EPSbranchen

98% clean air

100% recyclable

100% pure packaging

March 2020

100% recyclable

EPS - Expanded Polystyrene

Our ambition:

100% of all EPS is **recycled**

EPS – expanded polystyrene – is a lightweight and environmentally friendly material consisting of 98% air and 2% polystyrene (plastic). In Denmark, it is known under the brand name Flamingo.

• EPS is 100% recyclable.
• Polystyrene (PS) is a polymer made of styrene and is one of the most commonly used plastic materials. PS – and thus EPS – is a thermoplastic, which means that it can be remelted after its original use and therefore easily recycled.
• Used EPS can be remelted into new polystyrene raw material and from there converted into EPS or other plastic products made of polystyrene.
• At EPS-branchen, we have had our own recovery system since 1995, and the Danish manufacturers recycle 100% of their own defects in manufacturing.
• The legislation sets a number of relevant safety requirements that require some EPS to be collected and recycled via municipal recycling centres or through recycling companies.
• EPS is currently being collected for recycling at recycling centres in approx. one third of the municipalities, while approx. one third of the municipalities have announced that they will start recycling EPS. The remaining municipalities are looking into the matter.(1)
• EPS consists of 98% air. Therefore, it is important that it is compacted in a decentralized set-up so that unnecessary resources are not spent on transporting air. Fortunately, EPS can be easily compacted by a factor of 40 or more.
• Used EPS that is compacted is sold for EUR 400 - 500 per tonne.(2) By comparison, it costs the Danish municipalities between DKK 2,000 - 2,826 to export household plastic to Germany.(3)

EPS products typically consist of EPS only, which makes it very easy to recycle.

Recycling makes good economic sense for municipal waste processing companies

There are approximately 450 municipal recycling centres, of which 72 are already collecting EPS separately. At the other recycling centres, EPS is included in smaller combustible waste and is utilised for energy. DAKOFA estimates that 7,500 tonnes of used EPS are collected, which is equivalent to over 15 tonnes of EPS per recycling centre.(4)

With compaction and recycling, the recycling centre can reduce the number of container empties by over 100. A fee must be paid to the incineration plant for the EPS that is removed from smaller combustible waste. In addition, the compacted EPS can be sold.

The recycling centre thus achieves an annual economic improvement of approx. DKK 100,000. A container that compacts EPS costs less than DKK 700,000. This can be recouped over a few years.(5)

The estimated CO2 savings on less haulage are approx.100 tonnes per recycling centre that compacts and recycles EPS.

In addition, significant environmental gains are achieved:

"When 1 kg of EPS is recycled, 2 kg of oil, over 5 kg of CO2 emissions and 46 litres of water are saved"(6)

The environmental gain per recycling centre that collects EPS for recycling rather than energy utilisation are:

• 30 tonnes of oil.
• Over 37,500 kg of CO2 emissions.
• 690,000 litres of water.

Environmental benefits that are self-financing.

Sources: *(1) https://www.dknyt.dk/artikel/103437/23-kommuner-indsamler-nu-flamingo-og-13-er-paa-vej. The municipal collection of EPS is changing rapidly with more and more people collecting or on their way to doing so. (2) https://dakofa.dk/element/stort-potentiale-for-genanvendelse-af-eps/ (3) https://ing.dk/artikel/ton-plastaffald-sendt-tyskland-koster-hovedstadskommunerne-2826-kr-227318 (4) https://dakofa.dk/element/stort-potentiale-for-genanvendelse-af-eps/ (5) Own calculations based on EUR 450 per tonne of used EPS, DKK 420 in incineration tax and DKK 500 per emptying. The calculations are included in COWI and Aarhus University's report, Survey of Polystyrene Foam (EPS and XPS) in the Baltic, p. 144. The report has been prepared for the Ministry of Environment and Food of Denmark. The COWI report uses packaging (5,900 tonnes) and construction waste (1,600 tonnes). As well as two compactors. They have been merged in this calculation. This does not change the overall conclusion. (6) CO2 emission and water saving require that the recycled EPS is not replaced by other fossil heating/burning but by a CO2-neutral energy/heat source. If we only look at recycling of EPS, the gain is just under 2 kg of CO2. If EPS is recycled in a closed loop where the foamed EPS does not need to be compacted, an additional 1 kg of CO2 can be saved. https://www2.mst.dk/Udgiv/publikationer/2019/08/978-87-7038-094-2.pdf*

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About EPS - intelligent use of air

EPS is an abbreviation of the term Expanded Polystyrene. In Denmark, it is popularly known as "Flamingo".

EPS is both a thermoplastic and a cellular plastic that consists of 98% air. The rest is polystyrene, which encapsulates the air in a cellular structure. This allows the properties of the air to be utilised intelligently.

The cellular structure and high air content make EPS a lightweight material with exceptional insulation and shock absorbing properties. It has a high compressive strength, repels humidity and is easy to handle.

EPS plays an important role in our daily lives; as a protective packaging for fragile articles and food during transport; as insulating material in buildings; and in protective equipment such as bicycle helmets.

After use, EPS is 100% recyclable. It reduces CO_2 emissions in production of raw materials by 1.8 kg per every new kg of EPS raw material. In addition, incineration, which emits over 3.3 kg of CO_2 per kg of EPS is avoided.

EPS is a valuable resource with unique properties. When EPS is used properly, it provides a significant contribution to addressing current and future challenges of society.

According to the Ministry of Environment and Food of Denmark, **there are no "environmentally better alternatives" available** for all the uses of EPS.

See more at www.eps-airpop.dk

100% recyclable

Low weight

Durable

Resists mould and vapour

High insulationvalue

Shock absorbant

Versatile. Can be moulded in almost any shape

Cost effective

No additives

About EPS-branchen - the Danish EPS Association. EPS-branchen is part of the Danish Plastics Federation. The organisation represents the EPS manufacturing companies and the rest of the value chain, including recycling companies, machine manufacturers, educational institutions, consultancies, construction companies, manufacturers of EPS concrete and local tradesmen.

The organisation's 15 factories are spread throughout Denmark and have approx. 500 employees and over 100 local tradesmen, e.g. blacksmiths, electricians and toolmakers. Other companies in the organisation have over 500 employees. The Danish production of EPS supports over 1,000 jobs in e-commerce, e.g. food boxes. It is used as packaging for a large number of export companies and as insulation in construction. In addition, EPS boxes are among the preferred solutions when exporting Danish fish globally. Thus, the industry supports an export exceeding DKK 26 billion and approx. 16,000 jobs.

Overall, Danish production of EPS supports over 30,000 jobs with a turnover of well over DKK 50 billion.

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– en del af Plastindustrien