



Standard Practice for Evaluating the Quality of Molded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings by the Heat Reversion Technique¹

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1. Scope*

1.1 This practice covers a procedure for evaluating the quality of molded poly(vinyl chloride) (PVC) plastic pipe fittings after exposure to heat.

1.2 *Units*—The values stated in either inch-pound or SI units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

NOTE 1—The values in square brackets are SI units requirements.

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

2. Summary of Practice

2.1 A representative sample of the fitting being produced is placed in a thermostatically controlled oven at $302 \pm 5.4^\circ\text{F}$ or $[150 \pm 3^\circ\text{C}]$ for 30 min. The acceptability of the fitting quality, after the required test time, is based or expressed as a percentage of the original wall thickness or surface area of the fitting.

3. Significance and Use

3.1 This practice is applicable to distinguish between properly and improperly molded PVC plastic pipe fittings. It can be used to:

3.1.1 Determine whether cold slugs or unfused areas are present (Note 2),

3.1.2 Determine the amount of molded-in stress produced by the molding process (Note 3),

3.1.3 Reveal contamination, and

3.1.4 Show the quality of the weld line.

¹ This practice is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.40 on Test Methods.

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NOTE 2—A cold slug is a piece of material that enters the mold at a significantly lower temperature than the rest of the mass.

NOTE 3—A stress-free part will generally have better properties and higher strength than those with a high degree of stress. Stress-free parts will generally react better when exposed to chemicals.

4. Apparatus

4.1 *Circulating Air Oven*, thermostatically controlled, capable of operating at $302 \pm 5.4^\circ\text{F}$ or $[150 \pm 3^\circ\text{C}]$ such that after insertion of the fittings to be tested the test temperature is regained within 15 min or less. (See Annex A1.)

NOTE 4—The oven should be vented to the outside of the building.

5. Conditioning

5.1 A specific conditioning period is not required although the fitting shall be at room temperature. This test can be performed on a particular fitting any time after it has been produced.

6. Procedure

6.1 Select the fittings to be tested and examine them for the following, making proper notation for the report:

6.1.1 The condition and appearance of both inner and outer surfaces of the fitting,

6.1.2 The condition and appearance of the weld lines and areas adjacent to them,

6.1.3 The condition and appearance of the gate and area adjacent to it, and

6.1.4 The condition and appearance of the internal surface opposite the gate and gate area.

6.2 Place the fittings to be tested in the oven so that each fitting stands on one of its socket entrances and with sufficient separation between individual specimens so that the hot air can flow freely between them. Record the time when the air in the oven recovers to $302 \pm 5.4^\circ\text{F}$ or $[150 \pm 3^\circ\text{C}]$. After an additional time as indicated in Table 1 at this temperature, remove the fittings, taking care not to distort or otherwise damage them.

6.2.1 When the fitting being tested has a body and branch wall that falls within two different exposure times, two fittings shall be tested. One will be tested using the lower exposure time, and the other will be tested using the longer exposure time.

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