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ICC-ES Report

ESR-3155

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Reissued 06/2016
This report is subject to renewal 06/2018.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 21 00—THERMAL INSULATION

REPORT HOLDER:

STYROCHEM CANADA, LTD.

**19250 CLARK GRAHAM
BAIE D'URFE, QUEBEC H9X 3R8
CANADA**

EVALUATION SUBJECT:

STYROCHEM® EXPANDABLE POLYSTYRENE (EPS) BEADS



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**DIVISION: 07 00 00—THERMAL AND MOISTURE
PROTECTION****Section: 07 21 00—Thermal Insulation****REPORT HOLDER:****STYROCHEM CANADA, LTD.
19250 CLARK GRAHAM
BAIE D'URFE, QUEBEC H9X 3R8
CANADA
(514) 457-3226
www.styrochem.com****EVALUATION SUBJECT:****STYROCHEM® EXPANDABLE POLYSTYRENE (EPS)
BEADS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2012 and 2009 *International Building Code*® (IBC)
- 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Surface-burning characteristics
- Physical properties
- Attic and crawl space evaluation

2.0 USES

The StyroChem® expandable polystyrene beads are used by independent manufacturers to produce expanded polystyrene (EPS) insulation products.

3.0 DESCRIPTION

The expandable polystyrene beads are designated as resin Grades MA-500, MB-500, MC-500, MB-590 and MC-590. The EPS insulation products manufactured from the beads are produced through the introduction of steam into a heating chamber containing the beads. This process expands the beads, which are then molded into insulation products. At densities and thicknesses no greater than those specified in Table 1, EPS insulation products produced from the beads have a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723. The end use of the EPS beads, including the manufacture of the

EPS products, is outside the scope of this report and must be addressed in a separate evaluation report.

Bead Types MA-500, MB-500, MC-500, MB-590 and MC-590 can be used to produce EPS products that comply with Types I, VIII, II, and IX [0.9, 1.15, 1.35 and 1.8 pcf and (15, 18, 22 and 29 kg/m³) minimum densities, respectively] of ASTM C578. The expanded polystyrene beads have been qualified in accordance with Section 4.5.15.1.1 of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). The beads can be used to produce EPS products that comply with ASTM C578, for the types specified in Table 1, provided the final product is recognized in a current ICC-ES evaluation report and has been qualified in accordance with Section 4.5.15.1.2 of AC12.

4.0 INSTALLATION**4.1 General:**

Installation must be as noted in the corresponding current ICC-ES evaluation report on the EPS insulation product, or as otherwise permitted by the code official under Section 2603 of the IBC or Section R316 of the IRC, as applicable.

4.2 Attics and Crawl Spaces:

EPS insulation products produced from the EPS beads of the resin type, density, and thickness shown in Table 2 of this report can be used on walls in attics and crawl spaces without a code-prescribed ignition barrier applied to the attic or crawl space side of the foam plastic, provided all of the following conditions are met:

- a. Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
- b. There are no interconnected attic or crawl space areas.
- c. Air in the attic or crawl space is not circulated to other parts of the building.
- d. Attic ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806, as applicable.
- e. Under-floor (crawl space) ventilation is provided in accordance with IBC Section 1203.3 or IRC Section R408.1, as applicable.
- f. Combustion air is provided in accordance with IMC (*International Mechanical Code*®) Section 701.
- g. Thickness and density are limited to values listed in Table 2.

5.0 CONDITIONS OF USE

The StyroChem® expandable polystyrene beads described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The density and thickness of the EPS insulation boards produced from the expanded beads must be as noted in Tables 1 and 2 of this report.
- 5.2 Products manufactured from the EPS beads must be recognized in a current ICC-ES evaluation report.
- 5.3 Except as noted in Section 4.2, the EPS insulation products produced from the EPS beads must be separated from the building interior by a thermal barrier complying with IBC Section 2603.4 and IRC Section R316.4, as applicable.
- 5.4 The beads are manufactured in Saginaw, Texas, and Baie d'Urfe, Quebec, Canada, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2012, including reports of tests in accordance with Appendix B of AC12.

7.0 IDENTIFICATION

Each container of beads is labeled with the report holder's name (StyroChem Canada, Ltd.) and address, the production plant country (made in the United States or made in Canada), the bead type, and the evaluation report number (ESR-3155).

TABLE 1—EPS PRODUCT DENSITY AND THICKNESS WHEN MADE WITH STYROCHEM® BEADS

| EPS TYPE ¹ | NOMINAL DENSITY (pcf) | MAXIMUM THICKNESS (inches) FOR BEAD TYPES MA-500, MB-500, MC-500, MB-590, MC-590 |
|-----------------------|-----------------------|--|
| I | 1.0 | 6 |
| VIII | 1.25 | 6 |
| II | 1.50 | 6 |
| IX | 2.0 | 6 |

For SI: 1 pcf = 16.02 kg/m³, 1 inch = 25.4 mm.

¹Type as designated in ASTM C578.

TABLE 2—MAXIMUM DENSITY AND MAXIMUM THICKNESS FOR EPS PRODUCTS USED IN ATTICS OR CRAWL SPACES

| MAXIMUM DENSITY (pcf) | MAXIMUM THICKNESS (inches) FOR BEAD TYPES MA-500, MB-500, MC-500, MB-590, MC-590 |
|-----------------------|--|
| 1.0 | 4 |
| 1.5 | 2.6 |
| 2.0 | 2 |

For SI: 1 pcf = 16.02 kg/m³, 1 inch = 25.4 mm.