CAN/ULC 770:2025

Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams

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Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams, CAN/ULC 770

Fifth Edition, Dated March 28, 2025

Summary of Topics

This new Fifth edition of CAN/ULC 770, dated March 28, 2025, has been issued to reflect the latest SCC approval date and to incorporate proposals dated August 16, 2024 and January 30, 2025.

The requirements are substantially in accordance with Proposal(s) on this subject dated August 16, 2024 and January 30, 2025.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

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Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams

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ULC Standards
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PREFACE

This is the Fifth Edition of the Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams, CAN/ULC 770.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Thermal Performance and Energy Use in the Built Environment.

This Standard has been developed in compliance with the requirements of SCC for accreditation of a Standards Development Organization.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

Annexes A, B, and Didentified as Informative, are for information purposes only.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

This Fifth Edition National Standard of Canada is based on, and now supersedes, the Fourth Edition.

Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patent rights. ULC Standards shall not be held responsible for identifying any or all such patent rights.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a “yes” or “no” answer based on the literal text of the requirement concerned.

This CAN/ULC 770 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

This Standard is intended to be used for conformity assessment.

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1 Scope

1.1 This procedure defines the long-term thermal resistance (LTTR) of a foam product as the value measured after 5-year storage in a laboratory environment and provides means for its prediction based on an accelerated laboratory test.

1.2 This procedure, based on ASTM standard test methods ASTM C1303 and ASTM C518, can be applied to a wide range of preformed as well as field manufactured insulating foams. This procedure estimates the change in the thermal resistivity of insulating foam products by means of slicing and scaling.

1.3 This procedure addresses faced and unfaced products without consideration to the effect of facers on the LTTR of the product.

NOTE: This method is not intended for products with impermeable membranes such as those with sheet metal facers, which will retain most of their initial R-values. Reference: M.A. Kabayama, Long-Term Thermal Resistance Values of Cellular Plastic Insulations.

1.4 This test procedure is applicable to cellular plastic insulation manufactured to retain a gas or mixture of gases, other than air, for a period longer than 180 days.

1.5 This procedure specifies reference time, sampling and testing requirements and is based on test method ASTM C1303 to determine LTTR for closed-cell foams such as extruded polystyrene, sprayed polyurethane, and polyisocyanurate.

1.6 This procedure does not purport to address all the safety concerns, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Reference Publications

2.1 The documents shown below are referenced in the text of this Standard. Unless otherwise indicated elsewhere in this Standard, such reference shall be considered to indicate the edition and/or revision of the document available at the date on which the ULC Standards Committee approved this Standard.

ASTM C168, *Standard Terminology Relating to Thermal Insulation*

ASTM C518, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

ASTM C1303, *Standard Test Method for Predicting Long-Term Thermal Resistance of Closed-Cell Foam Insulation*

ASTM D1622, *Standard Test Method for Apparent Density of Rigid Cellular Plastics*

ULC-S773, *Thermal Insulation Terminology*

3 Terminology

NOTE: Definitions and symbols used in this specification are found in ASTM C168 and ULC-S773.

3.1 AGING FACTOR – A ratio between the average thermal resistivity at the end of the prescribed aging period to the average initial thermal resistivity.

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