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EVALUATION
REPORT

DIVISION 07216.4

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Insulthane 100/Home Foam

Elastochem Specialty Chemicals Inc.
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Plant: (Site-manufactured product.
Sole distributor is Home
Insulation Corporation.)

1. Purpose of Evaluation

The proponent sought confirmation from the Canadian Construction Materials Centre (CCMC) that "Insulthane 100/Home Foam" can serve as a thermal insulation in frame walls in compliance with the intent of the National Building Code of Canada (NBC) 1995.

2. Opinion

Subject to the limitations and conditions stated in this report, test results and assessments provided by the proponent show that "Insulthane 100/Home Foam" complies with CCMC's Technical Guide for Spray-in-Place, Semi-Flexible, Modified Isocyanate Thermal Insulation as a Type 1 product, Masterformat number 07216.4, dated 2002-02-28, and provides a level of performance equivalent to that required in:

- NBC 1995, Article 9.25.2.2.

Ruling No. 06-14-158 (13243-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 20 December, 2006 pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions).

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Canada Mortgage and Housing Corporation permits the use of this product in construction financed or insured under the National Housing Act.

3. Description

“Insulthane 100/Home Foam” is a spray-in-place, low-density, semi-flexible plastic foam that has an open cell structure. The foaming system consists of two components—“Insulthane 100/Home Foam” A and B, that are mixed on-site by a qualified installer with a 1:1 fixed-ratio, and positive displacement equipment.

Upon completion of “Insulthane 100/Home Foam” expansion, the open cells contain air. The chemical reaction that occurs while the product is being installed takes place in seconds. After curing, “Insulthane 100/Home Foam” remains semi-flexible.

The final cured product is either pistachio or cream in colour and has a density of around 6.8 kg/m³. At 25.4-mm thickness, the thermal resistance is 0.66 m²·C/W.

4. Usage and Limitations

“Insulthane 100/Home Foam” shall be manufactured on-site by certified installers employed by dealers who have been licensed by Home Insulation Corp. of Concord, Ontario, who is the sole Canadian distributor of “Insulthane 100/Home Foam.” Dealers licensed by Home Insulation Corp. have been trained on the proper installation of “Insulthane 100/Home Foam.” Certification and licensing information shall be presented to the building official upon request.

Intertek ETL Semko is the third-party organization that conducts random follow-up field inspections of “Insulthane 100/Home Foam” as part of Elastochem Specialty Chemicals Inc.’s quality control of the product’s field delivery system.

The installation procedure shall follow the manufacturer’s instruction manual. A copy of the manual shall be available at the job site at all times during the installation.

“Insulthane 100/Home Foam” shall be used only in new construction or a retrofit involving “open

cavity” construction and is subject to the following conditions:

- This product can be installed above-grade and protected from weather where any other foam insulation specified in the NBC 1995 is permitted. The product can also be installed on below-grade wall cavities (interior side only). Typical applications are illustrated in figures 1 to 3.
- This product is not exempt from the requirements for vapour barrier and air barrier protection and for damp proofing (interior below-grade walls) as required in Article 9.13.3.3. of the NBC 1995 and any other requirements beyond Article 9.25.2.2.
- Based on emission testing, at least one (1) day must pass before occupancy is permitted within the newly insulated suite(s).
- The sprayed material should completely cover the surfaces between the studs, joists, and other framing members. The surfaces to be covered should be clean, dry, and not damp or covered in frost, oil, grease, dust or other unsuitable material. As required in Article 9.25.2.3. of the NBC 1995, the insulation shall be installed so that there is a reasonably uniform insulating value over the entire face of the insulated area.
- The interior side of the applied semi-flexible polyurethane insulation shall be covered with an approved thermal barrier as per applicable Article 9.10.16.10. or 3.1.5.11. of the NBC 1995.
- The insulation should be kept at least 50 mm, or as required in building regulations and safety codes, from heat-emitting devices such as recessed light fixtures and chimneys.
- The maximum in-service temperature of the insulation shall not exceed 70°C.
- This product may not be used where it may be in contact with water and shall not be installed after its expiry date.

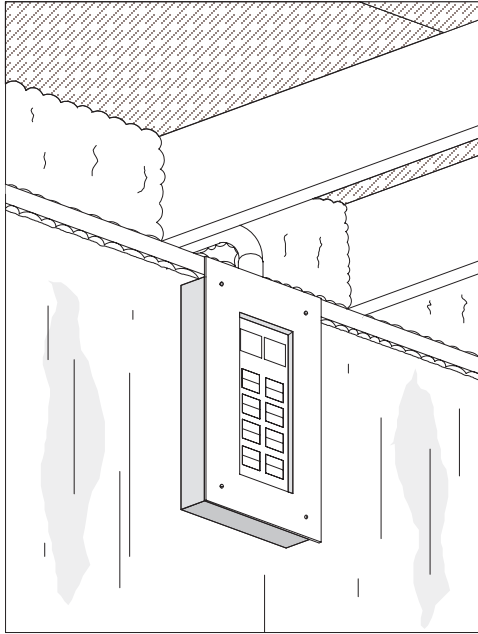


Figure 1. "Insulthane 100/Home Foam"

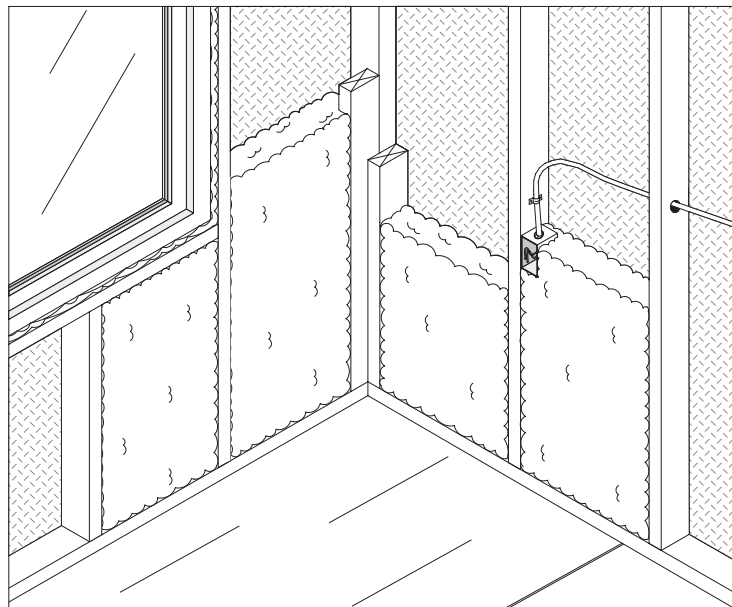


Figure 2. "Insulthane 100/Home Foam"

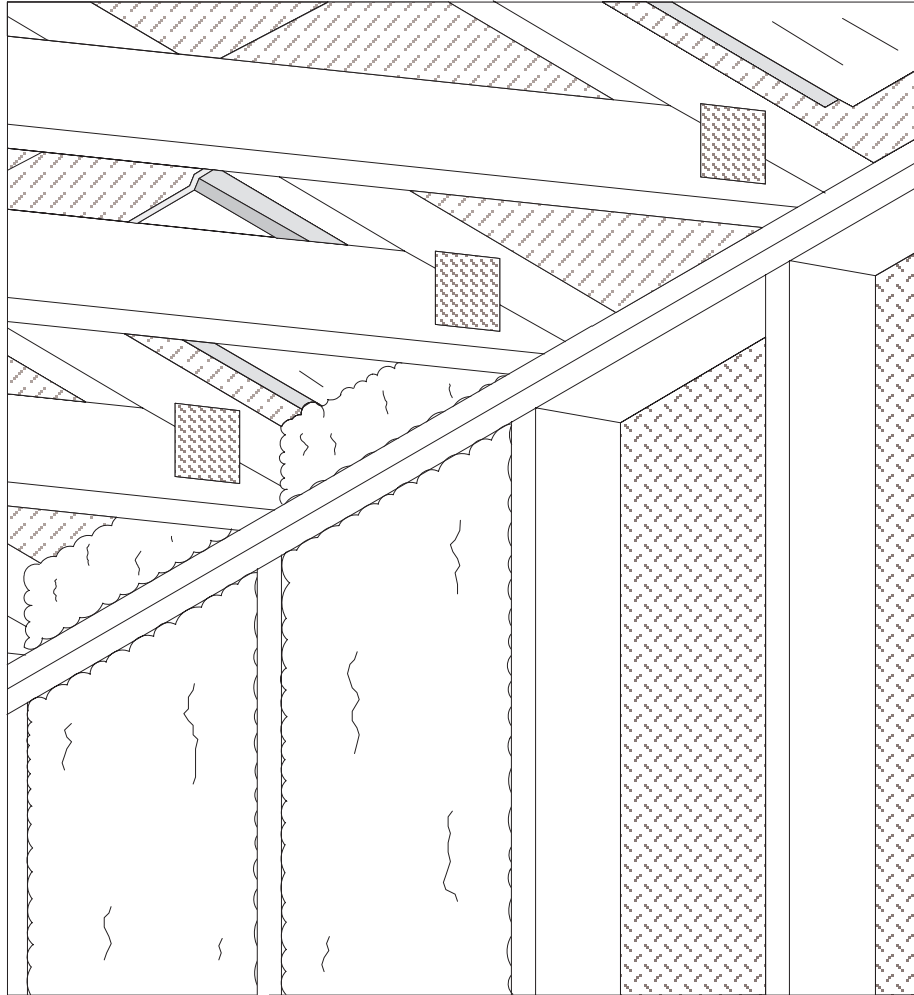


Figure 3. "Insulthane 100/Home Foam"

5. Performance

Testing and assessments were conducted by scientists at laboratories or by professional engineers recognized by CCMC. The results of testing "Insulthane 100/Home Foam" are summarized in Table 1.

Table 1. Test Results for “Insulthane 100/Home Foam”

Property and/or Test Method	Requirement	Results
Density–ASTM D 1622 (kg/m ³)	report value	6.83
Thermal Resistance at 25.4-mm thickness–ASTM C 518 (m ² ·C/W)	report value	0.66
Water Vapour Transmission–ASTM E 96 (ng/Pa·s·m ²) for 50-mm thickness	> 1400	1861 (average of three tests)
Water Absorption–ASTM D 2842 (%)	report value	18.0 (average of three tests)
Flame Spread and Surface Burning Characteristics–CAN/ULC-S102 and ULC S127	report value	flame spread 454 smoke developed 350
Dimensional Changes–ASTM D 2126 (% volumetric) when exposed to:	(1)	
	Min.	Max.
	– 15	+ 10
	– 15	+ 14
80°C and ambient R.H. 70°C and 95 ± 3% R.H. – 29°C and ambient R.H.	– 1	– 9.1 (average of 6 tests) – 11.9 (average of 6 tests) – 0.9 (average of 6 tests)
Emissions During Aging	(2)	Pass

Notes to Table 1:

- (1) Requirements for Dimensional Change under these accelerated test conditions were not established for low-density foam but for rigid sprayed polyurethane foam insulation products. The low-density foam results have been published as an indication of the performance.
- (2) The Volatile Organic Emissions (VOC) under consideration were below the detection limit after one (1) day with a room ventilation rate of 0.3 air changes per hour as per the NBC 1995. The determination of emissions and room concentration calculations was made by the Saskatchewan Research Council. Reported results from emissions tests indicate that the product should not pose a significant health risk to individuals residing in homes insulated with “Insulthane 100/Home Foam.” While the testing and evaluations represent the most current in state-of-the-art toxicological evaluations, such tests and their results do not purport to be conclusive with respect to the impact on health.

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Note: Readers are asked to refer to limitations imposed by NRC on the interpretation and use of this report. These limitations are included in the introduction to CCMC’s Registry of Product Evaluations, of which this report is part.

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