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An American National Standard

Standard Practice for Determination of the Temperature of Above-Ground Plastic Gas Pressure Pipe Within Metallic Casings[1]

This standard is issued under the fixed designation F689; 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 a procedure for the determination of the temperature history of above-ground plastic gas pressure pipe encased in a metallic casing. Such temperature changes may be due to ambient air temperature, or solar exposure, or both.

1.2 *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:*[2]

D2513 Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings

E220 Test Method for Calibration of Thermocouples By Comparison Techniques

2.2 *Other Document:*

Thermoplastic Fuel Gas Piping/Investigation of Maximum Temperatures Attained by Plastic Pipe Inside Metal Service Risers, TR 30, Plastic Pipe Institute, May 1978[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *anodeless riser*—A type of transition fitting that is designed to transport gas from an underground polyethylene service line to above-ground steel piping. In an anodeless riser polyethylene pipe is always the gas carrier, at least, in the below ground section.

3.1.2 *plastic gas pipe*—an approved gas carrier that complies with Specification D2513.

4. Significance and Use

4.1 This practice provides a procedure for determining the temperature history of plastic gas pressure pipe encased in metallic casings.

4.2 The data obtained are indicative of the temperature attainable within a service riser of a specific design and size in a given geographical location under the climatogical conditions in existence during the test period.

4.3 The data obtained can be used within the constraints of 4.2 to design the maximum allowable operating pressures permitted by existing codes.

5. Apparatus

5.1 *Four-Channel Continuous Chart Thermocouple Recorder.*

5.2 *Thermocouple Probes*.

5.3 *Solar Load Panel*, 12 by 20 by 0.032 in. (300 by 500 by 0.8 mm), steel, painted flat black with an insulated thermocouple attached to the underside.

5.4 *Ambient Thermocouple Apparatus*, consisting of a well-ventilated, shaded housing containing a thermocouple for monitoring ambient air temperature (see Fig. 1).

6. Test Specimens

6.1 The riser may be either preassembled or fabricated in accordance with written procedures.

6.2 The outlet from the specimen defined by 6.1 shall be capped to simulate no-flow (stagnant) conditions.

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

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[2] 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.

[3] Available from the Plastic Pipe Institute, 1825 Connecticut Ave. NW, Suite 680, Washington DC, 10017.