

PU Europe: The voice of the European polyurethane insulation industry

The Circular Economy Drive in the Construction Sector: A PU Europe Perspective



4th ANPE conference



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
 - Spray foam
 - Sandwich panels
 - SIPs
 - Pipe-in-pipe insulation
 - Industrial insulation



PU insulation market

- Around 110 manufacturing sites
- Circa 20,000 direct jobs
- 10% market share in the EU from a few % a decade ago... due notably to its:
 - Thermally efficiency (meaning low thickness)
 - Extremely durable performance (resistant to water, moisture, chemicals...)
 - Contribution to sustainable buildings (the energy related impact of the PU insulation product in the Life Cycle Analysis of a building - 50 year lifetime- is below 1/100)

Circular Economy for the construction sector

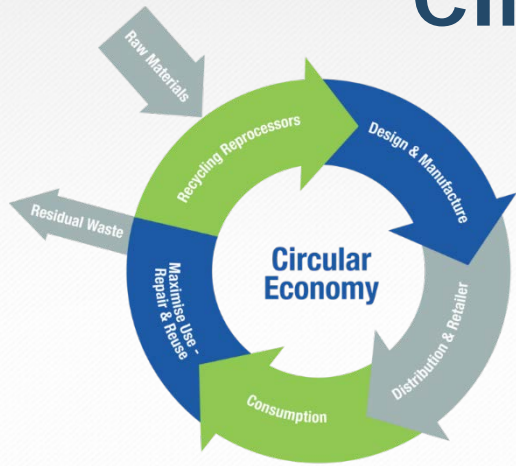
- Previously called “Resource Efficient Europe” Agenda
- Waste Framework Directive, REACH, CLP, product specific legislations... All being a piece of the puzzle
- Waste Framework Directive (WFD):
 - Existing provisions: waste hierarchy principle and 70% recovery target for C&DW by 2020 (EU28 \approx 500 million T/y);
 - New ones since 2018 (transposition deadline: 5/07/2020):
 - Promotion of selective demolition and establishment of sorting systems for construction and demolition waste at least for wood, mineral fractions, metal... and plastic;
 - Commission right of initiative to propose by 31/12/2024 preparing for re-use and recycling targets for construction and demolition waste and its material-specific fractions;
 - Database on SVHC in articles...

Circular Economy for the construction sector

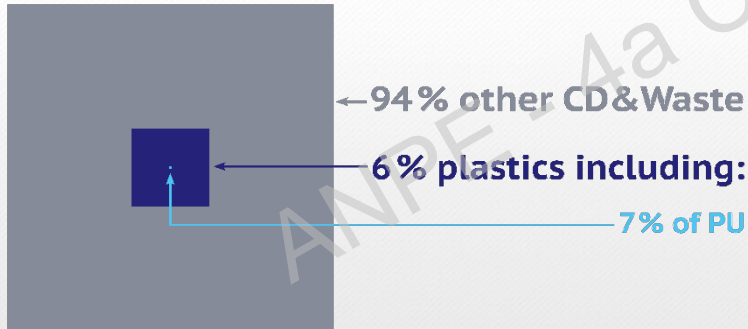
From the design phase to the End of Life :

- Environmental Product Declaration (environmental certification that quantifies and verifies the life cycle of products based on the Life Cycle Assessment tool)
- *Environment LCA performance of buildings*
- *Circular Economy Principles for building design*
- Building pre-demolition assessment guidelines
- Voluntary recycling protocol for CD&Waste
- *Unknown developments: possible new requirements for the design of products (repair/re-use, recycle targets) via legislation or standardisation route*

Circular Economy and rigid PU foam



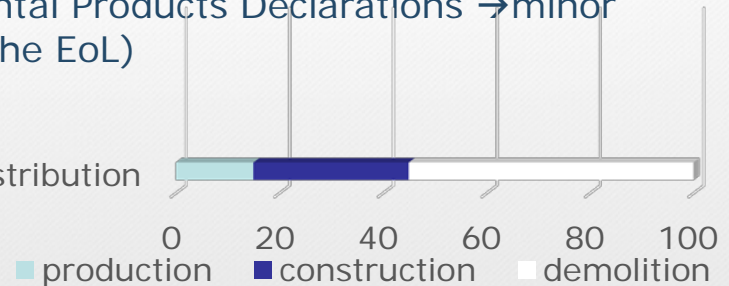
CD&Waste



State of play

- Very long use phase, +50 years → not much product has reached its end of life
- Little to no culture & infrastructure for the recovery of PU waste (leaving aside the challenge of recycling a thermoset)
- Limited amount of bio-based material into the formulation
- But, environmental impact of PUR/PIR products is low (Environmental Products Declarations → minor contribution of the EoL)

Rigid PU Waste distribution



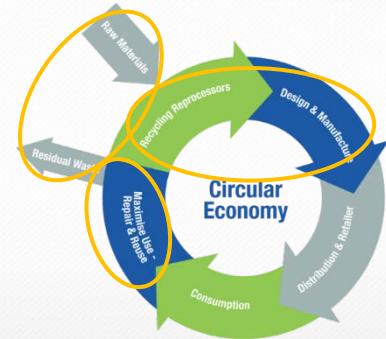
Circular Economy and rigid PU foam

- End of Life options for foamers
 - Bespoke production for waste prevention at construction site
 - Re-use/recycling of production waste (turned into new products → filler to high density board, mixed up with gypsum, concrete...)
 - Take back scheme at construction sites (re-use/recycling)
- End of Life options for the whole PU industry
 - From demolition waste (<0.05%)
 - Re-use (very limited)
 - Landfill (last resort option...)
 - Waste-to-Energy, including in co-combustion in cement kiln (important for the destruction of legacy chemicals)
 - For all waste streams: **Chemical recycling**
 - Projects on hydrolysis, aminolysis, glycolysis, gasification, pyrolysis...but more are needed!

Circular Economy and rigid PU foam

Key enablers for rendering PU foam more circular in the construction sector – focus not only on EoL!

- A more **joined-up approach** of the whole **construction sector** supported notably by its digitalisation (design for deconstruction needs, traceability of products, proper assessment of environmental performance of buildings...)
- A forward looking **Construction Products Regulation**
- A proper **sorting** of waste and **waste infrastructure**
- A progressive approach to **waste status**
- Increased R&D on EoL options and **bio-based/ carbon recycling components**



All underpinned by Life Cycle Analysis

Circular Economy is not the only high level EU objective

- Fight against Climate Change starts with Energy Efficient buildings:
 - 40% of EU energy consumption & 36% CO₂ emissions
 - 2050 decarbonised economy objective for the EU
- Upgrading our building stock will achieve other key objectives – aligned with  **SUSTAINABLE DEVELOPMENT GOALS**
 - Creation of 2 million local jobs
 - 0.7% increase of the GDP per year
 - A clear contribution to a socially fair energy transition
- Next Commission work programme on decarbonisation & circular Economy – how bold will it be?
- Non disputable: Long lasting energy efficient buildings are the first steps towards Circular Economy!

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

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<https://www.pu-europe.eu/>

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