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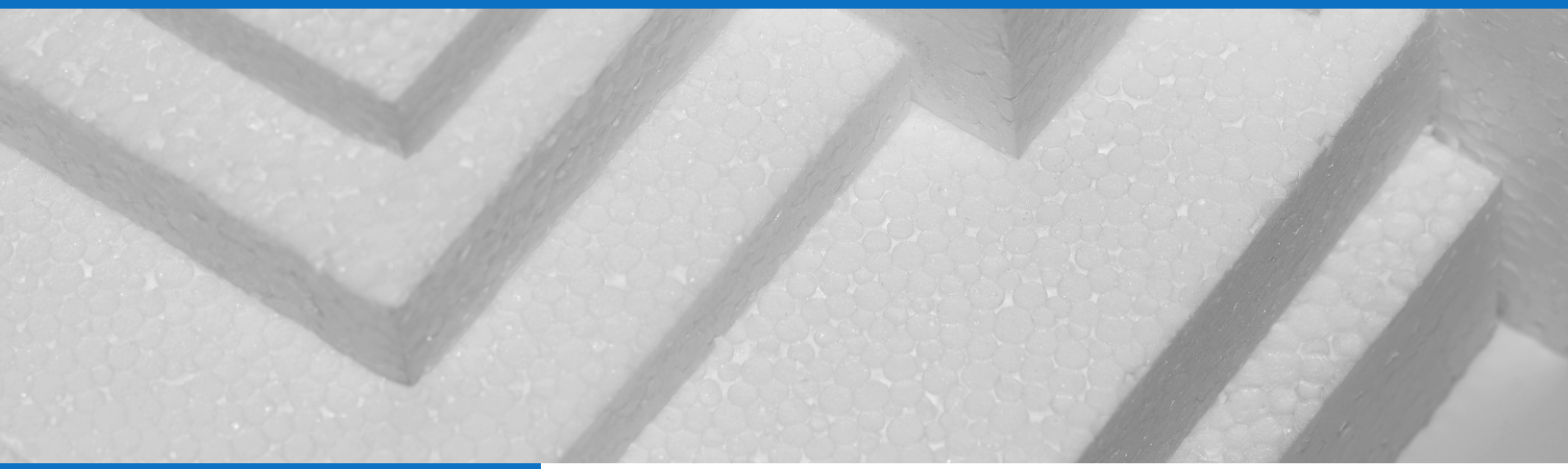
ECCLESTON & HART

LEADING UK POLYSTYRENE MANUFACTURERS AND DESIGNERS



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THE ULTIMATE GUIDE TO EXPANDED POLYSTYRENE (EPS)

For many years, expanded polystyrene (EPS) has been a top choice for a cost effective and energy efficient method for packaging, construction, theatre, media and graphics. But, what exactly is EPS and what makes it suitable for these specific applications?

This is your ultimate guide to explore more about this incredible polymer; discussing in detail the advantages, properties and recyclability.

WHAT IS EXPANDED POLYSTYRENE (EPS)?

Expanded Polystyrene (EPS) is a polymer produced from solid beads of polystyrene in a rigid closed cell material from Styrene (forms the cellular structure) and Pentane (a blowing agent). Both Styrene and Pentane are hydrocarbon compounds that are procured from natural gas byproducts and petroleum.

The main use of EPS is in the packaging and construction industry as it is very lightweight, low moisture absorption, extremely low thermal conductivity and has fantastic cushioning properties.

EPS is 100% recyclable and can be recycled at many stages of its life

EPC assists with energy saving as it is an effective thermal insulation material which helps reduced CO2 emissions

HOW IS EPS MANUFACTURED?

EPS is manufactured from styrene monomer and produced in a **three** stage process:

Pre - expansion

The pre-foaming agent within the polystyrene beads starts to boil when in contact with steam. Thus, expanding the beads to 40 to 50 times their original volume.

Conditioning

The beads undergo a 'maturing' period in order to meet their equilibrium in temperature and pressure.

Moulding

The beads get placed into a mould and are reheated with steam; the beads expand further, completely fill the mould and combine together. The beads are then used to create blocks and many other customized products for a variety of different industries such as film and construction.

Moulding Process

Block Moulding

THE ADVANTAGES OF EPS

Energy effcient

Great insulation and thermal resistance

Bacterial resistance

Chemicaly Inert

Cost effective

Excellent impact strength & dimentional stability

No residual solid waste is generated during its manufacturing.

EPS is inert and non-toxic. It does not leach any substances into the ground water.

APPLICATIONS OF EPS

Due to the versatility, durability and economic value of Polystyrene (EPS) it's a material with a number of applications in various different industries.

Building and Construction

The properties that EPS is made up has made it a staple of the building and construction industry, it’s integral to the design of buildings and structures across the world. This is because EPS is made out of lightweight material that allows little to no water absorption while also managing to be deceptively durable.

Applications of EPS in Building and Construction:

- Wall Insulation
- Roofing
- Geofoam Landfills
- Flooring
- Void Formers

APPLICATIONS OF EPS

Applications of EPS in Packaging:

- Delicate Medical Equipment (such as the Covid-19 vaccine)
- Fresh Fruit and Vegetables

The application of EPS isn't limited to these industries however, it can also be found in a number of other areas such as:

- Model Making
- Toy Stuffing
- Film/Television Sets
- Sound Insulation
- Crash Helmets

THE DIFFERENT EPS PRODUCTS

Construction Products

The material is moisture resistant, strong and lightweight making it perfect for road and motorway projects.

Polystyrene Beads

Polystyrene Beads come in a variety of sizes and are used for various manufacturing and building purposes. One of the most popular uses for this product is as beanbag filler.

Polystyrene Block

Lightweight and sturdy, these polystyrene blocks can be made in any number of different sizes for various construction industry purposes.

THE DIFFERENT EPS PRODUCTS

Graphics and Display

Polystyrene Sculptures are used by a variety of different businesses to create displays or decorations.

Super Therm Sheet

A flame retardant sheet used in the building and construction industry to withstand exceptionally hot conditions.

Packaging

Used by a number of different industries as a cost effective and reliable way of protecting products in transit.

Construction Sheet

A versatile sheet that can be used for a number of different building or construction requirements.

THE SAFETY, SUISTAINABILITY AND RECYCLABILITY OF EPS

EPS is made up of organic elements (carbon, hydrogen and oxygen). However, EPS is extremely light so the material needs to be reduced further in **three** ways:

Granulation

EPS is cut into tiny pieces through the granulator

Blending

EPS is mixed together with smaller granules in a blender

Extrusion

The material is then melted in the extruder. Colour can be added and the extruded material can be moulded into a new product.

EPS manufacturing does not involve the use of ozone-layer-depleting CFCs and HCFCs

EPC aids energy savings as it is an effecting thermal insulation material which helps reduced CO2 emissions

IF YOU WOULD LIKE TO KNOW MORE ABOUT OUR BESPOKE POLYSTYRENE SOLUTIONS OUR EXPERTS WOULD BE MORE THAN HAPPY TO ASSIST YOU...

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