

# Expanded Polystyrene - (EPS)

## AN ENVIRONMENTAL ASSESSMENT

### The Material

Expanded polystyrene (EPS) is a lightweight foam material made by the polymerisation of styrene, an oil derivative which is also found in foods such as strawberries, nuts and beans. EPS by volume is approximately 98% air and therefore the styrene content is extremely low.

### The Manufacturing Process

Solid granules of styrene monomer are impregnated with Pentane, an acceptable blowing agent as it is considered to have a GWP of less than 5. The granules are then heated with steam which causes them to expand to over 40 times their original volume. The EPS beads are then moulded into whatever form is required.

Depending upon the density of the material, the primary energy needed to manufacture one cubic metre equates to the heat saved in 6 months, when the same volume is used for insulation.

### Environmental Impact

EPS has an ODP of Zero and a GWP of less than 5 and its manufacture does not include the use of any ozone damaging CFCs or HCFCs. It has a generic Green Guide Rating of A+.





### Recycling/Recovery

EPS is fully recyclable. Clean material can be reground and mixed with virgin bead to form insulating grade sheet.

Alternatively, contaminated EPS can be melted, filtered and degassed and used in the manufacture of items such as plant pots and coat hangers, or as a wood substitute for park benches, fence posts or decking.

### Energy Recovery

The Calorific value of EPS available for heat recovery is slightly more than that of coal. It is, therefore, an ideal material for use in modern incinerators and aids the burning of municipal waste. Burnt correctly, the fumes are non toxic and are not harmful to the environment. The energy gained can be used for local heating and the generation of electricity.

### Conclusion

Expanded polystyrene is an efficient and effective thermal insulation material which can help in the reduction of CO<sub>2</sub> emissions and make a positive contribution to the alleviation of global warming.

Further information is available from [www.eumeps.org](http://www.eumeps.org) or Cordek's Technical Department on 01403 799600

[www.cordek.com](http://www.cordek.com)

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**Left:** An example of EPS in use for the construction of a new visitor's centre at the Cliffs of Moher (above left).

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