

Geothermal Piping Systems Certification



NSF/ANSI 358 Offers New NSF Certification for Geothermal Piping Systems

Third-party listing of geothermal piping systems provides engineers, regulators and users the assurance that products are independently certified to meet requirements for geothermal end use. Third-party certification reduces potential liability, increases confidence and product acceptance, and helps to ensure product consistency in meeting all applicable requirements.

NSF/ANSI 358-1 - *Polyethylene Pipe and Fittings for Water-Based Ground-Source "Geothermal" Heat Pump Systems*, a new American National Standard, determines the minimum physical and performance requirements for the plastic piping system components. NSF/ANSI 358-1 establishes product testing, long-term strength and quality control requirements that are key to ensuring product performance in the field.

Key Aspects of NSF/ANSI 358-1:

- High density HDPE must meet ASTM D3035
- Hydrostatic Design Basis per Plastic Pipe Institute TR-3 at 73F and 140F
- Pipe standards design per ASTM F714, ASTM D2737, ASTM D3035, CSA B137.1/ CSA C448, or AWWA C901 with a minimum wall thickness requirement
- Fitting standards design per ASTM D3261, D2683 or F1055
- U-bend sustained pressure testing at elevated temperature
- Chemical resistance requirements of pipe and fitting materials
- Facility inspections, quality control requirements and monitoring testing document continued product compliance

Facility Inspections

Initial and ongoing facility inspections are required to ensure continued product compliance with applicable requirements. The scope of these inspections includes:

- Formulation review
- Manufacturing process review
- Verification of authorized raw material use
- Verification and observation of quality control requirements
- Product sampling
- Product marking review



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Quality Control Requirements:

NSF/ANSI 358-1 requires manufacturers to perform critical quality control testing at the production facility at specified frequencies. For example, for pipe designed to ASTM Standards:

Test	Minimum Frequency
Burst pressure	24 hours
Dimensions, inner diameter or outer diameter	2 hours
Dimensions, wall thickness	2 hours
Sustained pressure at elevated temperature	Annually
Environmental stress crack resistance	Annually

Monitoring Testing

During the facility inspections, samples of certified products are collected by NSF for annual testing to all applicable requirements. NSF provides a detailed report that summarizes the results of these tests.

Contact

For more information on NSF certification of geothermal piping systems visit www.nsf.org/info/plumbing or contact us at:

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