

Styropor® expandable polystyrene BF Product Series

Products and their uses

Styropor BF products include BF 222, BF 322, BF 327 and BF 422. Styropor BF products can be used in a wide variety of applications including blocks for panels, general insulation, below grade use, fabrication, flotation, and general packaging. Additional applications include insulated concrete forms, thin walled custom molding, and other general protective packaging. The intended uses of each product grade are outlined in Table 1.

Description

Modified expandable polystyrene (EPS) containing approximately 6 wt% pentane as the blowing agent.

All products are supplied as spherical beads with a bulk density of approximately 40 lbs-ft⁻³ (640 kg·m⁻³). The bead size range for each product is shown in Table 2.

Styropor BF products are compatible with many anti-stat, mineral oil and color additives added during processing.

Application Compliance

EPS foams manufactured from Styropor BF comply with surface burning characteristics (ASTM E-84) and physical property (ASTM C-578) requirements of U.S. model building codes. National Evaluation Service report NER-479 and ICC Evaluation Service report ER 1498 contain specific code compliance criteria for Styropor BF. EPS foams manufactured from Styropor BF meet UL 94 classification requirements and have obtained a HF-1 rating as described in UL listing E54675. Technical specifications for the BF products are listed in Table 2.

Packaging and storage

Styropor BF products are packaged in Flexible Intermediate Bulk Containers of 1,763 lbs (800 kgs). Plastic liners are used to maintain product shelf life by retaining the blowing agent.

Styropor products should be stored in a cool place (maximum temperature 80°F). In the unopened bulk containers, the typical shelf life after receipt is 30-60 days. The containers should be protected from rain, snow, frost, direct sunlight and mechanical damage.

Table 1

Product	Intended uses
Styropor BF 222	Block molding applications, low and high densities requiring excellent fusion or with regrind
Styropor BF 322	Block molding applications, especially suited for fabrication requiring excellent surface appearance
Styropor BF 327	Shape molding applications requiring modified material or high density block molding applications with excellent surface appearance
Styropor BF 422	Shape molding for thin walled applications with fast cycles requiring modified material

Table 2: Technical Product Specifications

Product	Pentane Content	Moisture Content	Bead Size (mm)	
Styropor BF 222	5.7 – 6.4%	1.2% max	0.85 – 1.7	≥ 97%
Styropor BF 322	5.7 – 6.4%	1.2% max	0.6 – 1.2	≥ 97%
Styropor BF 327	5.7 – 6.4%	1.2% max	0.6 – 1.2	≥ 97%
Styropor BF 422	5.7 – 6.4%	1.2% max	0.35 – 0.85 2% max < 0.35	≥ 97%

Processing

Polystyrene foams made from Styropor BF products are produced in three stages: pre-expansion, intermediate aging and molding. Full details are given in the brochure *Processing Styropor*.

Pre-expansion

The minimum density achievable depends on the pre-expansion equipment and technique used. Styropor BF products can be typically processed to bulk densities shown in Table 3. A state-of-the-art batch expander is capable of pre-expansion densities 10 to 15% lower than typical values. Care should be taken during expansion, as prolonged steam times will result in excessive loss of pentane and difficulty in achieving acceptable fusion during molding.

Table 3

Product	Typical expanded density range
Styropor BF 222	0.90-3.0 lbs-ft ⁻³ (14-48 kg·m ⁻³)
Styropor BF 322	0.95-3.0 lbs-ft ⁻³ (15-48 kg·m ⁻³)
Styropor BF 327	1.0-3.0 lbs-ft ⁻³ (16-48 kg·m ⁻³)
Styropor BF 422	1.1-3.0 lbs-ft ⁻³ (18-48 kg·m ⁻³)

Intermediate aging

The minimum recommended pre-puff intermediate aging period for low density block molding of these products is 16 hrs depending on density, ambient temperature, the intended use of the bead, and the molding equipment to be used. Block densities greater than 1.8 lbs-ft⁻³ (29 kg·m⁻³) may require 2 to 4 days intermediate aging. For shape molding applications, a minimum of four hours is recommended. At low to mid-range densities for block or shape molding, care should also be taken when aging products in excess of 24 to 36 hours.

Molding

These products are intended for molding on automatic molding machines. Molding can be accomplished under a wide range of conditions and densities.

Safety

Styropor products and the finished foam products should not be exposed to ignition sources (including open flame, sparks, or electrostatic charges) during storage, processing, shipment and application. Adequate ventilation in all processing areas must be provided to prevent hazardous accumulations of hydrocarbon vapors.

For complete safety precautions and recommendations, refer to the Styropor bulletin S-6 *Fire Safety Precautions in Styropor Processing Plants* and appropriate Material Safety Data Sheets.

IMPORTANT: While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. **NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCT DESCRIBED OR**

DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. Further, you expressly understand and agree that the descriptions, designs, data, and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability for the descriptions, designs, data, and information given or results obtained, all such being given and accepted at your risk.

Values shown are based on limited testing and are not intended to be used in establishing maximum or minimum ranges for specification purposes.

STYROPOR is a registered trademark of BASF AG.
Copyright © 2005- BASF Corporation

BASF Corporation
100 Campus Drive
Florham Park, New Jersey 07932
800-447-7180
<http://www.basf.com>



The Chemical Company