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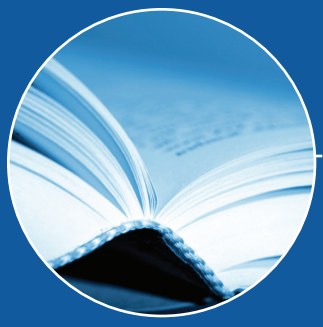
NSF/ANSI 358-4 - 2018

Polyethylene of Raised Temperature (PE-RT) Tubing and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems



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NSF International Standard/
American National Standard
for Plastics –

Polyethylene of Raised Temperature (PE-RT) Tubing and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems

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Foreword[2]

Geothermal technology has been used in North America for decades and is experiencing tremendous interest. In 2009, the NSF Joint Committee on Plastics and RV Plumbing Components proposed to develop this Standard after a need was identified in the industry. Plastic piping system components are used in the construction of earth energy systems yet there is no North American standard addressing all relevant aspects of earth energy systems. It is the intent of this Standard to assist in a more consistent approval and mainstream code adoption of the geothermal piping systems technology.

This Standard will be separated into four separate documents based on material types. NSF/ANSI 358-4 addresses products in polyethylene of raised temperature (PE-RT) tubing and fittings for water-based ground-source (geothermal) heat pump systems

This Standard was developed by the NSF Joint Committee on Plastics using the consensus process described by the American National Standards Institute.

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance scheduled and can be opened for comment at any time. Comments should be sent to Chair, Joint Committee on Plastics at standards@nsf.org or, c/o NSF International, Standards Department, P.O. Box 130140, Ann Arbor, Michigan, 48113-0140, USA.

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NSF/ANSI Standard
for Plastics –

Polyethylene of Raised Temperature (PE-RT) Tubing and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems

1 General

1.1 Purpose

This Standard establishes the minimum physical and performance requirements for plastic piping system components. These criteria were established for the protection of property, public health and the environment.

1.2 Scope

The physical and performance requirements in this Standard apply to plastic piping system components as well as non-plastic components of the ground loop heat exchanger including, but not limited to, polyethylene of raised temperature (PE-RT) tubing and fittings used in water-based ground-source heat pump systems. This standard does not cover refrigerant-based ground loop heat exchangers such as direct expansion (DX) systems. This Standard does not cover hydronic heating or cooling systems within buildings.

2 Normative references

The following documents contain provisions that, through reference, constitute provisions of this NSF Standard. At the time this Standard was balloted, the editions listed below were valid. All documents are subject to revision, and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below. For undated references, the most recent version shall be referenced. These are normative references for Polyethylene of Raised Temperature (PE-RT) tubing and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems.

ASTM D543 Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents[3]

ASTM D2290 Standard Test Method for Apparent Hoop Tensile Strength of Plastic or Reinforced Plastic Pipe[3]

ASTM D2837 Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastics Pipe Products[3]

ASTM F412. *Terminology Relating to Plastic Piping Systems*[3]

ASTM F1055, *Standard Specification for Electrofusion Type Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and tubing*[3]

[3] American Society for Testing Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 <www.astm.org>.