

# InSphere FR/F1

Flame retardant expandable polystyrene

## Technical Data Sheet

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A previous edition of this document is not valid.

### 1. CHARACTERISTICS

InSphere FR/F1 type 300FR/F, 500FR/F1, 800FR/F1 is expandable polystyrene (EPS), the materials have a form of white spherical polystyrene particles that contain a new type of flame retardant pFR (without HBCD) and low level of hydrocarbon blowing agent. Their surface is coated to support processing, to prevent electrostatic charge and reduce water absorption. Due to the content of halogenated flame retardant and the residual blowing agent, the product is unsuitable for objects intended for direct contact with food.

### 2. IDENTIFICATION

The product identification is based on traditional registered trade name InSphere FR/F1 and alphanumeric code ex. **InSphere 800 FR/F1**.

### 3. TECHNICAL PARAMETERS

#### Basic parameters of InSphere FR/F1

Parameters	Norm/Method	Unit	300FR/F1	500FR/F1	800FR/F1
Beads size class / range		mm	0,4 - 0,7	0,7 - 1,0	1,0 - 1,6
Bead size / specification > 95% between	Internal	mm	0,355 – 0,80	0,50 – 1,12	0,80 – 1,80
Content of the blowing agent	Internal	% Wt.	< 5,0	< 5,0	< 5,0
Content of residual monomer	Internal	ppm	< 1 000	< 1 000	< 1 000
Bulk density of raw material	Internal	kg/m <sup>3</sup>	595 - 620	595 - 620	595 - 620

Guaranteed values related to the technical parameters of the product are included in Standard Sales Specification (SSS) and are being constantly verified by the internal laboratory according to current producers' procedures.

#### Typical parameters of ready product made from InSphere FR/F1

Parameters	Norm/Method	Unit	300FR/F1	500FR/F1	800FR/F1
Typical bulk density <sup>1)</sup>	Internal	kg/m <sup>3</sup>	17 - 50	15 - 40	15 - 40

Comments:

1) The typical bulk density range indicates the different densities used in various EPS applications.

Parameters	Norm/Method	Unit	300FR/F1	500FR/F1	800FR/F1
Reaction to fire	EN ISO 11925-2 / EN 13 501-1	class	E	E	E
Reaction to fire	DIN 4102-1	degree	B1/B2	B1/B2	B1/B2

#### 4. PACKAGING

The product is supplied in octabins, large-volume cardboard packaging group 3 for transportation of bulk dangerous products with a net volume of 1100 kg, placed on a non-returnable wooden pallet. The inner packaging is formed by an antistatic polymer barrier insert that prevents the leakage of the blowing agent and formation of electrostatic charge during storage. The following important information is indicated on the packaging: manufacturer, product name, type, serial number, and mass, code of filling, the S and R phrases and UN code.

#### 5. TRANSPORTATION

The product is classified as dangerous goods in transport according to the European regulations for product transport by road (ADR) and by rail (RID). Number of UN: 2211. The product must be at all time of transport protected from the effects of weather.

#### 6. STORAGE

It is necessary to store the product only in original sealed containers, stored in a ventilated area or under the roof, away from heat sources. It is recommended to store the material at temperature to 20°C. Do not store in areas below the ground level (vapours of the blowing agent are heavier than air).

The product is temperature sensitive (higher temperatures are harmful). Beads must be stored outside the reach of thermal sources such as, for example, thermal radiation from hot machine equipment.

Packaging must be protected against direct weather conditions. The packaging must not become damp or be wet – danger of packaging destruction. Packaging must be protected against protruding nails, sharp edges, etc.

The product that is stored at the recommended conditions must be processed within 90 days from date of attestation/date of shipment (valid for original, closed and undamaged packaging).

The product from partially emptied or damaged packages must be processed immediately.

#### 7. HEALTH PROTECTION, RISK OF FIRE AND STABILITY, ENVIRONMENTAL PROTECTION, WASTE DISPOSAL

Before handling Synthos EPS, please refer to the Material Safety Data Sheet (MSDS). A copy of all our MSDS' may be obtained from our public website, [www.synthosEPS.com](http://www.synthosEPS.com).

Expandable polystyrenes are flammable materials; their dust with air forms an explosive mixture. EPS can only be handled in well ventilated areas with sufficient relative air humidity (> 50%), where all the metal parts are grounded. It is necessary to adhere to the corresponding safety measures in order to avoid the blowing agent explosion due to its leak. Smoking, welding, drilling, grinding and using naked flame is prohibited in areas where EPS is handled.

Should the product is any way degraded by the presence of other substances (impurities) e.g. at damage to the shipping packaging during transport or during other handling, it should be disposed by incineration.

More detailed information is indicated in Material Safety Data Sheet MSDS.

#### 8. APPLICATION

**InSphere 300FR/F1** can be moulded on shape moulding equipment. It can be used for contour mouldings and producing thin wall contour moulding at medium to high densities with a wall thickness of <10mm, such as moulded panels (eg. perimeter insulation foam boards with reduced water absorption) and decorative profiles with good surface finish. Very short cycle times or very short conditioning times are required.

**InSphere 500FR/F1** is a robust grade can be moulded on both shape and block moulding equipment. It can be used to produce well fused blocks at low and medium densities, which can be cut to make insulation and construction products, where very short cycle times or very short conditioning times are required. It may also be used for large contour mouldings with a wall thickness >10mm. Other applications include elastified board for impact and airborne sound insulation, floor elements, sandwich panels, perimeter insulation foam boards with reduced water absorption.

**InSphere 800FR/F1** is a robust grade can be moulded on both shape and block moulding equipment. It can be used to produce well fused blocks at low and medium densities, which can be cut to make insulation and construction products. It may also be used for large contour mouldings with a wall thickness >10mm. Other applications include, floor elements, roof elements, sandwich panels, perimeter insulation foam boards with reduced water absorption.

