

RMAX Environmental EPS



THE ENVIRONMENTAL FACTS



RMAX is a division of Huntsman Chemical
Company Australia Pty. Limited
ABN 48 004 146 338

HUNTSMAN

Enriching lives through innovation

Total Lifecycle Environmental Efficiency

From its inception right through to its recycling, expanded polystyrene (EPS) has a positive impact on our environment.

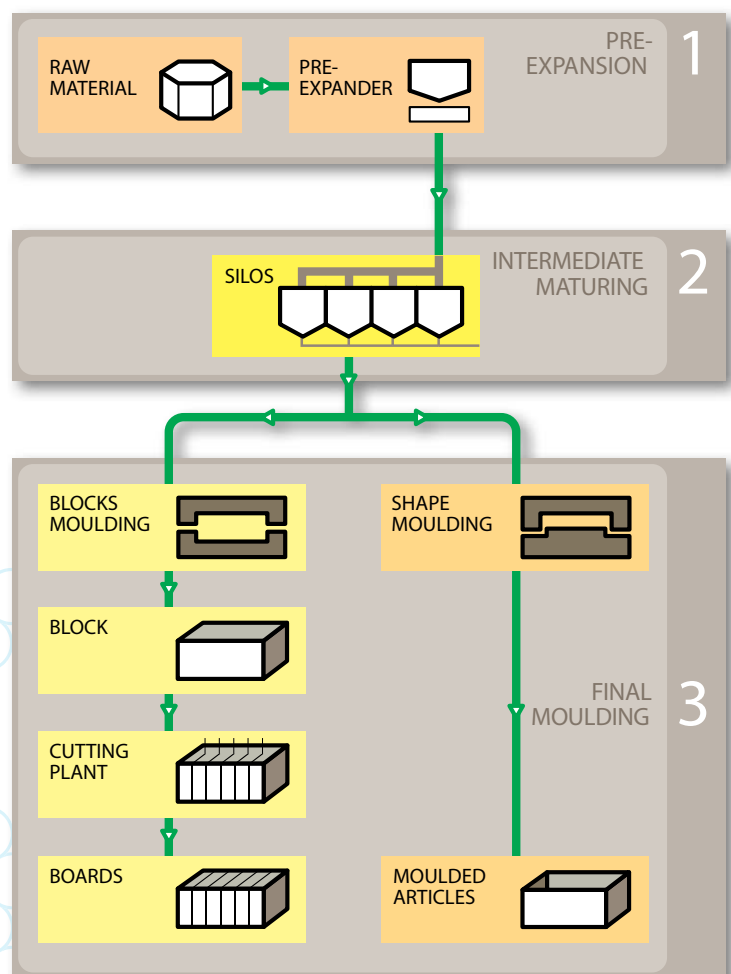
EPS is made from styrene, a by-product of crude oil extraction and natural starch found in many fruit and food products. For every 1000 litre of oil extracted less than 1kg of EPS results. Importantly, no oil is extracted solely for EPS production.

The manufacture of EPS products from the raw material Expandable Polystyrene is a low pollution process with steam, produced from natural gas, the principal energy source. The steam is condensed and reused in the cooling process up to 5 times.

EPS uses pentane as a blowing agent during manufacture. The expanding force in the foam is produced from the pentane which is contained within the expandable polystyrene. The pentane is released during the moulding process.

Pentane has a Global Warming Potential (GWP) of zero. The European Union does not register pentane as a substance hazardous to human health or the environment.

RMAX EPS products do not contain ozone depleting substances.





Expanded Polystyrene is one of the most environmentally efficient products in the world.

Expanded Polystyrene (EPS) like all other materials has some impact on the environment, since it is impossible to make something out of nothing. During its lifetime as an insulation product EPS saves considerably more energy than is consumed during its production and use. As a packaging material EPS is more efficient than many other products in terms of energy used to produce it, energy used to transport it and emissions over the entire life-cycle of the product including disposal. RMAX is committed to the responsible use of EPS and the promotion of its superior environmental qualities to lower energy requirements and impact on the environment.

The Unique Properties of EPS

EPS is able to absorb vast energy, making it the ideal material to be used for impact protection. Bicycle helmets, child car restraints, automotive bumper bars and protective packaging are just some examples of the power of the energy absorption of EPS.

EPS has a high capacity for thermal insulation, making it the ideal product for the transportation of seafood and temperature sensitive medicines not to mention its use as a thermal insulator in the building and construction industry.

EPS EPS is lightweight so it is ideal for any application where weight is a consideration. Being lighter than other packaging materials results in less transport based emissions.

EPS is unaffected by humidity as it does not absorb water or water vapour.

EPS is inert and meets all food contact regulatory standards making it the ideal to package food or pharmaceutical products. In America The United States Food and Drug Administration regulates the safety of food contact packaging and has approved the use of polystyrene since 1958, as have governments around the world.

EPS – The Responsible Choice

Governments, environmental advocacy groups and consumers now demand that companies design a product to be eco-friendly throughout its lifetime, which is precisely what RMAX does.

For recycling information, contact REPSA, or your local RMAX sales office. Refer to the back cover for contact details.

Whatever your packaging or insulation requirement, you can be sure that with RMAX Environmental EPS, you are making the right choice for your business and the right choice for the environment.



Impact Protection



Lightweight



Thermal Insulation



Ideal for Pharmaceutical Products



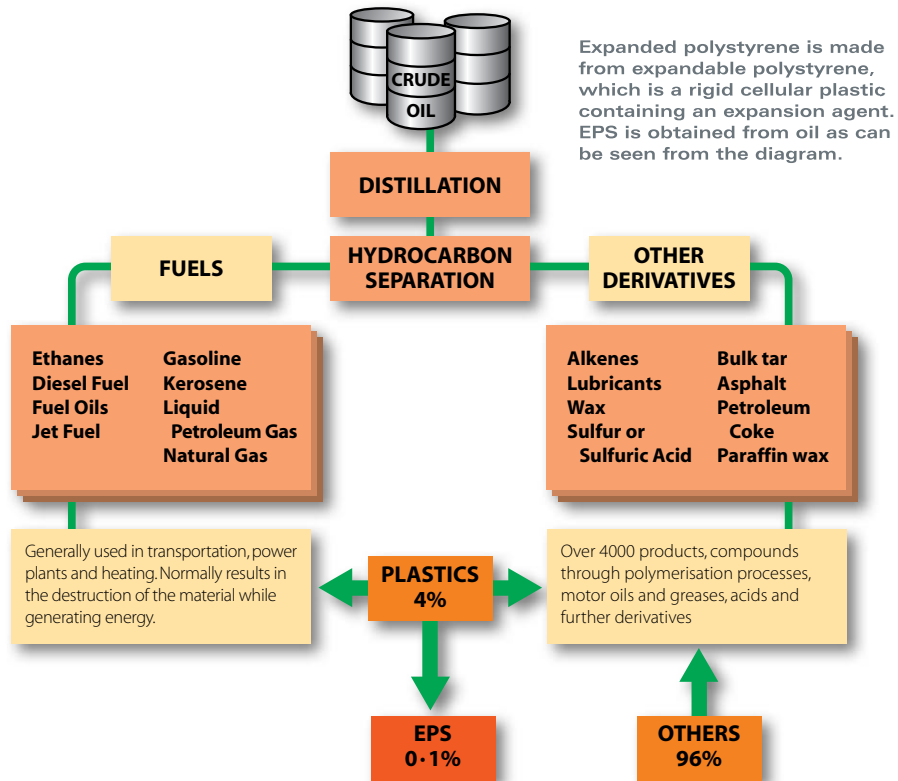
EPS in Our Daily Lives

From preserving fresh food and insulating buildings to the manufacture of crash resistant safety products and transportation of temperature sensitive medications, EPS plays a vital role in our daily lives.

The environmental footprint of EPS over its entire lifetime is substantially less than that for comparable materials. Combined with its exceptional economic, durable, protective and insulating properties, EPS makes a positive contribution to the environment as well as to the efficiency and performance of the businesses that use it every day.



RMAX Environmental EPS products do not contain ozone depleting substances (HFC, CFC and HCFCs) and none are using in its manufacture. Many products for which low environmental impact manufacturing claims are made have a negative impact on the environment during their lifetime, whereas EPS products are environmentally positive over the product lifecycle.



The Environmental Facts - Packaging

Wood, corrugated cardboard and paper require up to twice the amount of energy to produce, result in up to 60% more waste by volume and weigh up to six and a half times as much as EPS.

Comprising 98% air, EPS is one of the most resource efficient materials on the planet. Use of lightweight EPS packaging results in reduced fuel consumption and a significant reduction in vehicle CO2 emissions compared to other heavier packaging materials such as cardboard and wood.

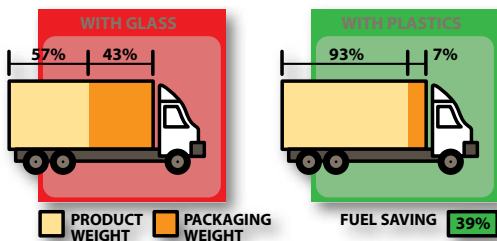
Supply chain wastage and consumption of additional energy, material and transportation

resources is also minimised by the use of EPS packaging as it reduces the number of goods broken or damaged in transit.

In the food industry, EPS packaging keeps produce fresh and at the correct temperature for longer, helping to reduce spoilage and minimise waste, which in turn reduces methane gas, a more potent greenhouse gas than CO2.

When packed in EPS, fruits and vegetables retain their vitamin C content longer than food packed in other materials.

Reference: Korean Food Research Institute.



Using EPS to package a product will result in a reduction in fuel consumption to other materials.

EPS Lifecycle Comparison

A lifecycle analysis is a technique that quantifies the total impact of a product during its production, distribution, use and recycling, treatment or disposal. A reliable lifecycle analysis will measure energy consumption, air pollution, water pollution, global warming potential and the volume of solid waste.

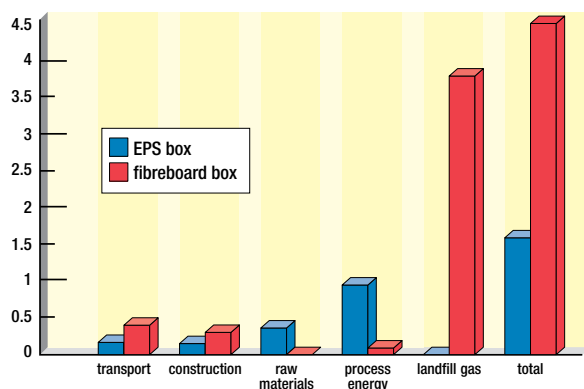
The table compares the EPS lifecycle analysis with other common materials.

Disposable Cups*	EPS Cup	Paper Cup
Chemicals	1	15
Electricity	1	13
Cooling water	1	1.3
Process water	1	170
Steam	1	6
Crude petroleum	1	0.6

Shaped / Moulded Pack*	EPS	Pulp & Fibreboard
Energy consumption	1	2.3 – 3.8
Air pollution	1	3.1 – 4.1
Water pollution	1	2.3 – 2.8
Global warming potential	1	4.0 – 4.4
Volume of solid waste	1	0.69 – 0.79

Packaging Material*	EPS	Wood, Paper, etc
Cost	1	1.3
Weight	1	6.4
Energy Consumption	1	2.0
Volume of solid waste	1	1.2

*Source:EPS Group, UK.



Reference: Life Cycle Analysis of Produce Boxes. Comparison of EPS and Corrugated Cardboard. The University of Melbourne (1996).

A Simple Comparison

Disposable paper drinking cups are often compared favourably with EPS cups on environmental grounds. This could not be further from the truth, with EPS being far more resource and energy efficient.



Compared with EPS cups of the same size, the manufacture of paper cups consumes:

170 times as much process water

30% more cooling water

15 times the amount of chemicals

13 times more electricity

6 times as much steam

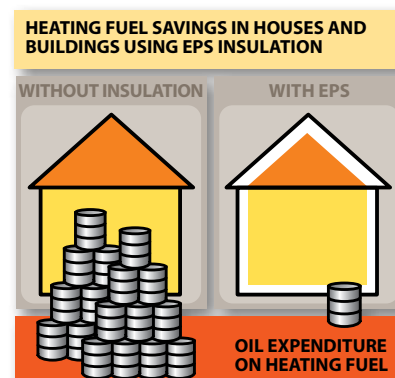
*Source:EPS Group, UK.

Negative Carbon Footprint – Building and Construction

Where EPS is used to insulate buildings it has a negative carbon footprint, saving far more in CO2 emissions than it emits during manufacture and disposal.

EPS insulation panels cut building CO2 emissions by up to 50%. The energy used to produce the panels is recovered in less than six months. As the insulation performance of EPS does not deteriorate it continues to reduce the energy requirement, fossil fuel dependence and energy related emissions of a building over its full lifespan.

The energy efficiency of EPS insulation is such that for every kilogram of oil used during manufacture, the equivalent of over 100 kilograms of oil will be saved in the reduced heating and cooling demand over the lifetime of a building.



Source:EPS Group, UK.
Reference DG Evans and SD Ross - Ecological Sustainability of Expanded Polystyrene Foam Products in the Building Industry.

1kg of oil in manufacture saves the equivalent of over 100kg of oil over the lifetime of a building.

The Environmental Facts

✓ Fact

Comprising 98% air, EPS is one of the most resource efficient materials on the planet. Use of lightweight EPS packaging results in reduced fuel consumption and a significant reduction in vehicle CO₂ emissions compared to other heavier packaging materials such as cardboard and wood.

✓ Fact

Supply chain wastage and consumption of additional energy, material and transportation resources is also minimised by the use of EPS packaging as it reduces the number of goods broken or damaged in transit.

✓ Fact

In the food industry, EPS packaging keeps produce fresh and at the correct temperature for longer, helping to reduce spoilage and minimise waste, which in turn reduces methane gas, a more potent greenhouse gas than CO₂.

✓ Fact

In building insulation EPS has a positive impact on the environment due to the reduction in heating and cooling requirements of a building insulated in EPS. EPS insulation can save over 100 times the oil equivalent energy used to manufacture it.

Ecologically Sound Disposal

Contrary to popular belief EPS is 100% recyclable.

EPS products can be granulated and added to production of new items. RMAX granulates its own waste for reuse at many of its sites.

Where granulation and cycling is not practical EPS can be recycled into Polystyrene. This re-processed EPS can be used to manufacture items such as replacement hardwood decking, garden furniture and coat hangers. RMAX has invested in re-processing equipment at many of its sites and produces 100's of tonnes of recycled EPS each year. RMAX is one of the largest recyclers of EPS outside the industry body – REPSA. We have established our own recycling facilities in all our plants throughout Australia.

RMAX also supports and assists Recycling EPS Australia(REPSA) an arm of the Plastics and Chemical Industry Association. REPSA have established and support recycling centres across Australia and works on initiatives to improve awareness of recycling and improvement of recycling programs. RMAX is a member of PACIA (Plastics and Chemical Industries Association) and was instrumental in establishing the EPS industry group RESPA (Recycling Expanded

Polystyrene Australia). RMAX through REPSA play a major role in facilitating the collection and recycling of EPS in Australia.

RMAX has been instrumental in establishing a national EPS recycling and collection scheme in every capital city in Australia, and is actively campaigning for recycling collection schemes to be established at municipal rubbish tips nationwide.

Where EPS is not recycled it can be added to landfill as it aids stability. It remains inert, does not leach chemicals or gases into the water table or atmosphere, and is non toxic and odour free.



RMAX Environmental EPS



RMAX Environmental EPS

RMAX – Innovation Working for You

RMAX is a company driven by innovation. We have pioneered Rigid Cellular Plastics product technologies, leading the development of innovative product solutions for our customers through local and international resources.

RMAX is the first Australian EPS producer to install purpose built "Insert Moulding Machines" to manufacture Insulated Concrete Forms (ICFs) for the building industry. These mouldings allow cyclone proof housing with excellent insulation values to be constructed faster than traditional building methods.

RMAX has the largest range of purpose designed building products including Thermawall® cladding, ThermaWallPlus™ pre-meshed cladding, Thermaroom®, ThermaAdvantage™ foil backed insulation and RMAX Voidform®.

RMAX has the largest range of produce packaging including ice boxes and produce trays across Australia developed through working with customers to meet their exacting needs.

We are committed to working with our customers to deliver high quality creative solutions to construction problems. Contact us and see how our innovative approach using EPS can help you.

RMAX and Recycling EPS

EPS is a 100% recyclable product and RMAX has established their own recycling facilities in all their plants throughout Australia.

RMAX is a member of PACIA (Plastics and Chemical Industries Association) and was instrumental in establishing the EPS industry group REPSA (Recycling Expanded Polystyrene Australia).



www.rmax.com.au

Enquires 1300 888 972

AUSTRALIA

VICTORIA

2-4 Mephan Street
Maribyrnong VIC 3032
Locked Bag 51,
West Footscray VIC 3012
Telephone: 1300 888 972
Facsimile: +61 3 9317 7888

WESTERN AUSTRALIA

5 Baldwin Street
Kewdale WA 6105
Telephone: 1300 888 972
Facsimile: +61 8 9353 2002

NEW SOUTH WALES

27 Chifley Street
Smithfield NSW 2164
Telephone: 1300 888 972
Facsimile: +61 2 9604 7747



NEW ZEALAND

Barnes Plastics
368 Church Street
Penrose Auckland 1061
Telephone: +64 9 579 9725
Facsimile: +64 9 579 0472



RMAX is a division of Huntsman
Chemical Company Australia Pty.
Limited. ABN 48 004 146 338