

Phenolic Foam Insulation

*The ultimate insulation system
for the Construction &
Building Services
Industry*



*Lowest
 λ
Available*

EPA
EUROPEAN PHENOLIC
FOAM ASSOCIATION

FIRE PERFORMANCE

The fire performance of phenolic foam is exceptional. It combines zero or very low flame spread with negligible smoke emission and a very low level of toxic gas emission.

Phenolic foam can, in an appropriate form, achieve all the following European fire certifications.

- UK Class O
- Dutch NEN 6065/6066 Class 1
- German B1
- Belgian A1
- French M1
- Scandinavian NT 036 Class 1



In addition, phenolic foam used in factory engineered composite panels can achieve up to 2 hours fire resistance rating (insulation/integrity) in the 3m furnace test.

Phenolic foam evolves exceptionally low smoke when exposed to fire and is capable of meeting or exceeding all international building regulation requirements.

Toxic gas emission from phenolic foam is generally limited to carbon dioxide and carbon monoxide with very low levels of other gases. Phenolic foams can achieve very low toxic gas ratings in tests such as UK Naval Engineering Standard NES 713 and Scandinavian NordTest NT036.

ENVIRONMENT

- Phenolic foam has very low embodied energy per unit thermal performance compared to other insulation materials
- Significant CO₂ savings can be achieved compared to other insulation materials
- Phenolic foam can make a significant contribution to help achieve CO₂ emission reduction targets required by the Kyoto Protocol
- Phenolic foam is available in both CFC and HCFC free forms



MOISTURE RESISTANCE

Phenolic foam has been used successfully in insulation systems where moisture resistance is a key issue.

The reasons for this excellent performance are:

- Phenolic foam has a low water vapour permeance and is therefore highly resistant to the passage of water vapour
- Phenolic foam has low water absorption which takes place predominantly in the cut/broken surface cells of the foam
- Phenolic foam is non-wicking. This means that if water enters the insulation system due to the vapour barrier becoming punctured, any moisture ingress is limited and confined to the punctured area. This ensures moisture does not build up and compromise the whole system

STRUCTURAL STRENGTH

Phenolic foams have an excellent strength/density relationship being lightweight but strong. Higher density phenolic foams are typically used for:

- Pipe supports
- Duct supports
- Steel faced composite panels (including walk-on ceilings)

THERMAL PERFORMANCE

Phenolic foams offer a range of thermal conductivity performance. The closed cell type offers the lowest thermal conductivity available from any insulation material resulting from:

- Closed cell structure
- Extremely small cell diameter
- Low thermal conductivity gas permanently encapsulated in cells

Structural phenolic foam is typically made in 80kg/m³, 120kg/m³ and 160kg/m³ densities.

1m² of the product is capable of supporting the weights set out below.

80 kg/m³ 64 tonnes

120 kg/m³ 112 tonnes

160 kg/m³ 225 tonnes

This data clearly demonstrates the excellent structural performance of phenolic foam.

Phenolic foam has been used successfully in structural applications for over 15 years.

Phenolic foam offers the following benefits:

- λ values from 0.018 W/m.K depending on national certification requirements
- Excellent low thermal conductivity allows reduction in long term energy costs
- Phenolic foam can be up 50% more thermally efficient than other common insulation materials
- Higher thermal efficiency allows reduced insulation thicknesses to be used thereby saving valuable space

Phenolic foam is a uniquely versatile material being suitable for a large range of applications.

Phenolic foam has been used in **heating, ventilating and air conditioning applications** for many years. The foam is cut to accurate tolerances on computer controlled cutting equipment. Parts available include traditional half sections, slotted slab, foil faced phenolic foam laminate ductboard, radius and bevelled lags, bends, flange box covers, valve box covers, etc. Materials are generally supplied with a vapour barrier facing. High density foam is also available for structural applications such as pipe and duct supports.

Phenolic foam is used in many **building applications**, typically continuously laminated phenolic board is used in roofing, cavity board, external wall board, plasterboard dry lining systems, wall insulation, floor insulation and as a sarking board. The superior fire performance of phenolic foam is being recognised and this is leading to increased market share in these areas.

Phenolic foam is used in **factory engineered composite panels**. These composite panels comprise of a high density structural phenolic foam core with steel facings both sides and an appropriate jointing system. These panels are used in a range of applications including food processing factories, cold stores, semi conductor clean rooms and hospitals. These panels are structurally sound and fit for purpose for use in walk-on ceilings. The excellent fire performance provided by the phenolic foam core gives both good insulation and integrity performance in the 3m furnace fire resistance test.

Phenolic foam is used in **process/petrochemical applications** for the insulation of pipework, tanks, vessels etc.

Phenolic foam is also used in a number of **highly specialised applications** including fire doors, highly fire resistant panels and for insulation in surface ships, off-shore installations and submarines.

It is clear that phenolic foam is a very versatile material being suitable for a large range of applications where thermal performance, moisture resistance, fire performance and in certain cases structural strength are key performance criteria. Phenolic foam is the only material that can provide this unique range of benefits.

Further information can be obtained from the European Phenolic Foam Association at the address opposite.



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