Flame Retardant Expandable Polystyrene
(F22B-n)

TECHNICAL BULLETIN

Description

F21B-n, part of the INEOS Styrenics Flame retardant EPS range, is a free flowing flame retardant expandable polystyrene large block grade, consisting of spherical polystyrene beads containing an internal flame retardant additive and pentane as the expansion agent.

Typical properties

Property	Unit	Value
Bulk density	kg/m^3	approx. 620
Bead size class	mm	1.0 – 1.6
Bead size specification > 95% between	mm	0.8 – 1.8

INEOS Styrenics F21B-n contains a flame retardant and conforms to DIN4102, Part 1, B1. Details and copies of certifications are available from your local INEOS Styrenics representative.

Processing and Applications

F21B-n can be prefoamed using both continuous and discontinuous prefoamers. The typical density range is 13 to 30 kg/m3 but other densities are possible depending on applications and equipment. Typically, a density of 15 kg/m3 can be achieved in a single expansion using a continuous prefoamer, and 10 kg/m3 in two steps.

F21B-n 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. Other applications include elastified board for impact and airborne sound insulation, floor elements.

Detailed processing advice is available from your local INEOS Styrenics representative.

Quality and source of manufacture

As INEOS Styrenics F21B-n is a performance material, many attributes important to EPS users cannot be readily specified. To assure customers that the material delivered will be of a consistently high quality, the INEOS Styrenics EPS manufacturing facilities have established effective quality control and management procedures, and hold certifications in accordance with ISO 9001:2000. Further details are available from your local INEOS Styrenics representative.

INEOS Styrenics F21B-n is manufactured at Breda in The Netherlands.

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Regulatory Information

INEOS Styrenics F21B-n is not permitted for use in food contact applications.

On request, we will be happy to provide you with Regulatory Compliance Statements (RCS') that affirm our products' conformity to various EU Directives. Standard RCS' are available for Directives on RoHS (Return of Hazardous Substances), WEEE (Waste Electrical and Electronic Equipment), Packaging Waste et al. We can also provide Declarations confirming the absence of heavy metals and a range of other substances subject to restrictions under EU Marketing and Use Directives, or prohibited under national laws and Company Standards. Please contact us for up-to-date regulatory information on any of our products.

Expandable Polystyrene, the Environment and Waste Management

The energy and environmental benefits of EPS over its life cycle have been well documented in several studies, both in the construction as well as the packaging sectors. We have outlined below some of the key environmental points regarding EPS.

EPS is not classified as an ODS – Ozone Depleting Substance. In addition, ozone depleting substances such as CFC's, HFC's and HCFC's are not used in its manufacture. The blowing agent used in INEOS Styrenics EPS is pentane, which has zero ozone depletion potential (ODP). The EU Risk Assessment on pentane (2003) concluded that additional monitoring of ambient air by Member States is required, prior to reaching any conclusions on the potential for pentane – in common with a host of other non methane hydrocarbons - to act as an ozone precursor. As such, there is currently no pan European legislation restricting the use of pentane.

Waste EPS bead, where it cannot be reused in the foam manufacturing process, may be safely recycled or disposed of for incineration, where facilities exist. Disposal by landfill should be undertaken as the last resort, since this method does not utilise the energy potential inherent in the waste product.

Please contact your local INEOS Styrenics representative if you need further details on any of the above issues.

Safe handling of EPS

Before handling INEOS Styrenics EPS, please refer to the Material Safety Data Sheet (MSDS). A copy of all our MSDS' may be obtained from our public website, www.ineosstyrenics.com.

In conjunction with the MSDS, a detailed brochure entitled "Expandable Polystyrene Storage and Handling Safety Guide" should be consulted before handling and using INEOS Styrenics Expandable Polystyrene. Please contact us for a copy of this Guide.

A free DVD is also available on the subject of fire safety during the conversion of EPS beads to foam, produced by Plastics Europe in association with EUMEPS. The DVD contains a 15 minute video as well as a Safety Poster,

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a self-audit checklist and a Q & A section. The DVD is available in two different versions – W European and E European, comprising approximately 18 different European languages, and is ideal as a training tool on EPS fire safety for your workforce. We will be happy to supply a copy of the DVD, on request. Please mention the version that you require.

INEOS Styrenics EPS grades are normally packed in 1000 kg net non-returnable semi-bulk containers, termed “Octabins”. To minimise loss of expansion agent, each octabin has a separate plastic film liner, tied at the neck. EPS beads should be stored in closed containers, preferably below 20°C. They should be protected from adverse weather conditions and direct sunlight. Processing performance deteriorates over time and as storage temperature rises. The expansion agent, pentane, is flammable and can form explosive concentrations in part-empty containers, storage hoppers and other enclosed spaces. All possibility of ignition should be avoided and adequate floor-level ventilation provided in storage and processing areas.

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