# BFM PRODUCT SERIES

# EXPANDABLE POLYSTYRENE

**TECHNICAL LEAFLET**

August 2024

## PRODUCTS AND THEIR USES

Styropek® BFM products include BFM 295, BFM 395 and BFM 495. Styropek® BFM 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 or thick 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) / non-flammable / antiflame / auto-extinguishable containing approximately 4.30 – 4.70 wt% pentane as the blowing agent. All products are supplied as spherical beads with a bulk density of approximately 40 pcf (640 kg/m3).

Technical specifications for the Styropek® BFM products are listed in Table 2.

Styropek® BFM products are compatible with many antistat, mineral oil, color additives and other additives added during processing.

Styropek® BFL products do not contain chlorofluorocarbons and hydrofluorocarbons compounds.

## REGULATORY COMPLIANCE

EPS foams manufactured from Styropek® BFM comply with several standards and international regulations depending on their application:

* ASTM E-84/UL-723 and CAN/ULCS102.2 for Surface burning characteristics of building materials. UL listing under report R38219 at UL Online Certification Directory.

* ASTM C-578 and CAN/ULC 701-11 for Thermal Insulation. UL listing under report R38219.

* ASTM D6817 for Geofoam application. UL listing under report R38219.

* UL 94 for flammability for parts in Devices and Appliances, rated as HF-1. UL listing under report E474710 at UL Online Certification Directory.

* Several International Building Codes, as described in ESR-1498 report issued by ICC-ES.

* GREENGUARD UL 2818 for Chemical Emissions (VOC's) for building materials, finishes and furnishings. Certificated # 1828-420.

* REACH Directive for regulation of SVHC substances.

* RoHS Directive for regulation of Heavy metals and specific flame retardants.

* FMVSS 302 for Flammability of Interior Materials, according US DOT.

### TABLE 1: USES

| Product | Intended uses |
|---|---|
| Styropek® BFM-295 | Block molding applications, low and high densities requiring excellent fusion or with regrind |
| Styropek® BFM-395 | Block molding applications, especially suited for excellent surface cut appearance |
| Styropek® BFM-495 | Shape molding for thin walled applications with fast cycles and excellent surface finish requiring modified material |

Note: These products can be used for other applications depending on the skill and equipment of each molder

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## TABLE 2: TECHNICAL PRODUCTS SPECIFICATIONS

| Product | Pentane, % | Resp.Monomer ppm | Bead size, mm | |
|---|---|---|---|---|
| Styropek® BFM-295 | 4.30 – 4.70 | < 1000 | 0.85 - 1.70 | 96% min |
| Styropek® BFM-395 | 4.30 – 4.70 | < 1000 | 0.6 – 1.25 | 97% min |
| Styropek® BFM-495 | 4.30 – 4.70 | < 1000 | 0.425 - 0.85<br>< 0.425 | 97% min<br>2% max |

## PACKAGING AND STORAGE

Styropek® BFM products are packaged in Flexible Intermediate Bulk Containers of 800 kg (1,763 pounds). Plastic liners are used to maintain product shelf life by retaining the blowing agent. Styropek® BFM products should be stored indoor in a cool place (maximum temperature 80°F or 27 °C). In the unopened bulk containers, the typical shelf life after receipt is 120 days.

The containers should be protected from rain, snow, frost, direct sunlight and mechanical damage.

Bags that have been opened should be used as soon as possible or these bags must be tightly closed (hermetically protected). Otherwise, the material could have physical or chemical issues.

## PROCESSING

Polystyrene foams made from Styropek® BFM products are produced in three stages: pre-expansion, intermediate aging and molding. For more details contact Sales and Technical Service.

## PRE-EXPANSION

The minimum achievable density depends on the pre-expansion equipment and technique used. In properly functioning batch preexpanders, the products Styropek® BFM can be processed to the bulk densities shown in Table 3. In continuous pre-expanders, they can be processed to bulk densities of 1.6 – 1.8 pcf (25 – 30 kg/m3). 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 |
|---|---|
| Styropek® BFM-295 | 13.51 –31.80 kg/m3 -(0.85 – 2.0 pcf) |
| Styropek® BFM-395 | 14.31– 39.75 kg/m3- (0.90 - 2.5 pcf) |
| Styropek® BFM-495 | 18.28 – 47.70 kg/m3 - (1.15 – 3.0 pcf) |

pcf = pound per cubic foot = lb/ft3

## INTERMEDIATE AGING

The minimum recommended prepuff intermediate aging period for low density block molding of these products is 16 hours depending on density, ambient temperature, the intended use of the bead, and the molding equipment to be used. Block densities greater than 1.8 pcf (29 kg/m3) may require 24 to 48 hours intermediate aging.

For shape molding applications, a minimum of 4 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

Styropek® BFM 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 Safety Data Sheets (SDS) and for more details contact Sales and Technical Service.

## BIOLOGICAL EFFECTS

EPS foams manufactured from Styropek® BFM products do not serve as food to animals nor have a nutritional value to microorganisms such as fungus and bacteria. None of its compounds are water soluble and do not emit hydro soluble substances that pollute underground water. In the dumping ground they do not decompose nor form any polluting substances.

Styropek® BFM products are 100% recyclable.

## CHEMICAL EFFECTS

For more Information about chemical resistance of Styropek BFM products contact Sales and Technical Service. Extended exposure to ultraviolet light may cause the EPS foam to turn yellowish and the surface to become brittle.

## OBSERVATIONS

**IMPORTANT:** The information provided in this publication is based on STYROPEK, best knowledge and experience. In view of the many factors that may affect the processing and application of the products, this data does not relieve molders from the responsibility of carrying out their own tests and experiments; neither does it imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to comply with any existing laws and legislation as well as proprietary rights, which STYROPEK is holder.

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