.

3.2 The sustained pressure test is intended to meet the burst test requirements of Part 192.283.

3.3 The impact resistance test is intended to meet the force requirements of Part 192.283 as follows:

3.3.1 ". . . For procedures intended for lateral pipe connections, subject a specimen joint made from pipe sections joined at right angles according to the (joining) procedure to a force on the lateral pipe until failure occurs in the specimen. If failure initiates outside the joint area, the (joining) procedure qualifies for use."

4. Materials

4.1 Pipe and fittings shall meet the requirements of Specification D 2513.

4.2 The outlet portion of a saddle fitting shall conform to Specification D 2683 for socket-fusion outlets or Specification D 3261 for butt-fusion outlets.

4.3 The radius of the saddle portion of the fitting shall fit the pipe size to which it is intended to be joined. The surface contact area of the saddle portion of the fitting and the thickness of saddle portion shall be sufficient to meet the qualification requirements of this practice.

4.4 Qualification tests shall be conducted on all saddle fittings with different base areas. Only one pipe diameter needs to be tested per fitting type if base areas are the same.

5. Procedure

5.1 *General*:

5.1.1 Conduct each qualification test with the polyethylene saddle fitting fused to a polyethylene pipe that has a maximum pressure rating equal to or greater than that for which the gas distribution system is designed.

5.1.2 Allow the saddle fusion joint to cool to room temperature prior to testing.

5.1.3 For each qualification test, tap the polyethylene pipe with the largest size hole used in the gas distribution system for that fitting.

[1] This practice is under the jurisdiction of ASTM Committee F-17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.60 on Gas.

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[2] *Annual Book of ASTM Standards*, Vol 08.04.

[3] Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.