CISUFLO
CIRCULAR SUSTAINABLE FLOOR COVERINGS

The Future of the Floor Covering Industry: Recycling!

Ine De Vilder | ivi@centexbel.be

To mitigate climate change, we should aim to achieve the goals of the European Green Deal. One of its pillars is to increase the use of sustainable products that can be repaired, recycled or reused. Currently, most end-of-life flooring products are incinerated. Efforts are being made by the flooring sector to shift from incineration to recycling at end-of-life.

In 2021, nineteen partners have joined forces in the European CISUFLO project, Circular Sustainable Floorings, which will last for four years. The project aims to develop innovative circular products for the flooring industry, with a focus on carpets, laminate, and vinyl floorings. The goal is to promote the adoption of a circular economy model throughout the entire value chain and beyond.

The work plan includes six pilots that will address the production, sorting, separation and recycling of floor coverings, as well as the scaling-up of novel technologies.

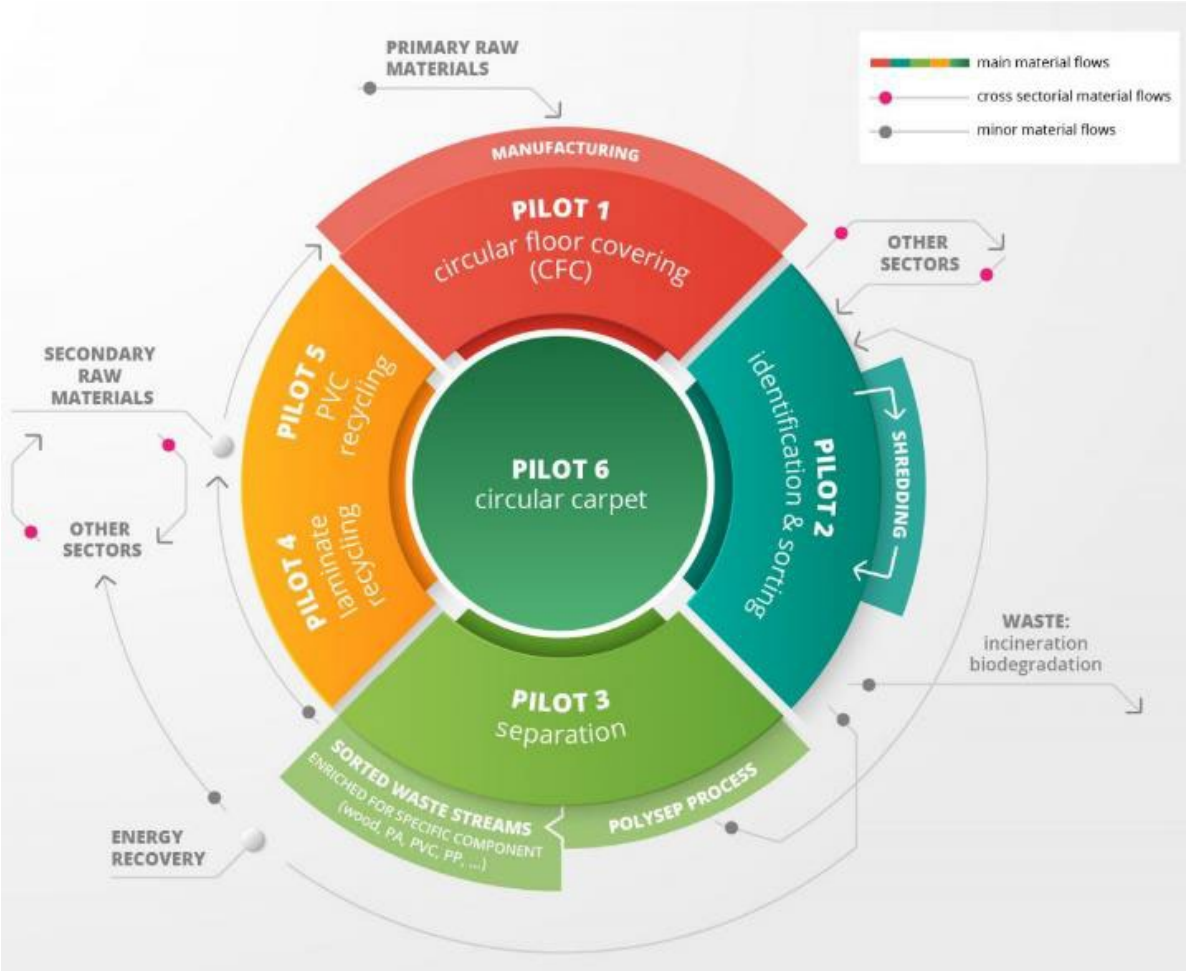


Figure 1: CISUFLO scheme

CISUFLO aims to establish synergies with related sectors to convert their waste into flooring products and vice versa, and to provide policy makers with useful input in view of standardisation and legislation.

The CISUFLO website offers an overview of relevant standards and certificates for circular floor coverings.

Additionally, a policy brief has been drafted and will be updated at the end of the project. The preliminary report is available on the website.

The project covers the entire life cycle of flooring, from design to end-of-life and beyond. It includes innovative business models and covers installation, collection, sorting, and recycling. A white paper on collection schemes for flooring waste is available on the CISUFLO website.

Additionally, a novel software tool called ePRODIS (extended product information system) is currently under development. It will align with the digital product passport being developed by the standardisation working group CEN/TC 134. A tagging system, such as QR codes or RFID tags, links ePRODIS to the flooring, allowing valuable information to be retrieved at every stage of the product's lifetime and beyond.

Centexbel not only coordinates the project but also supports the redesign of circular carpets and vinyl flooring (pilot 1). The possible pathways for carpets include the use of mono-material systems (with a focus on PA6) or multi-layered materials that are easily separable. In the latter approach, a separation layer is present, which can be triggered at the end-of-life, enabling separation at this point. Additionally, the use of recycled content is being investigated.

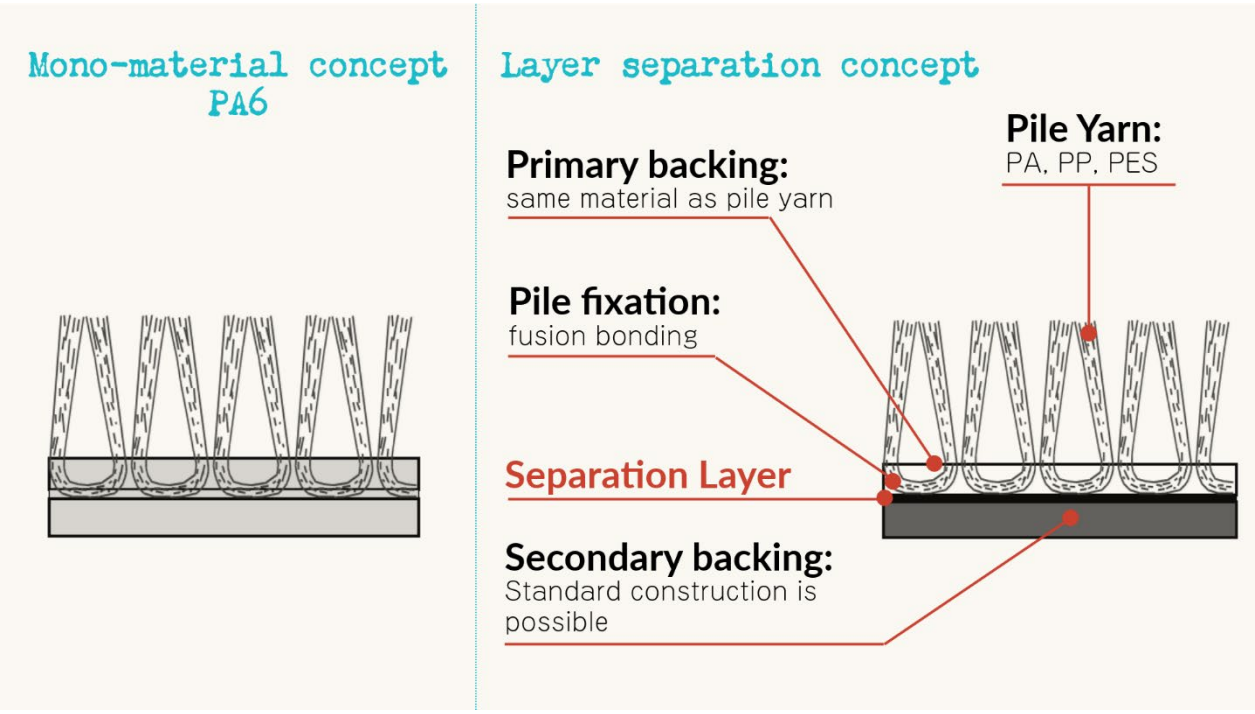


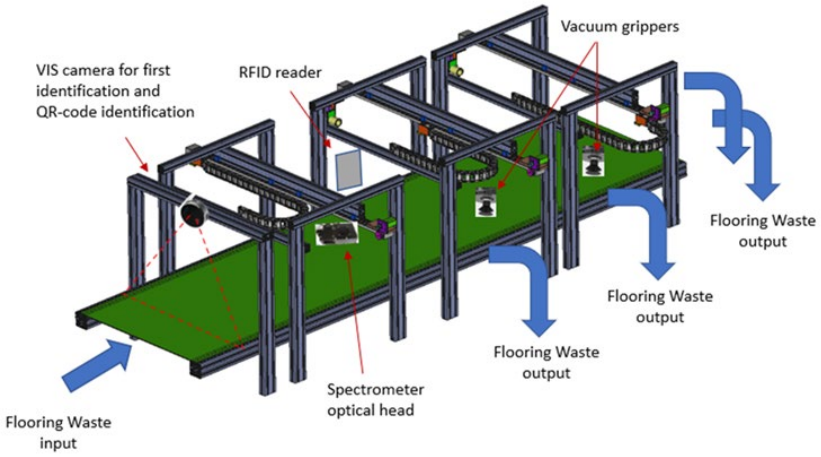
Figure 2: Design-for-recycling strategies carpets

Guidelines to make your carpet, laminate or vinyl flooring more sustainably are available on the CISUFLO website[1].

[1] https://www.cisuflo.eu/download2/public-deliverables/

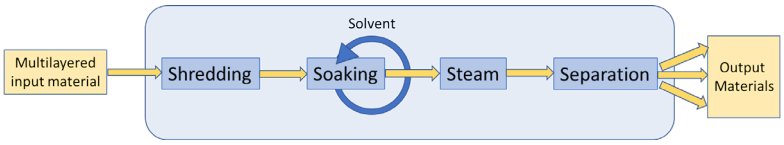
Pilot 2 at Centexbel – Grâce-Hollogne

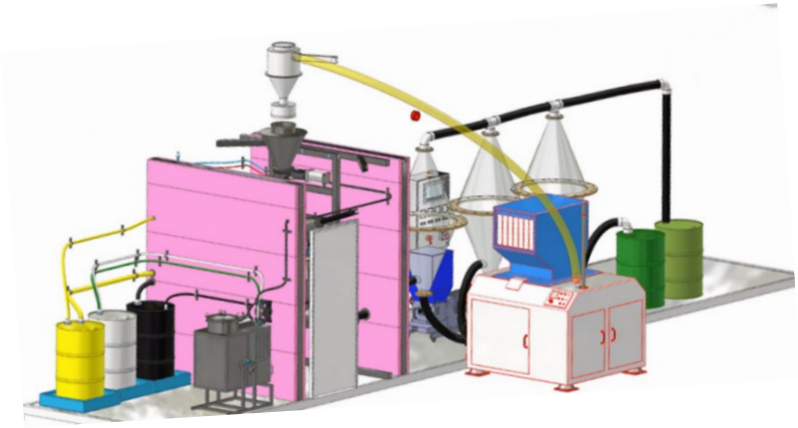
Our 'Waste sorting and identification' line (PILOT 2) in Grâce-Hollogne enables us to read out the tags on flooring waste and to identify the material composition. The waste is then sorted using vacuum grippers. Initial testing has demonstrated the ability to distinguish between different types of flooring waste.



At the same location we recently implemented the **PolySep** process, which is a container-based installation that enables the separation of multi-layered waste. This patented technology allows for the delamination of different materials using a non-hazardous solvent in a closed loop.

The aim is to convert multi-layered waste products into mono-materials, which can be more easily recycled. The process will be used to remove the latex/secondary backings from conventional carpets and recover PVC from vinyl flooring.





Industrial partners

- ***Unilin*** *is researching the use of recovered wood fibres from discarded laminates in the production of new HDF/MDF boards for laminates (pilot 4). A pilot line has been constructed that uses a steam explosion technique to successfully defibre laminates, enabling over 90% of the wood fibres to be recycled.*
- *Vinyl flooring waste and waste from old PVC window profiles from* ***Deceuninck*** *are being used in the production of vinyl flooring and luxury vinyl tiles at Beaulieu International Group, and vice versa (pilot 5).*
- ***Edel Carpets, Aquafil*** *and* ***TFI*** *are collaborating on the redesign and recycling of carpets (pilot 6), covering the entire value chain from production to use phase, sorting, and subsequent recycling.*

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More information on https://www.cisuflo.eu

Subscribe to the CISUFLO newsletter to read all about the latest developments.

Acknowledgements

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