



March 17, 2005

To Whom It May Concern:

BuildBlock Insulating Concrete Forms (ICF's) are manufactured from Expandable Polystyrene bead (EPS) from Huntsman, Styrochem and Starex from Korea. BuildBlock currently uses the **40 series EPS bead from Huntsman** at the Colorado Springs, Colorado and Pardeeville, Wisconsin locations, the **MC-500 type from Styrochem** at the Jerome and Coeur d'Alene, Idaho locations and **Starex SF series from Korea** in Idaho when no other supply is available. BuildBlock ICF's are manufactured with a **density of 1.50 pcf**, and a **thickness of 2.5 inches**. Expandable Polystyrene complies with all major building codes in the US and Canada. Please see the **Underwriters Laboratory report for flame spread and smoke developed data**, and the **ICC-ES Legacy reports** ER-5703, ER-5687 and ER-5624 for evidence submitted and specific code compliance information.

Sincerely,

Eric Williams, National Sales Manager



BRYX.R7503

Foamed Plastic

See [General Information for Foamed Plastic](#)

HUNTSMAN EXPANDABLE POLYMERS CO L C

R7503

3040 POST OAK BLVD
HOUSTON, TX 77056 USA

Foamed plastic in the form of blocks and boards.

Type Grade 54

	1 In. Max +	2 In. Max +	4 In. Max +	5 In. Max +
Flame spread	5#	5##	5###	5####
Smoke developed	40#	40-100##	80-160###	80-200####

+Installed in a thickness, or stored in an effective thickness, as indicated, for a density of 1.0 lb/fr .

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 0 and smoke developed classification of 180.

##Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 20 and smoke developed classification of 500 - over 500.

###Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 20 - 35 and smoke developed classification of 500 - over 500.

Type Grade 54

	1 In. Max +	2 In. Max +	4 In. Max +	5 In. Max +
Flame spread	5#	5##	5###	5####
Smoke developed	50-110#	50-130##	145###	145####

+Installed in a thickness, or stored in an effective thickness, as indicated, for a density of 1.5 lb/ft³.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 5 and smoke developed classification of 350 - 400.

##Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 10 - 40 and smoke developed classification of 350 - over 500.

###Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 125 and smoke developed classification of over 500.

Type Grade 54

	1 In. Max +	2 In. Max +	4 In. Max +	5 In. Max +
Flame spread	5#	5##	5###	5####
Smoke developed	10-70#	55-200##	55-200###	55-200####

+Installed in a thickness, or stored in an effective thickness, as indicated, for a density of 1.75 lb/cu ft.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 15 and smoke developed classification of 450 - over 500.

##Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 15 - 30 and smoke developed classification of 450 - over 500.

###Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 15 - 80 and smoke developed classification of over 500.

####Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 100 and smoke developed classification of over 500.

Type Grade 54

	5 in. Max+
Flame Spread	5#
Smoke Developed	15#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 2.00 lb/ft³.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 135 and smoke developed classification of Over 500.

Type Grade 40

	5 in. Max+
Flame Spread	5#
Smoke Developed	200#

+Installed in a thickness, or stored in an effective thickness, as indicated, for a density of 1.00 lb/ft(3).

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 35 and smoke developed classification of Over 500.

Type Grade 40

	5 in. Max+
Flame Spread	5#
Smoke Developed	200#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 1.25 lb/ft(3).

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 110 and smoke developed classification of Over 500.

Type Grade 40

	5 in. Max+
Flame Spread	5#
Smoke Developed	250#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 1.50 lb/ft(3).

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 140 and smoke developed classification of Over 500.

Type Grade 40

6 in. Max+

Flame Spread	5#
Smoke Developed	250#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 1.75 lb/ft(3).

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 140 and smoke developed classification of Over 500.

Type Grade 40

	6 in. Max+
Flame Spread	20#
Smoke Developed	250#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 2.00 lb/ft(3).

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread classification of 140 and smoke developed classification of Over 500.

Last updated on 2004-12-03

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a safer world



Filing Category: INSULATION

HUNTSMAN EXPANDABLE POLYSTYRENE BEADS

HUNTSMAN CORPORATION
3040 POST OAK BLVD,
HOUSTON, TEXAS 77056

1.0 SUBJECT

Huntsman Grades 54 and 40 Expandable Polystyrene Beads.

2.0 DESCRIPTION

2.1 General:

Expandable polystyrene beads designated as Huntsman Grades 54 and 40, produced by Huntsman Corporation, are used by independent manufacturers in producing expanded polystyrene (EPS) insulation board. Products are produced solely through the introduction of heat, without other additives. Boards manufactured from Grade 54 beads at a maximum density of 1.75 pcf (28 kg/m³) and a maximum thickness of 5 inches (127 mm), and boards manufactured from Grade 40 beads at a maximum density of 2.0 pcf (32 kg/m³) and a maximum thickness of 5 inches (127 mm), have a flame-spread rating of 25 or less and a smoke-developed rating of 450 or less when tested in accordance with UBC Standard 8-1 (ASTM E 84). Boards manufactured from Grade 54 and Grade 40 beads at a maximum density of 2.0 pcf (32 kg/m³) and a maximum thickness of 5 inches (127 mm) have a flame-spread rating of 25 or less and a smoke-developed rating of 450 or less when tested in accordance with UBC Standard 8-1 (ASTM E 84).

Huntsman Grade 54 and Grade 40 expandable beads can be used to produce expanded polystyrene products that comply with Types I, II, VIII and IX [1.0, 1.5, 1.25 and 2.0 pcf (16, 24, 20 and 32 kg/m) nominal density, respectively] of ASTM C 578-95, provided the final product is recognized in a current ICBO ES evaluation report and has been qualified in accordance with Section 6.11.1.2 of the ICBO ES Acceptance Criteria for Foam Plastic Insulation (AC12).

2.2 Installation:

2.2.1 General: Foam plastic boards produced from the Huntsman beads must be installed in accordance with the ICBO ES evaluation report on the boards and the applicable code.

2.2.2 Special Use: Foam plastic boards produced from the Huntsman Grade 54 beads can be used on walls in attics and crawl spaces with no covering applied to the attic or crawl space side of the foam plastic, provided all of the following conditions are met:

1. Entry to the attic or crawl space is only to service utilities, and heat-producing appliances are not permitted.

2. There are no interconnected attic or basement areas.
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Attic ventilation is provided that complies with Section 1505 of the 1997 *Uniform Building Code*™, Section 1202.2 of the 2000 *International Building Code*® or Section R806 of the 2000 *International Residential Code*®, as applicable. Under-floor ventilation is provided that complies with Section 2306.7 of the UBC, Section 2304.11.9 of the IBC or Section R408.1 of the IRC, as applicable.
5. Boards produced from Grade 54 beads have a maximum thickness of 3 inches (76 mm) for 1.0 pcf (16.0 kg/m³) density boards and a maximum thickness of 3 inches (76 mm) for 2.0 pcf (32 kg/m³) density boards.

2.3 Identification:

Each container of beads bears a label with the Huntsman Corporation name and address, the bead identification, the evaluation report number (ICBO ES ER-5703) and the name of the quality control agency (Underwriters Laboratories Inc.).

3.0 EVIDENCE SUBMITTED

Reports of tests in accordance with UBC Standard 8-1 (ASTM E 84), ASTM C 578-95, and NFPA 259-98; reports of comparative crawl space fire tests; and a quality control manual.

4.0 FINDINGS

That the Huntsman expandable polystyrene beads described in this report comply with the 1997 *Uniform Building Code*™ (UBC), the 2000 *International Building Code*® (IBC) and the 2000 *International Residential Code*® (IRC), subject to the following conditions:

- 4.1 The maximum density and thickness of the expanded beads are as noted in this report.
- 4.2 Use of the beads is limited to products recognized in an ICBO ES evaluation report.
- 4.3 Except as noted in Section 2.2.2 of this report, the insulation boards produced from the Huntsman beads are separated from the building interior by a thermal barrier complying with Section 2602.4 of the UBC, Section 2603.4 of the IBC or Section 318.1.2 of the IRC.
- 4.4 The beads are produced by Huntsman in Peru, Illinois, and Mansonville, Quebec, Canada, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

This report is subject to re-examination in two years.

ES REPORTS™ are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICBO Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.





BRYX.R10302

Foamed Plastic

See. General information for Foamed Plastic

STYROCHEM U S LTD

R1 0302

3607 N SYLVANIA
 FT WORTH, TX 761 1 1 USA

Foamed Plastic in the form of boards.

EPS MA500, MA550, MA590, MB500, MB550, MB590, MBC590, MBT500, MBT590, MC280, MC500, MC550, MC590 or MOD.O.

	All Thkns Up to & Including 6 In. +
Flame spread	5#
Smoke developed	145#

+Installed in a thickness or stored in an effective thickness, as indicated, for a density of 1.00 lb. per cu ft.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index of 45 and smoke developed index of over 500.

All designations may be followed by suffixes in the form of numbers or letters for tracking purposes.

EPS MA500, MA550, MA590, MB500, MB550, MB590, MBC590, MBT500, MBT590, MC280, MC500, MC550, MC590 or MOD.O.

	All Thkns Up to & Including 6 In. +
Flame spread	5#
Smoke developed	200#

+Installed in a thickness or stored in an effective thickness, as indicated, for a density of 1.00-2.00 lb.

per cu ft.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index of 135 and smoke developed index of over 500.

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Foamed Plastic

See **General Information for Foamed Plastic**

KOREA KUMHO PETROCHEMICAL CO LTD

R18327

KUMHO BLDG 57, 15TH & 16TH FL 57
SHINMMUNRO, 1-KA CHONGNO-KU
SEOUL 110-061, KOREA

Foamed plastic in the form of boards.

	6 In. Max+
Flame spread	15#
Smoke developed	165#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 1.50 Ibs per cu ft.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index of 115 and smoke developed index of over 500.

	6 In. Max+
Flame spread	5#
Smoke developed	100#

+Installed in a thickness, or stored in an effective thickness, as indicated; for a density of 1.00 Ibs per cu ft.

#Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame

spread index of 20 and smoke developed index of over 500.

Last Updated on 2004-12-06

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Legacy report on the 1997 Uniform Building Code™, the 2000 International Building Code® and the 2000 International Residential Code® (IRC)

DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07210—Building Insulation

STAREX POLYSTYRENE BEADS, SF SERIES

CHEIL INDUSTRIES INC. 62
PYONG YO-DONG YOSU-SI,
CHEON NAM 555-210 KOREA

1.0 SUBJECT

Starex Polystyrene Beads, SF Series.

2.0 DESCRIPTION

2.1 General:

Starex expandable polystyrene SF Series beads are used by independent manufacturers in manufacturing expanded polystyrene (EPS) insulation board. The end use of the polystyrene beads, including the manufacture of panels, is not part of this report.

Products manufactured with the Starex SF beads are produced solely through the introduction of heat, without other additives, and are provided in a variety of dimensions. Beads designated as Type I or Type II SF Series, when expanded to a minimum density of 0.90 pcf (14.4 kg/m³) for Type I beads and 1.35 pcf (21.6 kg/m³) for Type II beads at a maximum thickness of 6 inches (152 mm), provide a flame-spread rating of 25 or less and a smoke-developed rating not exceeding 450 when tested in accordance with UBC Standard 8-1 (ASTM E 84).

The expandable beads can be used to produce expanded polystyrene products that comply with ASTM C 578, provided the final product is recognized in a current ICC-ES evaluation report and has been qualified in accordance with Section 6.11.1.2 of the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12).

2.2 Installation:

Installation is as noted in specific current ICC-ES evaluation reports on foam plastic assemblies.

2.3 Identification:

The bead containers bear a label indicating the component designation; the name and address of Cheil Industries Inc.; the lot number; the evaluation report number (ICBO ES ER-5624); and the logo of the inspection agency (Intertek Testing Services NA Inc.).

3.0 EVIDENCE SUBMITTED

Reports of tests in accordance with UBC Standard 8-1 (ASTM E 84) and ASTM C 578-95, and a quality control manual.

4.0 FINDINGS

That the Starex expandable polystyrene beads described in this report comply with the 1997 Uniform Building Code™ (UBC), the 2000 International Building Code® (IBC) and the 2000 International Residential Code® (IRC), subject to the following conditions:

- 4.1 Products utilizing the beads must be recognized in an ICC-ES evaluation report as being in compliance with UBC Section 2602, IBC Section 2603 and IRC Section R318.
4.2 The maximum density and thickness of the board products from the expanded beads are as noted in this report.
4.3 Beads are produced in Yosu-Si, Cheon Nam, Korea, under a quality control program with inspections by Intertek Testing Services NA Inc. (AA-647).

This report is subject to re-examination in two years.

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