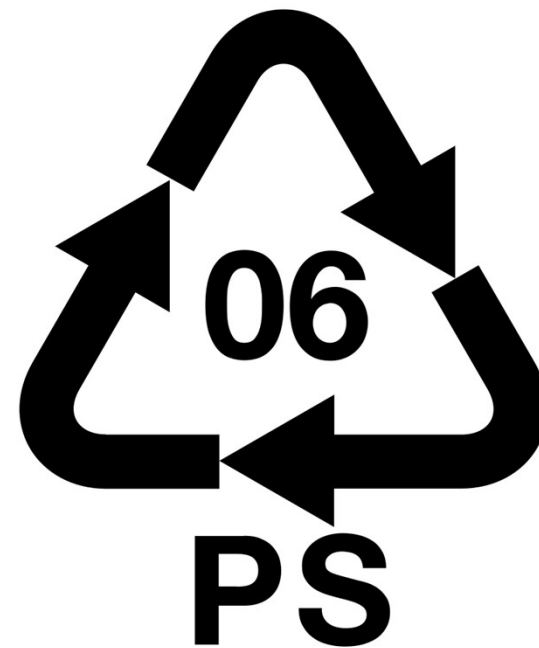
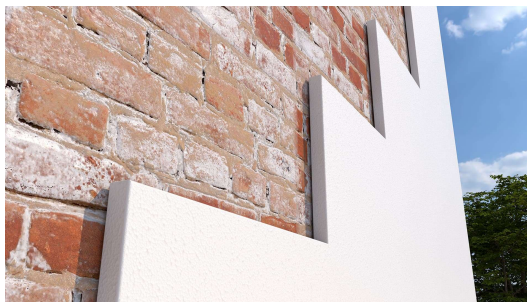


Recycling: What about EPS?



What is EPS



Expanded PolyStyrene



EPS

EPS applications



Building and Construction

Building thermal & sound insulation
Plumbing insulation
Decorative tiles
Geofoam



Packaging

Food packaging
Medical packaging
Electronics and household appliances



Transportation

Energy absorbing foam

Why EPS?



Thermal Insulation

- Construction
- Food packaging

Low weight

- 98% air
- The lightest packaging material available

Shock absorption

- High energy absorption index
- Ideal for protecting sensitive products

Compressive resistance

- Unique ability to resist compression

Humidity resistance

- Doesn't absorb water or water vapor
- Insulation and mechanical properties remain unaffected

Food grade (packaging grades)

- Inert and innocuous



EPS and environment



100% recyclable

98% air → Efficient use of natural materials

Process free of CFCs or HCFCs / Doesn't damage the ozone layer

The conversion process consumes little energy and doesn't generate waste

Thermal insulations properties → Significant savings on heating / cooling cost and reduction of greenhouse effect

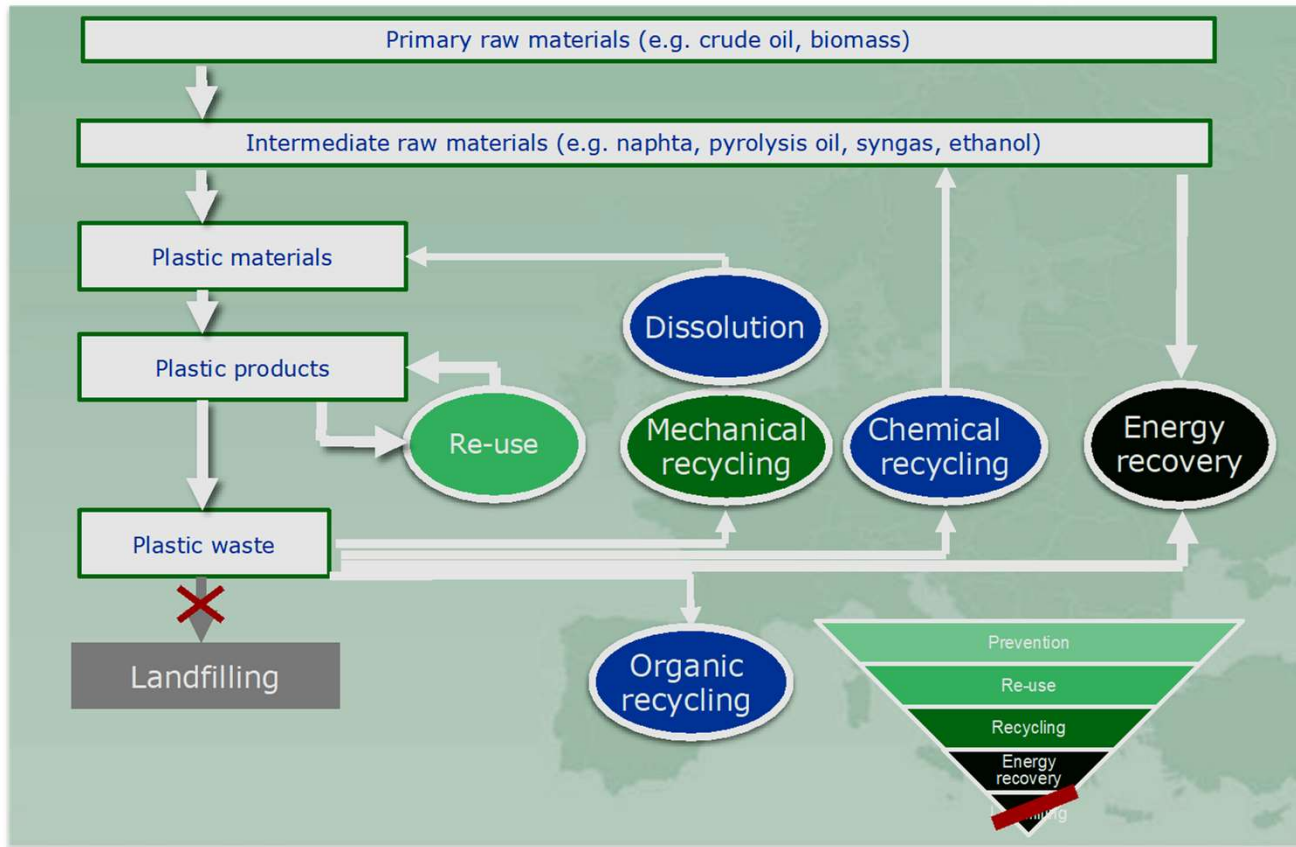
It doesn't decompose → no water / land pollution

Fungi and bacteria cannot easily grow on EPS

May be used as energy recovery resource. 1 kg of EPS is equivalent to 1,3 lt of liquid fuel

As packaging mean, its lightweight nature helps to reduce fuel consumption during transportation

Recycling flow



65% of PCW is incinerated or landfilled

EPS recycling methods



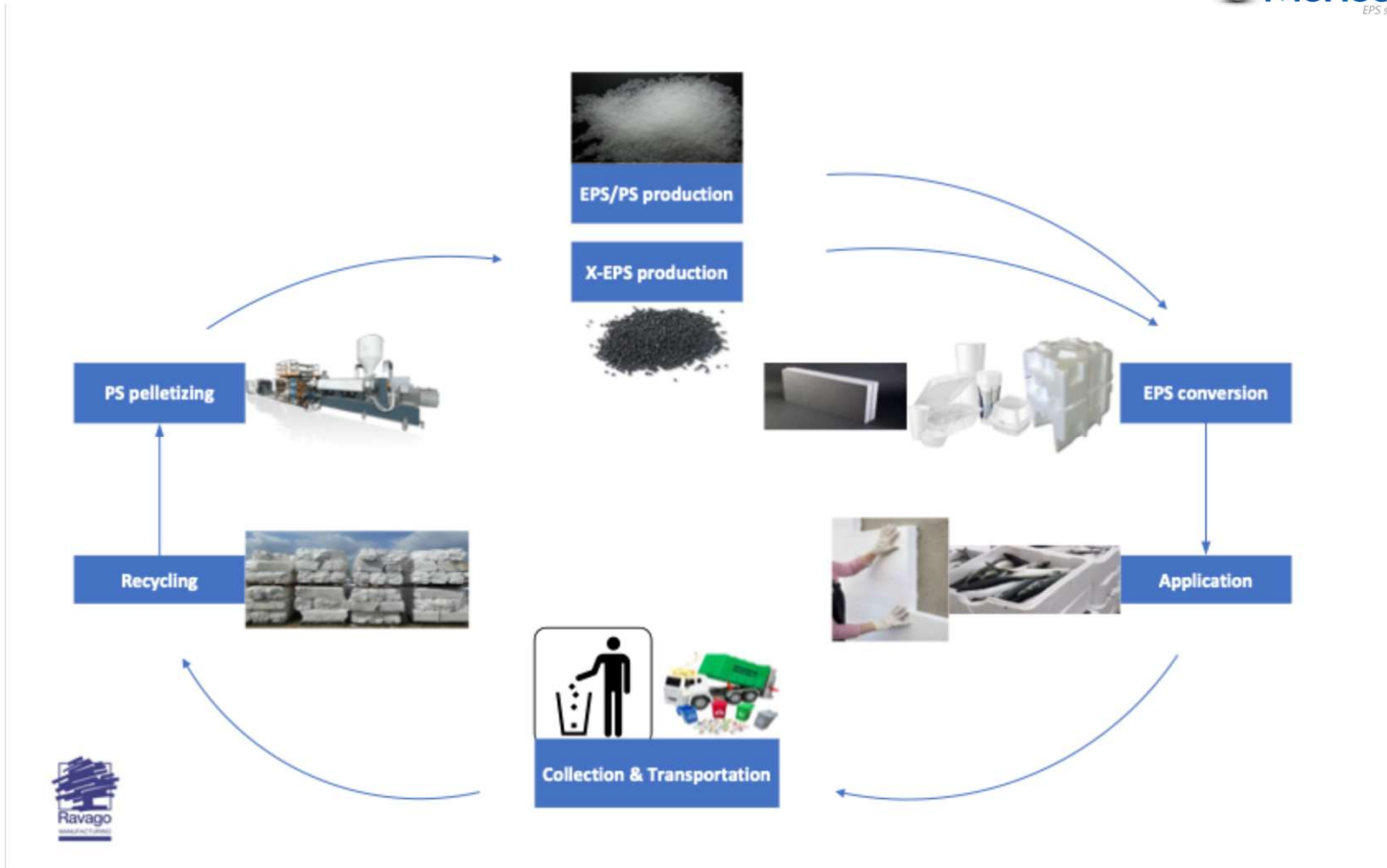
Mechanical Recycling

- “Reuse” the polymer
- Preferred method
- Extrusion process
- High-quality sorting requirements (sensitive to contamination)
- Food contact concerns

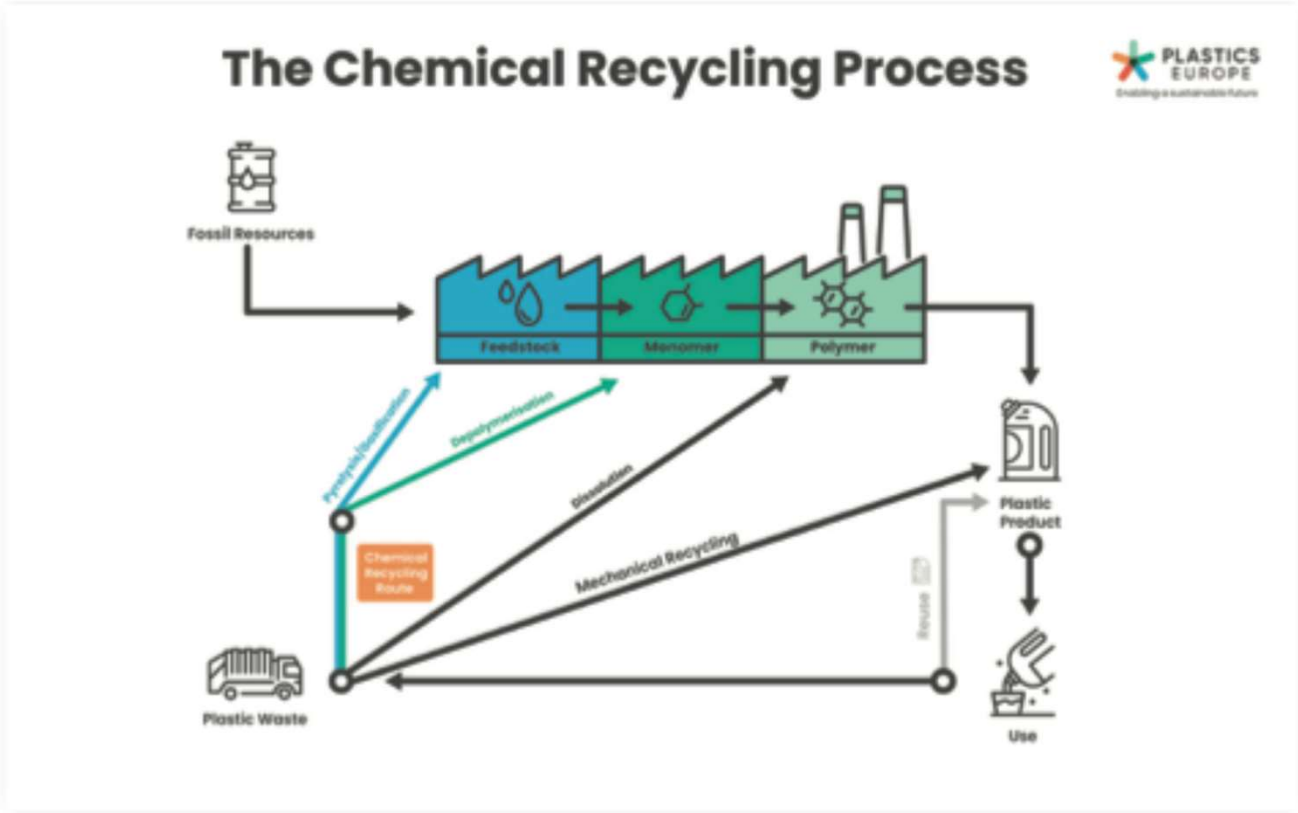
Chemical Recycling

- “Reuse” the monomer
- Possible to recycle all kind of plastics
- High energy requirements and limited yield

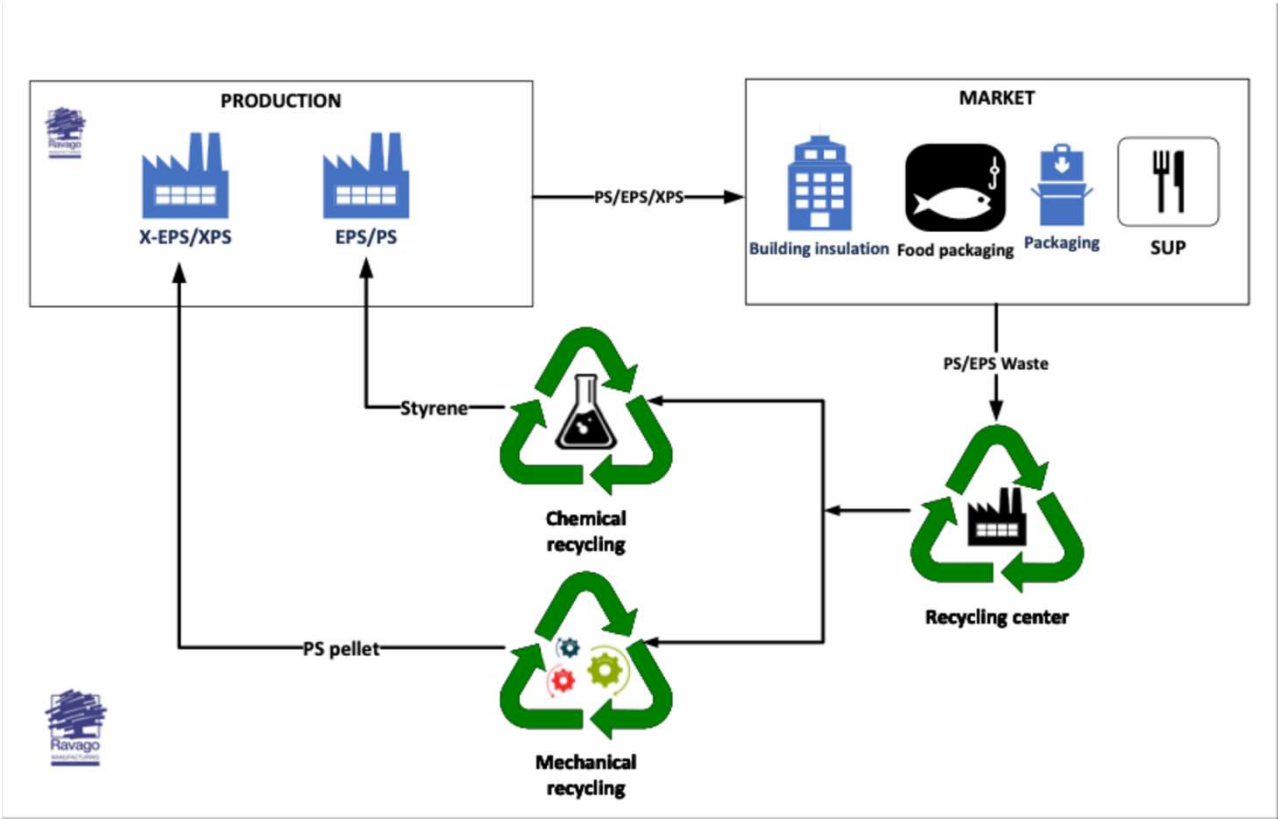
Mechanical recycling



Chemical recycling



EPS recycling in Greece by Ravago



EPS recycling in Greece



Current status

EPS foam, as Post Consumer Waste (PCW), is mainly:

- Fish boxes
- White goods packaging
- Building & construction
 - From worksites during construction
 - Limited demolitions

Lack of dedicated collection system (i.e PET)

Low density → high volume, low weight)

- Low value
- Increased logistics costs

EPS recycling in Greece



KPIs

2019 data	GREECE	EU
EPS production (kt/yr)	19,6	1.675
Packaging (kt/yr)	8,4 (43%)	390 (23%)
Construction (kt/yr)	11,2 (57%)	1285 (77%)
EPS waste collected (kt/yr)	5	507
EPS recycling (kt/yr)	2,1 (42%) +2,3 (46%) exported	154 (30%)
Energy recovery (kt/yr)	0,0 (0%)	232 (46%)
Landfill (kt/yr)	0,6 (12%)	121 (24%)
EPS recycling packaging (kt/yr)	4,7 (94%) ⁽¹⁾	372 (73%)
Housekeeping (kt/yr)	0,7 (15%)	164 (44%)
Commercial (kt/yr)	4,0 (85%)	208 (56%)
EPS recycling construction (kt/yr)	0,3 (6%)	135 (27%)
Installation (kt/yr)	0,3 (100%)	47 (35%)
Demolition (kt/yr)	0,0 (0%)	88 (65%)

⁽¹⁾ 96% food package, 4% white goods packaging

EPS recycling in Greece



The solution

- 1 Include Expanded Polystyrene as a recyclable material in Hellenic Recycling Agency -> Create dedicated collection system
- 2 Use of EPS compactors on the source of waste
- 3 Promote awareness of EPS recyclability (supply chain and final consumers)
- 4 Cooperation of EPS Assosiation (ΠΑΣΙΔΥΠ) with municipalities

NOTE: Hellenic Recycling Agency has an institutional role in recycling in Greece, as it ensures the implementation of waste prevention policies and the alternative management of product waste