

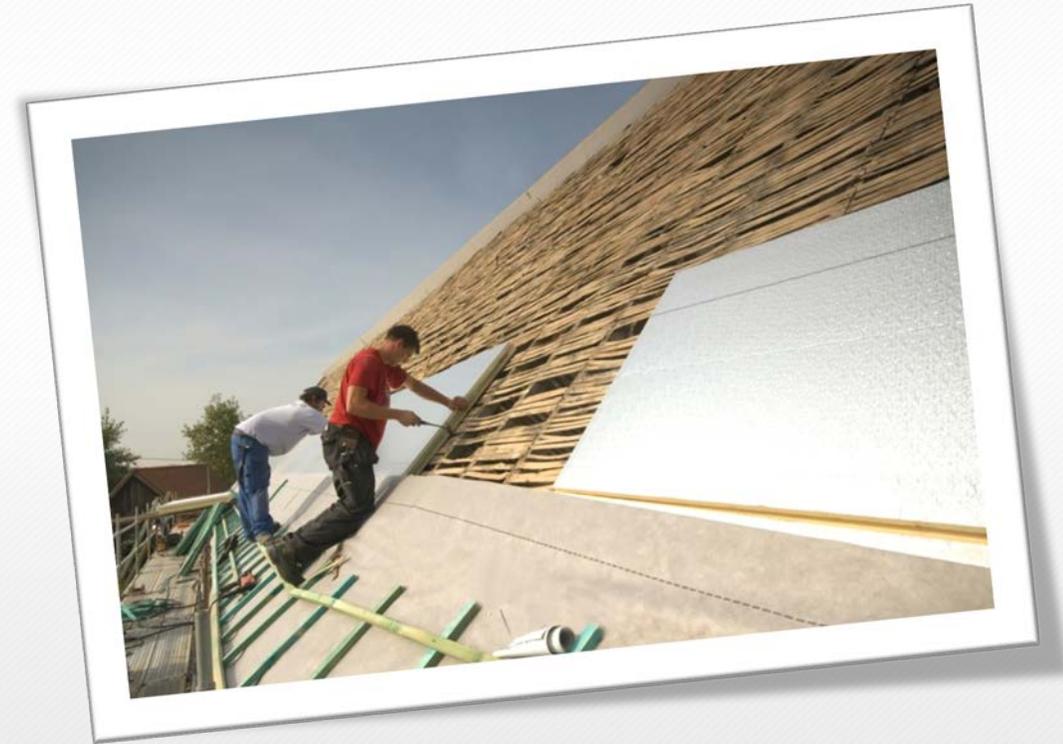


PU Europe: The voice of the European polyurethane insulation industry

PU insulation foam in the Circular Economy

Who we are

- **PU Europe** is the European association of the polyurethane insulation industry (PUR/PIR)
- Created in 1981
- Centre of excellence for the whole industry
- Large product range:
 - Insulation boards
 - Block foam
 - Sandwich panels
 - Spray foam
 - SIPs
 - Pipe-in-pipe insulation
 - Industrial insulation



PU insulation market

- > 100 Manufacturing sites
- Around 20 000 direct jobs
- ~ 10% Market Share in Insulation



Full map and legend available [online](#)

Circular Economy thinking at work

From waste consideration



- 2008 revised **Waste Framework Directive** → *Waste Hierarchy* principle!
 - Prevention (or reduction)...
 - and then waste management options

To circular economy measures in the construction industry

For the construction and demolition waste:

- **Mandatory recovery target of 70 % for Member States by 2020**
- **Latest provisions:**
 - Promotion at national level of selective demolition to sort at least wood, mineral fractions, metal, glass, plastic and plaster
 - European Commission was due to consider new re-use and recycling targets by 31 December 2024

2019 EU Green Deal

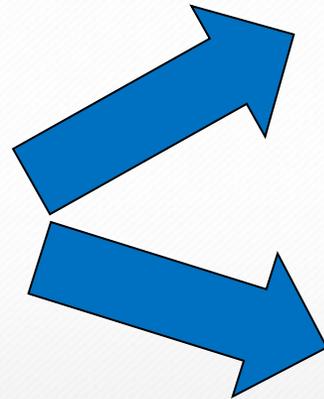


Buildings 2024 EPBD

- The [Energy Performance of Buildings Directive](#) (EPBD) introduces a number of measures to reduce GHG emissions from buildings:
 - New buildings to be “**zero-emissions** buildings” by 2030
 - EU/National Whole-Life Carbon (WLC) roadmaps due by 2027: Member States shall publish and notify roadmaps with **limit values and targets** from 2030 for the **life-cycle GWP of new buildings**
 - Assessment to be made over a life time of 50 y (without the EoL)
- **Challenge in balancing emissions trade-offs between construction phase and use phase**

Construction products 2024 CPR

- **Promoting sustainability and circularity:** *Regulation (EU) 2024/3110* supports the European Green Deal and promotes more sustainable construction products through stricter environmental requirements and the introduction of life cycle assessments

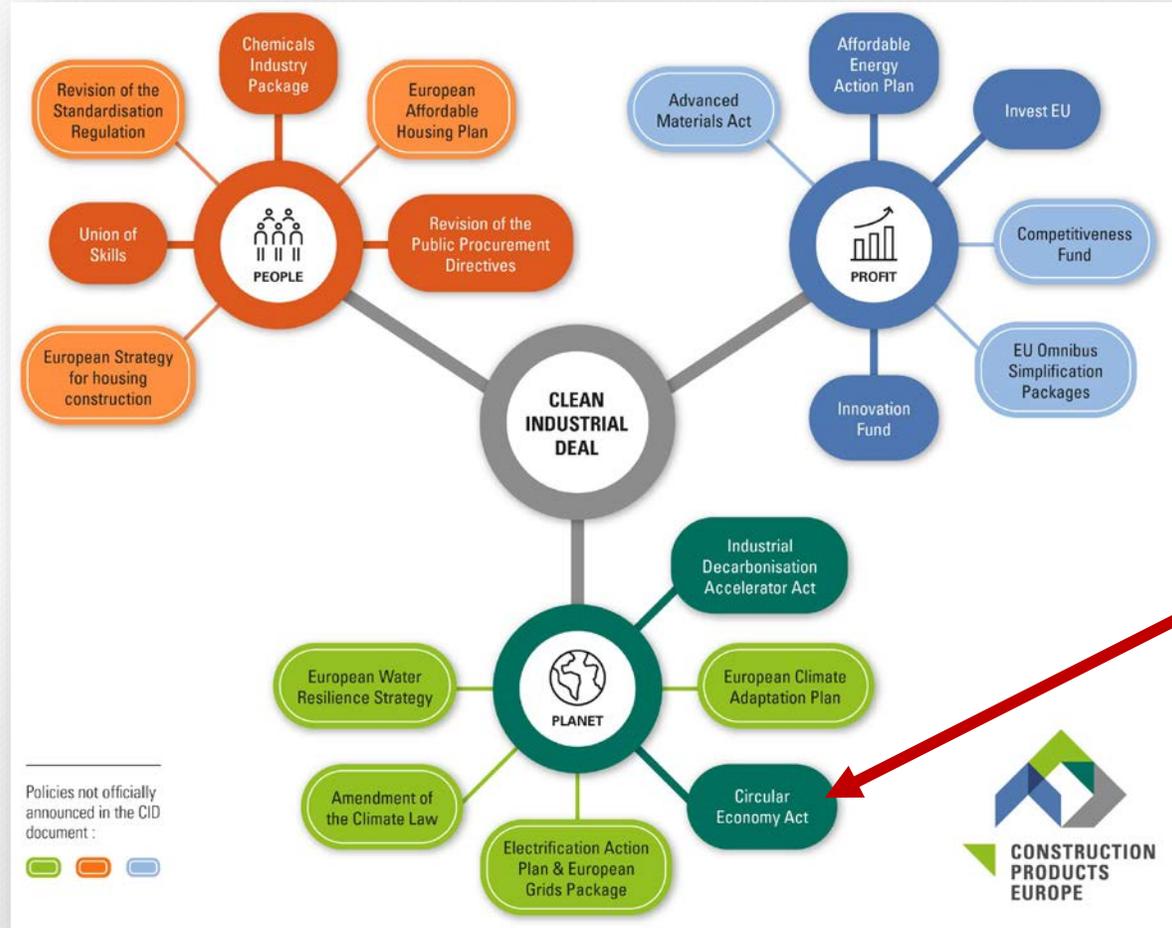


**Environmental performance
mandatory declaration**

**Circular practices should be
easier to declare**

2024-2029

Towards a circular *and* competitive EU



PU insulation in a Circular Economy age

Direction of travel and key drivers

- **EU policy direction** → clear push to reduce GHG and environmental impact (a Climate target 2040 by the end of 2025...)
- **Circular Economy Act** * (due end of 2026) → creating a single market for secondary raw materials, boosting recycled product demand and resource efficiency

**cornerstone of the Clean Industrial Deal*



- *Durability of our products: 50+ years*
- *Some countries are however adding mandates in the field of recycled content without an understanding of the GHG impact*

Enabling the Circular Economy

Challenges:

- Complex value chains
- Interlinkages across sectors and materials
- Different lifetimes of products/articles complicating circular strategies

One practical enabler: Chain of custody rules (MBA) needed to valorise the use of more circular/low environmental impact raw material



Circular Economy PU industry initiatives

- Product offering is enabling improvements at different stages:
 - Manufacturing stage: lower impact (biogenic/waste) raw materials
 - Construction stage: products supporting short construction times/waste
 - Decommissioning stage: designed to be easily detachable/dismantlable (including spray foam)
 - Re-use/repurposing
 - End of Life: chemical, mechanical recycling...
- While still keeping its **long-term durability** and **high performance**

Circular Economy: PU industry initiatives



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Research/Development & Innovation projects

RD&I: making PU more Circular - [Introduction](#)

Projects:

- > [Carbon4PUR](#) (catalysis for the production of CO₂-based polyols)
- > [Cardiff University](#) (aluminium-catalysed isocyanate trimerization)
- > [CIRCULAR FOAM](#) (chemolysis and pyrolysis)
- > [Dream Resource](#) (conventional ethylene oxides and CO₂)
- > [FOAM2FOAM](#) (glycolysis and solvolysis)
- > [LifeRepolyuse](#) (integration of PU waste into a new gypsum-based construction material)
- > [MIPLACE](#) (microbial communities to perform enzymatic hydrolysis on PU)
- > [Northwestern University](#) (carbamate exchange reactions)
- > [PERCAL](#) (Municipal Solid Waste as feedstock to develop intermediate chemical products)
- > [RePURpose](#) (recycling through granular methods and chemical restoration)

Some final considerations

Mindset → Embed circular thinking across teams and value chains

Initiatives → Drive concrete projects and actions

Commitment → Keep the Circular Economy front and centre, as it won't disappear anytime soon



Opportunities and challenges ahead...



...together we are stronger!



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<http://www.excellence-in-insulation.eu/>