

Sustainable fishing industry well supported by recyclable EPS fish boxes

EPS or Expanded Polystyrene is a very light material made of 98% air and 2% polystyrene.

Thanks to its unique properties, it has been preferred for over 50 years in multiple applications including fish boxes. It is approved for direct food contact both in the EU and the USA.

Every day millions of EPS fish boxes travel across the world to deliver fresh fish safely to retailers.

EPS fish boxes are generally used on a business-to-business basis: fish farmers use them to support the logistics of the fishing industry. Fish from fish farms and fish landed in the harbours are transported to processors using energy saving, hygienic, stable, easy-to-handle EPS fish boxes; processors then deliver them to fish mongers, markets and retailers, a well-established supply chain that can deliver fresh fish over long distances without any downgrade or food waste.



The delicate nature of seafood presents a cold chain challenge. Fresh, chilled, frozen, and processed fishery products are transported all over the world. Therefore the decisive unique performance characteristic of the EPS fish box is its thermal insulating property.

International regulatory measures require food industry and food professionals to comply with strict temperature requirements to protect food from contamination and preserve its hygienic condition.

Spoilage can be controlled to a great degree: maintaining fish at the right temperature from packing until delivery ensures optimum safety, freshness and reduces food losses. Here EPS performs at its best. It is recognised as the optimal solution for thermal performance, impact resistance and excellent sustainability attributes ⁽¹⁾ ⁽²⁾.

The sustainability credentials are supported by third-party verified Life Cycle Analysis by PWC ⁽³⁾, which confirms that EPS fish boxes are also the most sustainable solution to support the logistics of the fish processing industry.

The EPS industry is aware that sustainability is of increasing importance, and it is fully committed to preventing the emission of plastic litter into the environment.

The whole supply chain is engaged in good manufacturing practices, such as Operation Clean Sweep, an ambitious program to identify any risk of plastic pellet emission from industrial sites and take measures to prevent it happening.

Several studies ⁽⁴⁾ demonstrate that EPS represents less than 1% of litter found on beaches by weight, with a total contribution to marine litter of 0,06%, considering that 94% of the waste sinks to the seafloor ⁽⁵⁾, while EPS floats and generally ends up on beaches. A 2017 JRC report focused specifically on “Top Marine Beach Litter Items in Europe” found that only 68 fish boxes made of EPS were identified on European beaches out of more than 60,000 marine litter items identified in this report ⁽⁶⁾.

¹ <https://www.fishboxes.info/downloads/thermal-performance-report-2-small-fish-boxes.pdf>

² <https://www.fishboxes.info/downloads/thermal-performance-report-1-large-fish-boxes.pdf>

³ https://www.fishboxes.info/wp-content/uploads/2012/04/EUMEPS_report_PwC_112211.pdf

⁴ <https://www.helcom.fi/wp-content/uploads/2019/10/Survey-of-polystyrene-foam-EPS-and-XPS-in-the-Baltic-Sea.pdf>

⁵ <https://www.eunomia.co.uk/reports-tools/plastics-in-the-marine-environment/>

⁶ https://publications.jrc.ec.europa.eu/repository/bitstream/JRC108181/technical_report_top_marine_litter_items_eur_29249_en_pdf.pdf

EPS is 100% recyclable and fish boxes are widely recycled at scale all across Europe. They are designed for recycling and easy to collect and sort at big collection sites (fish processors, markets, harbours) and are then mechanically recycled, the preferred treatment option, because it has the lowest environmental impact.

In order to minimise transportation costs and further reduce CO₂ emissions, EPS waste is often compacted at collection sites, reducing its volume by a factor of 20-50. Then it can be easily transported to recycling centres to become a valuable secondary raw material.

Many European countries, including Norway, Denmark, the Netherlands, and Greece achieve fish box recycling rates of 90% while a number of other countries are not far behind, including Ireland, Portugal (75%) and the UK (70%).

In other countries recycling rates in certain regions are at similar levels.

For instance, “all fish boxes in Poland originating from salmon and other fish import from Norway (and other countries) are collected, compacted, extruded and turned into PS-pellets, which are sent to a recycler/EPS manufacturer in Finland for recycling”⁽⁷⁾.



Good examples of successful recycling activities are found all over Europe, from the Nordics to the Mediterranean countries.

In **England**, the Billingsgate fish market⁽⁸⁾ compacts a million EPS fish boxes every year. Once the market closes, the fish boxes are gathered and compacted on-site and sent to recyclers.

WasteMatters⁽⁹⁾ in **Ireland** provides a mobile EPS compacting and transport service to fish processors around the country. EPS fish box waste is stacked in premises, waiting for the trucks that stop every 3-4 days; the compacting machine is then plugged into a power supply and in a few hours, it reduces hundreds of fish boxes into a pallet of compacted material, which is brought to a central depot and then shipped to recyclers.



In **Portugal**, Bewi, the multinational company specialised in packaging, components and insulation solutions, started up a recycling activity for EPS fish box waste, collecting it from harbours, fish markets and processors around the country. The project started in January 2020 and, after one year already 700 tonnes of EPS fish boxes had been recycled, that is 70% of the whole EPS waste generated in Portugal. Recycling activity is successful and growing (now at 75%) and, by the end of 2021, according to Pedro Luís, MD of Bewi Circular, recycling rate will exceed 85%. Moreover, thanks to such good results, the project is going to be replicated in other European countries⁽¹⁰⁾.

⁷ <https://www.helcom.fi/wp-content/uploads/2019/10/Survey-of-polystyrene-foam-EPS-and-XPS-in-the-Baltic-Sea.pdf>

⁸ Billingsgate Fish Market details at: <https://www.cityoflondon.gov.uk/supporting-businesses/business-support-and-advice/wholesale-markets/billingsgate-market>

⁹ Polystyrene Recycling / Waste Matters, details available at: <https://wastematters.ie/>

¹⁰ https://mcusercontent.com/1c052cf520821c7ca40d49da6/files/728cc797-f122-45bf-a11d-dfd2e785d62e/MADE_OF_EPS_01.pdf (Oceanwise Newsletter 1-2021 pp.8-10)

In **Norway**, 6000 tonnes of EPS fish box waste are compacted each year and then sent to recyclers. Collection of the EPS waste takes place mainly at fish processing plants where millions of EPS fish boxes arrive with the fresh catch ready for processing. The processed fish is then delivered around the world in new EPS boxes, as expanded polystyrene can ensure the freshness of the product better than any other material ⁽¹¹⁾.

In the **Netherlands**, the EPS fish box market consists of 46% of domestic production and 54% of fish imported mainly from Norway. The fish processor companies reuse a small part of the imported boxes, while the rest are collected, compacted and recycled at a rate close to 95%.

Kon.Va. S.A. is one of the most advanced fish processing companies in **Greece**. An EPS compactor machine has been installed at the factory where 110 tonnes of fish box waste (or 300,000+ units) are compressed each year and exported to recyclers.



In the Galicia region of **Spain**, Recyclados San Juan recycles 538,000 EPS fish boxes every year, mainly collected through a take back scheme organised with customers, but they also provide a collection service at local fish importers, municipalities eco-points and supermarkets.

The Life EPS-Sure Project in Spain has also demonstrated that EPS fish box waste can be recycled into food contact secondary raw material ⁽¹²⁾.

Denmark has a recycling rate of 90%, thanks to a well-functioning collecting and recycling system. The value of the used EPS fish boxes has created an efficient market, where EPS boxes are compacted and sold to recyclers at premium prices.

EPS compacting machines have been installed at fish processors (i.e. Norlax, 140 tonnes per year) and even at small retailers. Recently a new agreement has been signed with the Danish Seafood Association to ensure full collection and recycling of fish box waste ⁽¹³⁾.



In **Poland**, Mowi is one of the biggest salmon processors in world and, thanks to a huge Runi compacting machine, is able to compress thousands of tonnes of EPS waste into valuable material, which is then supplied to recyclers in the country and across Europe.

Cap Fraicheur is a major company in the **French** fishing and aquaculture industry. To manage the great amounts of EPS fish box waste (approx. 150,000 units per year), they installed compactors in the biggest stores while putting waste into plastics bags in smaller shops, and then transporting to big stores for compacting.

¹¹ <https://www.norskindustri.no/kampanjesider/eps-gruppen/aktuelt/en-fiskekasses-livslop/>

¹² EPS-SURE Life Project, details available at: <http://www.life-eps-sure.com/en/the-project/>

¹³ <https://eps-airpop.dk/2021/04/det-bliver-endnu-nemmere-at-sikre-genanvendelse-af-fiskekasser-af-eps/>



In March 2021, AIPE – the **Italian** Association of EPS Manufacturers – signed a cooperation agreement with Federpesca – the Italian Association of Fishboat Owners – and soon developed an EPS Fish Box Recycling Project with the Apulia Region ⁽¹⁴⁾.

In June, the initiative started up at Molfetta, in the heart of the fishing district, with the participation of all stakeholders of the fishery, agriculture and waste value chain.

As a result, 55,000 EPS fish boxes are being recycled and 1,000,000 EPS seed trays too, thanks to the additional participation of Coldiretti, Italian Farmers Association.

Apulia authorities welcome this valuable initiative and

are ready to support further projects in other municipalities of the Southern Italy region, whose coastline is 865 km long.

While there is plenty of activity across Europe in terms of recycling end of life EPS fish boxes, there could be more. There are still numerous opportunities for companies to identify those operations where large volumes of EPS fish boxes come to end-of-life, and ensure that they are captured and recycled, and are not just used for energy recovery.

EUMEPS is aware of it and has set a target of 80% recycling rate for EPS Fish box waste by 2025, and 90% by 2030, far above the objectives set for plastic packaging in general by the EC in the Packaging and Packaging Waste Directive.

All the National Associations of EPS Manufacturers are committed to achieve these targets, promoting good recycling practices amongst their members, and cooperating with local authorities and waste management companies to foster new projects.



EUMEPS is the association and voice of the European Manufacturers of Expanded Polystyrene (EPS).

Its members cover the entire EPS value chain from raw material suppliers to EPS converters and recyclers as well as supporting industries including machinery and additive suppliers. Members include individual companies as well as 22 European national EPS associations.

This unique representation of the entire value chain ensures that EUMEPS represents both large companies and small- and medium-sized converters and recyclers.

Altogether its membership represents more than 1,000 companies, most of them small- and medium-sized enterprises (SMEs), and employs more than 80,000 people.

Follow us on Twitter or LinkedIn or learn more at <https://eumeps.org/>.

¹⁴ <https://www.aipe.biz/mondo-eps/wp-content/uploads/sites/2/2021/01/Comunicato-Stampa-AIPE-FEDERPESCA.pdf>