

InVento Optima FRE

Expandable Polystyrene

Technical Data Sheet

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A previous edition of this document is not valid.

1. CHARACTERISTICS

InVento Optima 500FRE/PL and 800FRE/PL is expandable polystyrene (EPS) based on innovative athermal additive, with a low thermal conductivity value. The product was manufactured based on the principles of the Circular Economy approach using materials coming from recycling of post-consumer EPS waste. Materials have a form of grey spherical polystyrene particles that contain pFR as a flame retardant and low level of hydrocarbon as a blowing agent. Their surface is coated to support processing and to prevent electrostatic charge.

Due to the content of halogenated flame retardant the product is unsuitable for objects intended for direct contact with food.

2. IDENTIFICATION

The identification is based on registered trade name InVento Optima and an alfanumerical code

e.g. **InVento Optima 800FRE/PL**.

3. TECHNICAL PARAMETERS

Basic parameters of InVento Optima types:

Parameters	Norm/ Method	Unit	500FRE/PL	800FRE/PL
Particle size fraction	Internal	mm	0,90 – 1,10	1,10 – 1,40
Fraction of the particle size >95 %	Internal	mm	0,80 – 1,20	0,90 – 1,60
Blowing agent content	Internal	% wt.	< 5,2	< 5,2
Post consumer recycling content	EN ISO 14021	% wt.	> 20	> 20
Residual monomer content	Internal	ppm	< 300	< 300
Bulk density of raw material	Internal	kg/m ³	595 - 620	595 - 620
Bulk density of expanded beads, according to the test ¹⁾ /Foamability	Internal	kg/m ³	< 18	< 18

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 InVento Optima:

Parameters	Norm/ Method	Unit	500FRE/PL	800FRE/PL
Typical bulk density	Internal	kg/m ³	13 - 40	11 - 40
Reaction to fire	EN ISO 11925-2 / EN 13 501	class	E	E
Reaction to fire	DIN 4102	degree	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 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, RECYCLING

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.

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.

EPS is a full recyclable material. Thanks to its great ability to be convert into primary raw materials, it is one on few plastic products on the market that can be widely and fully recycled.

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

8. APPLICATION

InVento 500FRE/PL can be molded on both shape and block molding equipment. It can be used to produce blocks at medium to high density with very low thermal conductivity, which is cut to make insulation board. It may also be used for contour moldings with a wall thickness >10mm, such as molded building elements and specialist packaging.

InVento 800FRE/PL can be molded on both shape and block molding equipment. It can be used to produce blocks at low and medium densities, with very low thermal conductivity, which can be cut to make insulation and construction products. It may be used for large contour moldings. Other applications include loose-fill cavity wall insulation and elasticized board for impact or airborne sound insulation and floor elements.

9. PACKAGING OF BOARDS MADE FROM INVENTO

It is recommended to pack the boards made from InVento to non-transparent, light colours plastic foil, to avoid the deformation and colour changes by solar radiation.