The Case for EPS

Material that expands possibilities and builds the future



Styropek
Expanding Together

alpek

Material that expands possibilities

EPS (Expandable or Expanded Polystyrene) is a lightweight and versatile material that **enables insulation, protective packaging, and construction solutions.**

Small beads measuring just a few millimeters in diameter that, through a controlled expansion process, increase their volume by up to 50 times. An extraordinary combination that delivers high performance.

A solution that protects, builds, and unlocks possibilities.

2-5%
material

95-98%
air



** EPS Industry Alliance (10); EUMEPS (20); European Commission CORDIS (6)*

Where it all begins

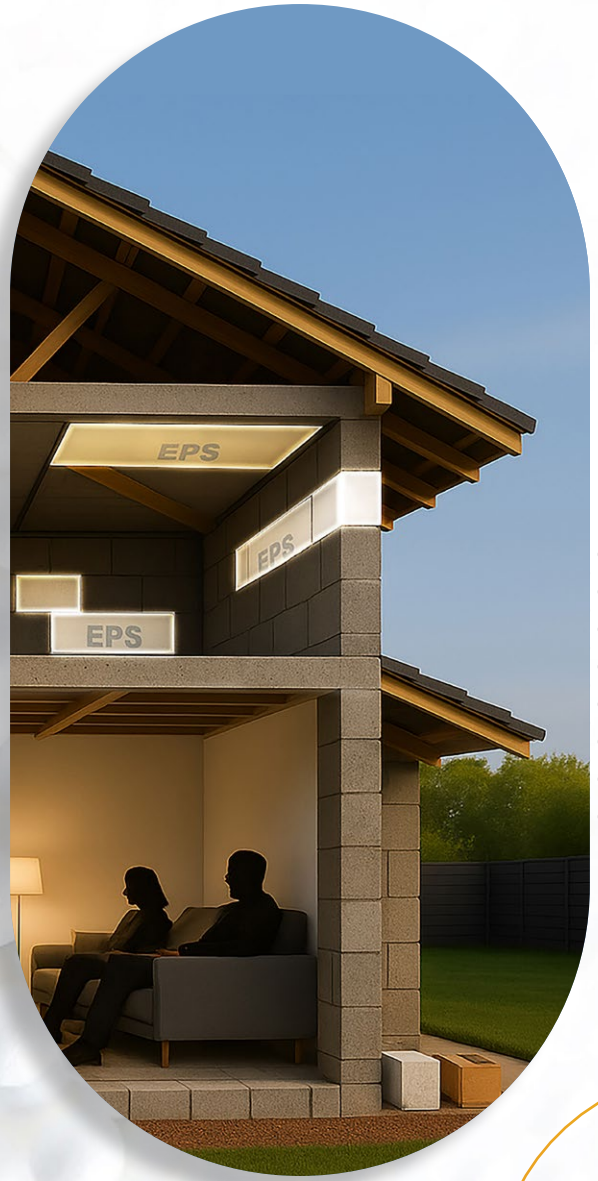
EPS begins as small polystyrene beads capable of expanding up to

50 times their original volume.



Meeting the highest standards, it gives rise to an extraordinary structure composed of **95-98% air, inert and non-toxic,** designed to deliver high performance while using a minimal amount of material.

**EPS Industry Alliance (10); EUMEPS (20); European Commission CORDIS (6)*



Performance that makes a difference

Lightweight by nature, efficient by design.

Expandable polystyrene combines **thermal and acoustic insulation, moisture resistance, energy efficiency, and recyclability** in a single solution. Free of CFCs and HCFCs, it delivers high performance while promoting the efficient use of resources.

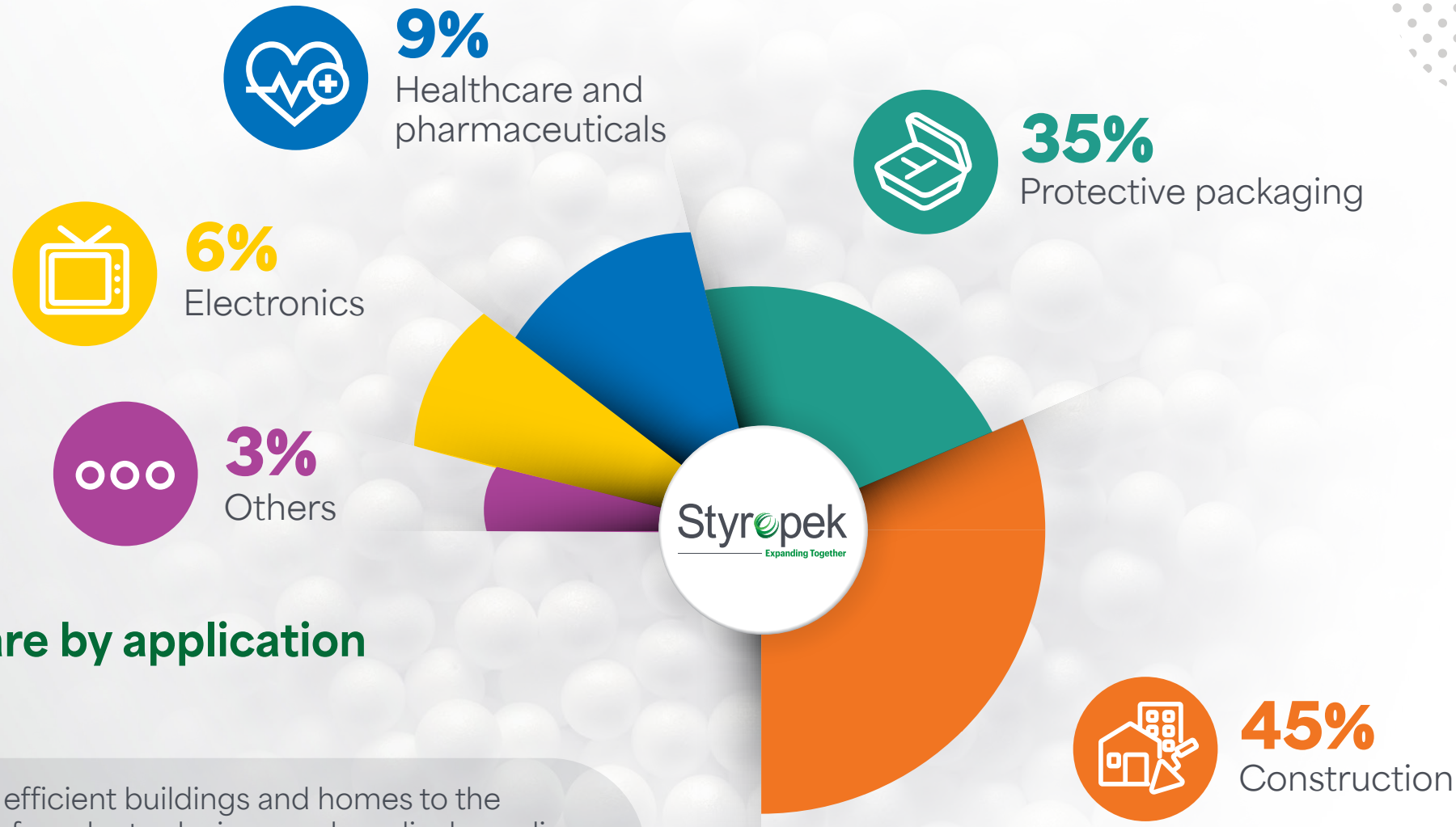
**EUMEPS (20); EPS Industry Alliance (14); ASHRAE Technical Committee 4.4 (4).*

EPS

Present in the industries that drive progress



Thanks to its versatility and high performance, EPS is part of essential solutions for **construction, product protection, healthcare, and technological innovation.**



Market share by application segment

From more efficient buildings and homes to the protection of products, devices, and medical supplies, EPS expands possibilities across the industries that matter most to modern life.

** Grand View Research (27); European Commission CORDIS (6); EPS Industry Alliance (10).*

Improving lives through essential solutions





Present in everyday life, from construction and food to technology, **EPS expands possibilities that contribute to well-being, protection, and the development of a future with a higher quality of life.**

Present across key sectors such as:

- Construction
- Food
- Healthcare
- Electronics
- Logistics
- Agriculture
- Infrastructure
- Education
- Art

** CORDIS EU Commission (6); EPS Industry Alliance (10); FDA (25).*

Beyond the Myths

Understanding the facts helps recognize that **EPS is a material that continues to expand possibilities** to protect, build, and drive the future.

Perception

1. Cannot be recycled.
2. Is an outdated material.
3. Is not sustainable.
4. Is flammable and dangerous.
5. Is not biodegradable.





Reality:

Can be part of the circular economy
and be reintegrated into sustainable production processes.

Used in selected applications incorporates flame retardants,
contributing to enhanced levels of safety.

Continues to create value,
providing an efficient, cost-effective and versatile solution for multiple applications.

Is biodegradable
under controlled conditions.

100% recyclable
through specialized processes such as compaction, extrusion, and chemical recycling.

6
PS

EPS Industry Alliance (10); British Plastics Federation (5); Global EPS Sustainability Alliance (26); ASTM D5511.

Note: "The claim that 'EPS is biodegradable in controlled environments' requires very strong technical validation or a specific source detailing the technology used by Styropek with ASTM D5511".

A future driven by growth

The relevance of EPS continues to expand worldwide, driven by solutions that combine performance, efficiency, and versatility.

Global EPS Market (2024):
USD 11.9 Billion

Projected CAGR (2025-2033):
8.54%

72 Countries
with Active EPS Recycling

Projected Market Size by 2033
USD 24.9 Billion

Growth that reflects the increasing demand for materials capable of protecting, building, and shaping the future.



** Grand View Research (27); Global EPS Sustainability Alliance (26).*

The Growth of EPS Recycling



EPS recovery continues to grow worldwide, **reflecting the development of solutions that extend the value of materials and give them a new life.**

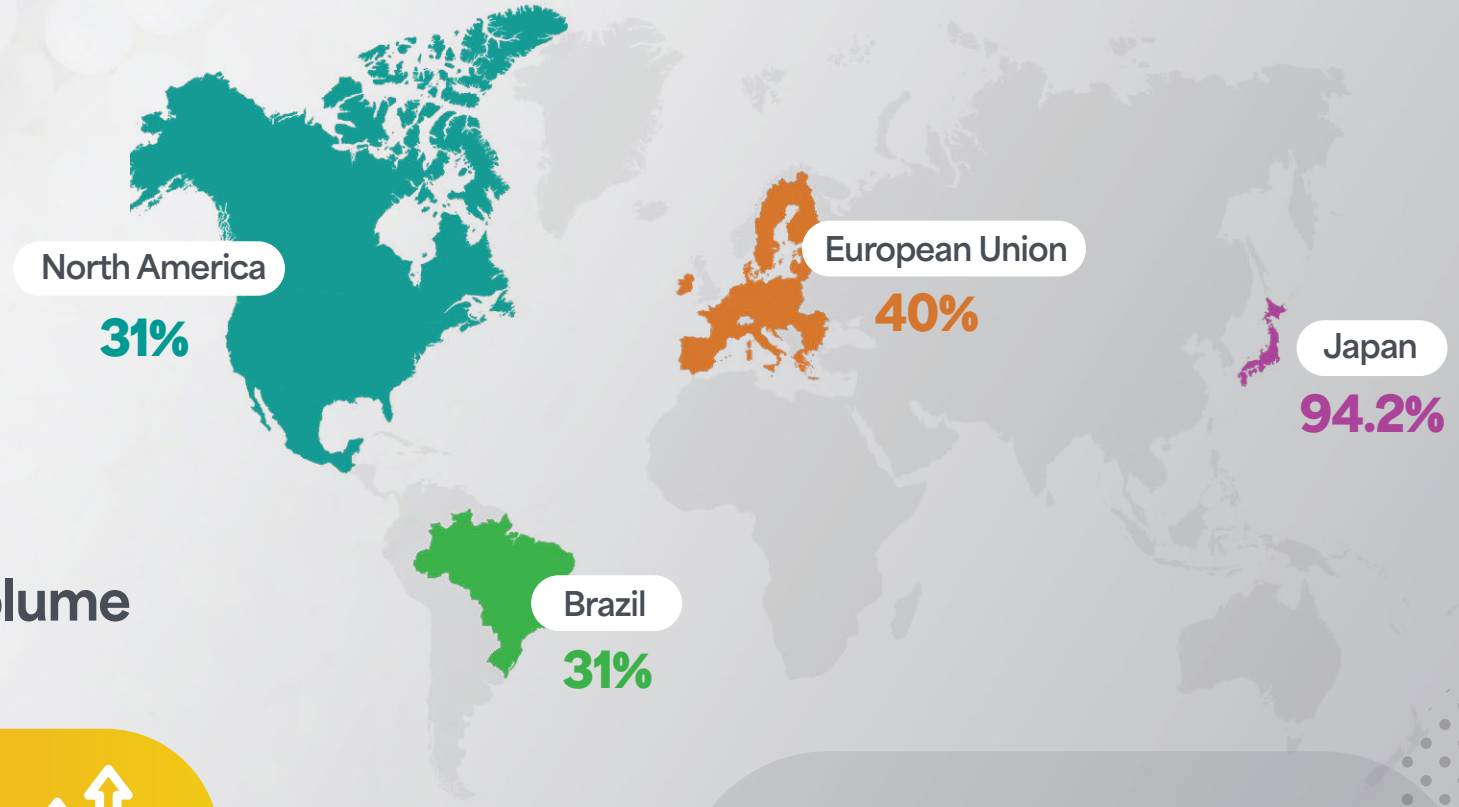
Global recycling rate in 2024:

30%

Growth in recycled volume (2015-2024):

2.25 x

This progress is also reflected across different regions of the world, where recycling rates continue to strengthen:



Performance and circularity continue to advance together around the world.

** British Plastics Federation (5); Eurostat (22); Global EPS Sustainability Alliance (26); EPA (40).*

Building efficiency by design



High-performance thermal insulation and the lightweight nature of EPS contribute to **more efficient buildings,** optimizing **energy use and reducing emissions** throughout their lifecycle.

A solution that helps create more comfortable, efficient, and future-ready spaces.

** ASHRAE (3); ASHRAE TC 4.4 (4); WGI (41).*

EPS: High-performance thermal insulation

EPS contributes to **more efficient and comfortable spaces** through its **thermal insulation capabilities.**

It reduces heat flow by

70% to 90%

1 kg of installed EPS can prevent between

100 and 200 kg of CO_2

and contributes to improved environmental performance in buildings.



A solution that optimizes energy consumption, reduces emissions, and contributes to improved environmental performance in buildings.

** EPS Industry Alliance (11,14); ASHRAE (3); Engineering Toolbox (36); WGI (41).*

Environmental performance that makes a difference



The combination of:

lightweight design, efficiency, and performance

allows EPS to stand out compared to alternative materials across **key environmental indicators.**



A comprehensive perspective on how different materials contribute to resource efficiency and environmental impact reduction.

** European Commission PEF (16, 17, 18); EU Recommendation 2021/2279 (9); EPA (38); NIST (31, 32).*



A lightweight and efficient solution that combines protection, performance, and a lower environmental footprint.

EPS in action: Lower impact, same protection

Product protection can also **help reduce environmental impact.**

For 50-inch television packaging, EPS can generate

up to 4 times fewer CO_2 emissions CO_2 **than an equivalent corrugated cardboard solution.**

** Michigan State University (29,30); EPA (38); European Commission PEF (16,17).*

Protecting quality from the start





Food safety begins with the right material choice.

Performance, safety, and confidence for applications that touch everyday life.

** Prepared by the author. Sources: FDA 21 CFR 177.1640 (25); EU Regulation 10/2011 (19); EC Regulation 2023/2006 (21); European Food Contact Materials Legislation (8).*



Advancing extended product responsibility around the world

Extended Producer Responsibility (EPR) continues to evolve globally, strengthening mechanisms that **support material recovery, value retention, and responsible waste management.**

EPR Landscape Across Regions:



An evolving framework that fosters greater collaboration among industry, consumers, and governments to advance long-term circular solutions.

European Commission Construction Products Regulation (CPR) and environmental policies (7, 9).

Styropek
Expanding Together

Delivering performance across the Americas

With the leading distribution network across **the United States and Canada, Styropek combines scale, service, and reach** to support customers throughout the continent.

#1 Distribution network
in the U.S. and Canada

395,000
tons per year of combined installed capacity

5 manufacturing sites across Mexico, United States, Argentina, Brazil, and Chile

A regional platform that delivers high-performance solutions, customer proximity, and sustainable growth across the Americas.



*Styropek corporate information (internal source).

Shaping the future through climate action

Styropek
Expanding Together

Innovation and responsible resource management are part of Styropek's long-term vision to continue creating value through increasingly efficient solutions.

Target:
30% **recycled or bio-based** content

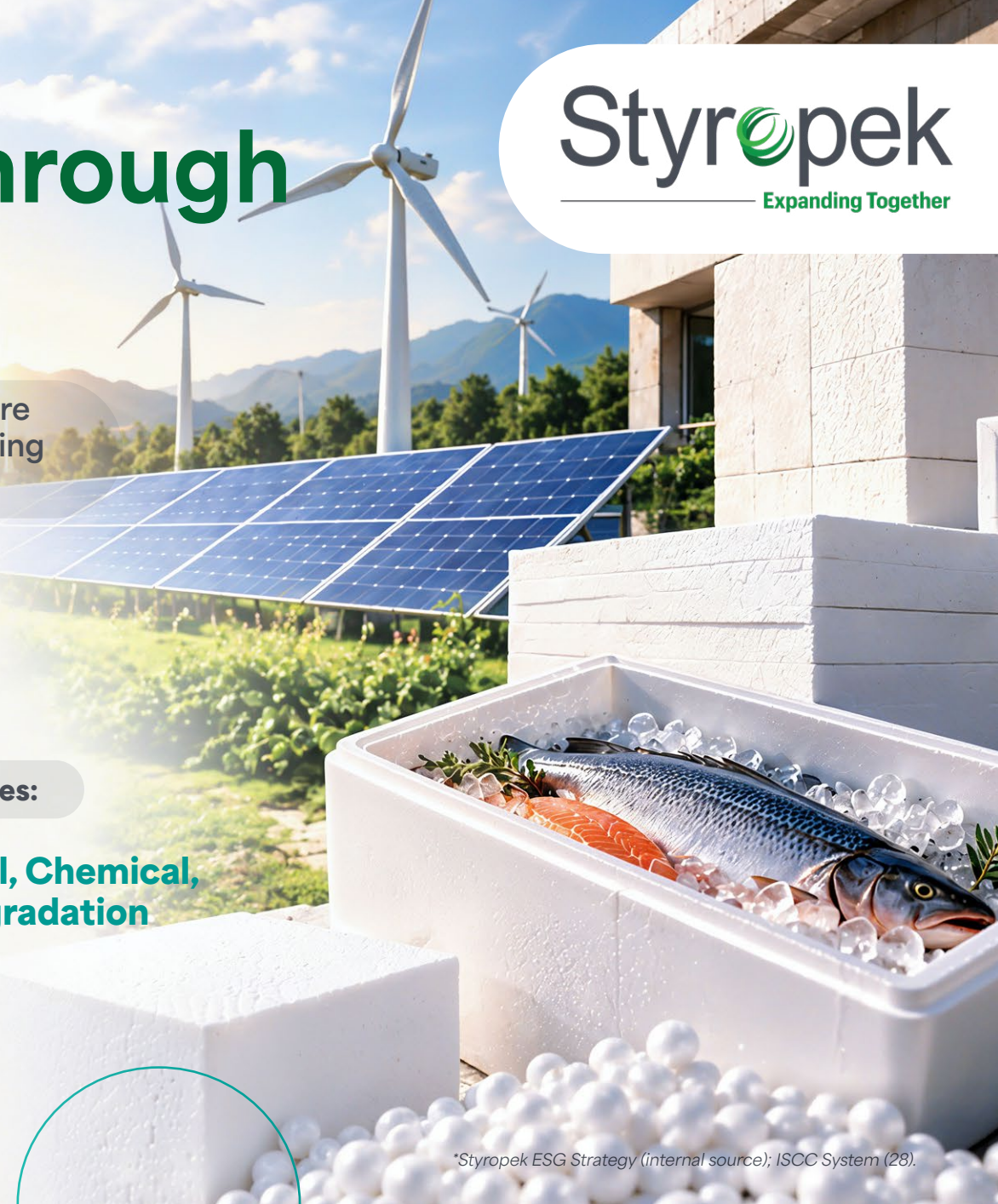
27.5%
Scope 1 and 2 **CO_2 emissions reduction**

13.5%
Scope 3 **CO_2 emissions reduction**

Recycling technologies:

Mechanical, Chemical, and Biodegradation

Shaping the future through innovation, lower emissions, and the responsible use of resources.



*Styropek ESG Strategy (internal source); ISCC System (28).

Innovation that expands possibilities

Styropek
Expanding Together

Four complementary approaches reflect Styropek's commitment to **developing high-performance materials and creating new possibilities** for future generations.

Mechanical Recycling:
up to
50%
recycled content

Bio-Based Content:
up to
90%
lower carbon emissions

Chemical Recycling:
up to
100%
circular materials

Accelerated Biodegradation:
helps reduce
end-of-life impacts



EPD INTERNATIONAL EPD SYSTEM
ISCC International Sustainability & Carbon Certification
ASTM

** ISCC (28); SCS Global Services (35); ASTM D5511 (1).*

Innovative solutions

that expand the potential of EPS and help build a future with more possibilities





The future is built on possibilities



From protecting food and medical supplies to improving the energy efficiency of the spaces we live in,

EPS enhances the everyday lives of millions of people.

*Prepared by Styropek (own development)

At Styropek, we transform innovation

into solutions that create value today and expand the opportunities of tomorrow.



Solutions that improve lives

Building a future with more possibilities

Styropek

Expanding Together

Alpek

www.styropek.com

External References

American Society for Testing and Materials. (2018). ASTM D5511-18: Standard test method for determining anaerobic biodegradation of plastic materials under high-solids anaerobic-digestion conditions. ***https://www.astm.org/d5511-18.html***

ASHRAE. (2024). ASHRAE position document on energy efficiency in buildings.

ASHRAE Technical Committee 4.4. (n.d.). Building materials and building envelope performance.

British Plastics Federation, Expanded Polystyrene Group. (n.d.). Expanded polystyrene is recycled at scale and in practice worldwide. ***https://www.eps.co.uk***

European Commission. (2021). Commission Recommendation (EU) 2021/2279 on the use of environmental footprint methods. EUR-Lex.

European Commission. (n.d.). CORDIS: Applications of EPS in insulation, packaging, and food service products. ***https://cordis.europa.eu***

European Commission. (n.d.). Legislation on food contact materials.

EPS Industry Alliance. (n.d.). EPS sustainability. ***https://www.epsindustry.org/eps-sustainability***

EPS Industry Alliance. (n.d.). Green building and energy efficiency.

EPS Industry Alliance. (n.d.). Health and safety of EPS.

EPS Industry Alliance. (n.d.). Life cycle assessment studies for EPS in construction applications.

EPS Industry Alliance. (n.d.). Life cycle assessment studies for EPS protective packaging applications.

European Commission. (n.d.). Product Environmental Footprint (PEF): Environmental impact assessment methodology for products and materials.

European Commission. (2025). Commission Regulation (EU) No. 10/2011 on plastic materials and articles intended to come into contact with food (consolidated version).

European Manufacturers of Expanded Polystyrene (EUMEPS). (n.d.). EPS and sustainability. ***https://www.eumeps.eu/topics/eps-and-sustainability***

European Union. (2006). Commission Regulation (EC) No. 2023/2006 on good manufacturing practice for materials and articles intended to come into contact with food.

Eurostat. (n.d.). Waste statistics.

Expanded Polystyrene Industry Alliance. (2024). Why EPS matters. Global EPS Sustainability Alliance.

Food and Drug Administration. (n.d.). 21 CFR §177.1640: Polystyrene and rubber-modified polystyrene.

Global EPS Sustainability Alliance. (n.d.). Circular economy solutions for expanded polystyrene. ***https://globaleps.org***

Grand View Research. (2024). Expandable polystyrene market size, share and trends analysis report.

International Sustainability and Carbon Certification. (n.d.). ISCC system. ***https://www.iscc-system.org***

Michigan State University. (2025). Comparative study of packaging materials in the United States focusing on global warming potential (GWP), resource use, and water consumption.

National Institute of Standards and Technology. (2022). Review of environmental impacts of plastics.

PlasticsEurope. (2023). Plastics: The fast facts 2023.

SCS Global Services. (n.d.). Recycled content certification. ***https://www.scsglobalservices.com/services/recycled-content-certification***

The Engineering ToolBox. (n.d.). Thermal conductivity of common materials: Solids, liquids and gases.

United States Environmental Protection Agency. (n.d.). Design for the Environment life cycle assessment: Comparative environmental impacts of packaging materials.

United States Environmental Protection Agency. (n.d.). Plastics: Material-specific data.

WGI. (2021, July 30). Insulating the building envelope: Benefits in all climate zones and a point of diminishing returns. ***https://wginc.com/insulating-the-building-envelope/***

Internal References

Styropek. (2025). Corporate information [Internal document].

Styropek. (2025). ESG roadmap [Internal document].

Styropek. (2025). Innovation portfolio [Internal document].

Styropek. (2025). Sustainability strategy 2030 [Internal document].