



Evaluation Report CCMC 14006-R Aquatherm GmbH

MasterFormat:	22 11 16
Evaluation issued:	2015-01-06
Re-evaluated:	2018-09-25

1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “Aquatherm GmbH,” when used as an alternative solution for potable water and reclaimed water piping and piping for heating and cooling systems in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code (NBC) of Canada 2015:

- Clause 1.2.1.1.(1)(a), Division A, using the following acceptable solutions from Division B:
 - Article 6.5.1.1., Insulation and Coverings
 - Article 6.7.1.1., Piping Materials and Installation
- Clause 1.2.1.1.(1)(b), Division A, as an alternative solution that achieves at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the following applicable acceptable solutions:
 - Article 3.1.5.19., Combustible Piping Materials
 - Article 3.1.9.1., Fire Stops
 - Article 3.1.9.2., Combustibility of Service Penetrations
 - Article 3.1.9.5., Combustible Piping Penetrations
 - Article 3.1.12.1., Determination of Ratings
 - Article 3.6.4.3., Plenum Requirements

The products also comply with the National Plumbing Code (NPC) of Canada 2015:

- Clause 1.2.1.1.(1)(a), Division A, using the following acceptable solutions from Division B:
 - Article 2.2.5.14., Polypropylene Pipe and Fittings
- Clause 1.2.1.1.(1)(b), Division A, as an alternative solution that achieves at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the following applicable acceptable solutions:
 - Section 2.6., Potable Water Systems

This opinion is based on the CCMC evaluation of the technical evidence in Section 4 provided by the Report Holder.

2. Description

The products are polypropylene-random (PP-R) pipes that have a minimum nominal diameter of 20 mm to a maximum of 630 mm. “Aquatherm Green Pipe” for potable cold water systems is green with a light blue stripe. “Aquatherm Green Pipe MF” for potable hot and cold water systems, reverse osmosis/deionization (RO/DI) systems and food contact is green with a dark green stripe. “Aquatherm Blue Pipe MF” for mechanical, industrial and hydronic systems is blue with a green stripe or may be a purple or lilac coloured pipe for use with rainwater catchment, recycled and reclaimed water. The green pipe with the dark green stripe and the blue pipe with the green stripe are supplied with a layer of glass fibre reinforcement. This layer of glass fibre reinforced PP-R, which is called the faser layer, minimizes the effects of expansion and contraction and provides additional structural reinforcement. The illustrations of the different pipes and their applications are given in Table 2.1.

Table 2.1 Illustrations and Applications of the Products

Pipe	Application
	For potable cold water systems
	For potable hot and cold water systems, RO/DI systems and food contact
	For mechanical, industrial and hydronic systems
	For use with rainwater catchment, recycled and reclaimed water

The pipe must be insulated with a minimum 25.4 mm layer of mineral wool or glass fibre insulation to comply with the requirements of CAN/ULC-S102.2, “Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies.” The insulation has an all-service jacket that is approximately 25.4 mm thick with an adhesive strip on the inside edge. The insulation is applied by wrapping it longitudinally around the pipe. The single longitudinal seam is then taped on the outside using the self-sealing lap and quick release butt strips provided as specified by the insulation manufacturer. The pipe may be wrapped on-site or be supplied pre-wrapped. The finished pipe/insulation system is referred to as “Aquatherm Advanced.”

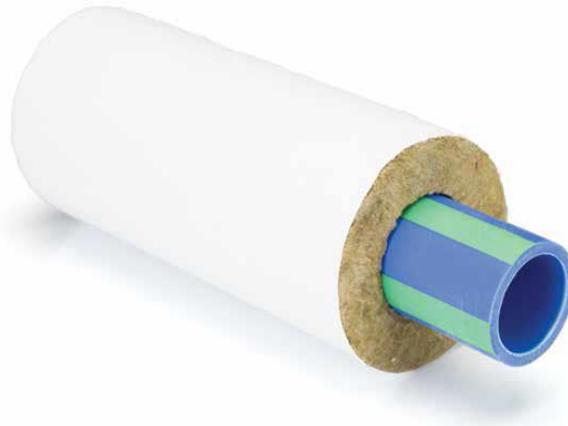


Figure 1. “Aquatherm GmbH”

3. Conditions and Limitations

The CCMC compliance opinion in Section 1 is bound by the “Aquatherm GmbH” being used in accordance with the conditions and limitations set out below:

- The product must be installed in accordance with the *Aquatherm Installer Manual, 3rd Edition*.
- The supports and anchors for pipes in a heating or air conditioning system must be designed and installed to ensure that undue stress is not placed on the supporting structure.
- The product has minimum temperature/pressure ratings that conform to CAN/CSA-B137.11.
- All accessories must be approved by the manufacturer for use with the “Aquatherm GmbH” pipe and fitting system.
- The product’s label and/or packaging must be clearly marked with the phrase “CCMC 14006-R.”

4. Technical Evidence

The Report Holder has submitted technical documentation for the CCMC evaluation. Testing was conducted at laboratories recognized by CCMC. The corresponding technical evidence for this product is summarized below.

4.1 Material Requirements

Table 4.1.1 Results of Testing the Material Requirements of the Product

Property	Requirement	Result
Pipe and fittings (for use in potable water and hydronic heating and cooling systems)	Meet requirements of CAN/CSA-B137.11	Pass
Glass fibre pipe insulation	Meet requirements of ASTM C547, "Standard Specification for Mineral Fiber Pipe Insulation." Insulation products must be tested and approved by a certification agency recognized by CCMC. Consult with Aquatherm for a list of acceptable pipe insulations.	Pass

4.2 Performance Requirements

In accordance with Article 3.1.5.19. of Division B of the NBC 2015, combustible piping and tubing are permitted in a building required to be of noncombustible construction provided that, except when concealed in a wall or concrete floor slab, the products have a flame-spread rating of not more than 25, and if used in a building described in Subsection 3.2.6., Additional Requirements for High Buildings, of Division B of the NBC 2015, they have a smoke-developed classification of not more than 50.

Tests to determine the flame-spread rating and smoke-developed classification were conducted in conformance with CAN/ULC-S102.2.

Table 4.2.1 Results of Testing the Performance Properties of the Products

Property	Requirement	Result
Flame-spread rating	≤ 25	Pass
Smoke-developed classification	≤ 50	Pass
Fire stop system rating ⁽¹⁾	Certified to CAN/ULC-S115	F rating

Note to Table 4.2.1:

- (1) Piping that penetrates a fire separation, or a membrane forming part of an assembly required to have a fire-resistance rating, must be sealed by a fire stop system with an F rating of not less than the fire-protection rating required for closures in the fire separation in conformance with Table 3.1.8.4. of Division B of the NBC 2015. Fire stop systems are listed with ULC, UL, and ITS and specify the corresponding F rating and pipe size in accordance with CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."

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Date modified:

2018-09-25