

# InSphere FR/CZ

## Expandable Polystyrene

### Technical Data Sheet

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Approved by: Product Manager – M. Cebulski

A previous edition of this document is not valid.

### 1. CHARACTERISTICS

InSphere FR/CZ types 500FR, 900FR, 1600FR and 2000FR are expandable polystyrene (EPS) in form of white spherical polystyrene beads that contain a new type of flame retardant pFR (without HBCD) and reduced content of a hydrocarbon blowing agent (pentane). Their surface is treated against gluing during processing and the formation of electrostatic charge. 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 identification is based on registered trade name InSphere FR/CZ and an alfanumerical code e.g. **InSphere 900FR /CZ**.

### 3. TECHNICAL PARAMETERS

Basic parameters of InSphere FR/CZ o types:

Parameters	Norm/ Method	Unit	500FR/CZ	900FR/CZ	1600FR/CZ	2000FR/CZ
Particle size fraction	Internal	mm	0,5 - 0,9	0,9 - 1,8	1,8 - 2,2	2,2 - 3,1
Fraction of the particle size >95 %	Internal	mm	0,50 - 1,00	0,80 - 2,00	1,25 - 2,50	1,60 - 3,55
Blowing agent content	Internal	% wt.	< 5	< 5	< 5	< 5
Residual monomer content	Internal	ppm	< 1 000	< 1 000	< 1 000	< 1 000
Bulk density of raw material	Internal	kg/m <sup>3</sup>	595 - 620	595 - 620	595 - 620	595 - 620
Moisture content	Internal	% wt.	< 1,0	< 1,0	< 1,0	< 1,0
Bulk density of expanded beads, according to the test <sup>1)</sup> /Foamability	Internal	kg/m <sup>3</sup>	< 30	< 25	< 25	< 25

Comments:

- 1) The bulk density of expanded beads is checked by laboratory, EPS beads are expanded in the boiling water.

Guaranteed values related to the technical parameters of the product are always part of mutual agreement. A certificate with information about properties which are found out by an output control is issued to each delivery.

#### Typical parameters of articles made from InSphere FR/CZ

Parameters	Norm/ Method	Unit	500FR/CZ	900FR/CZ	1600FR/CZ	2000FR/CZ
Typical bulk density <sup>1)</sup>	Internal	kg/m <sup>3</sup>	17 - 50	15 - 40	15 - 40	15 - 40

Comments:

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

Parameters	Norm/ Method	Unit	500FR/CZ	900FR/CZ	1600FR/CZ	2000FR/CZ
Reaction to fire	EN ISO 11925-2 / EN 13 501-1	class	E	E	E	E
Reaction to fire	DIN 4102-1	degree	B1/B2	B1/B2	B1/B2	B1/B2

#### 4. OPAKOWANIE

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 PA/PA6 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. Cardboard packaging may be stored in two layers if a wooden board is inserted between them. Do not store in two layers during the winter period.

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 500FR/CZ** is mainly used for production of shape-moulded parts with wall thickness above 10 mm (e.g. shipping packaging for glass and electrical goods, building bricks, floor and roof shaped parts); production of smaller blocks with higher density or cut profiles.



**InSphere 900FR/CZ** is mainly used for production of blocks with medium and higher density; of cut boards and profiles from the blocks for a thermal insulation e.g. building objects or in packaging technology.

**InSphere 1600FR/CZ** and **InSphere 2000FR/CZ** are mainly used for production of high-volume blocks with low density; of cut boards and profiles from the blocks for a thermal insulation e.g. building objects.

