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ALIGNED

A framework for the LCA of bio-based products

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ALIGNED: A framework for the LCA of bio-based products

Massimo Pizzol, Søren Løkke, **Agneta Ghose**, Karen Nørgaard Bollesen, Jurjen Spekreijse, Patrick Reumerman, Steven Van Passel, Maxim Tschulkow, Lorie Hamelin, Marcos D. B. Watanabe, Narie R.D. Souza and Francesco Cherubini

ALIGNED

CONSTRUCTION - PULP AND PAPER - WOODWORKING - TEXTILE - BIO-CHEMICALS.

Aligning Life Cycle Assessment methods and bio-based sectors for improved environmental performance



CONSTRUCTION



WOODWORKING



PULP AND PAPER



TEXTILE



BIO-CHEMICALS

About

ALIGNED will advance LCA and collaborate with industries and representatives from five bio-based sectors:

The models and tools developed in ALIGNED will allow the performance of high-quality assessment studies **across the bio-based sectors, with industrial relevance and interoperability.**

This is made possible by the **iterative application and improvement of the new and harmonised models and tools in five specific cases of biobased industrial technologies (TRL 2-6), one for each sector.**

Objectives

1. Improve, harmonize, and align **LCA methodology** for the assessment of bio-based industries covering environmental and socioeconomic aspects.
2. Demonstrate the power of the methodology on **five specific technology development cases in industries** within these sectors, to improve their environmental performance.
3. Inform, involve, and **empower all relevant stakeholders**, enabling an efficient methodological uptake and practice improvement to support a sustainable growth of the bio-based sector in Europe.

Implementation

WP1: Shared modelling framework and learnings

(AAU)

WP2: Bio-based construction (INSAT)
- Case study: Insulation Industrial partner: Kingspan (Netherlands)

WP3: Woodworking (ANTW)
- Case study: Insulation Industrial partner: Kingspan (Netherlands)

WP4: Bio-based textiles (BTG)
- Case study: work clothing. Industrial p. Centexbel and Utexbel (Belgium)

WP5: Pulp and paper (AAU)
- Case study: lignin products. Industrial partner: BLOOM (Switzerland)

WP6: Bio-based chemicals (NTNU)
- Case study: Oleochemicals Industrial partner: OLEON (France)

WP9: Microalgae (A4F)
- Case study: Microalgae cultivation tech. Industrial partner: A4F (Portugal)

WP7: stakeholder involvement, dissemination, communication (SIE)

WP8: Management (AAU, BTG)

WP1 in detail

T1.1 Framework for **background life cycle inventory of bio-based sectors**

T1.2 Framework for **foreground life cycle inventory of bio-based sectors**

T1.3 Framework for **Life Cycle Impact Assessment (LCIA)**

T1.4 Framework for **interpreting uncertainty**

T1.5 Framework for **socio-economic assessment**

T1.6 **Learning from life cycle modelling in bio-based sectors: roadmap and policy advice**

Framework:

- Scientifically sound, evidence-based
- Ensures consistency across models

Approaches:

- Model reality as close as possible
 - Avoid normative choices

Tools:

- High applicability (simple, work across sectors, open)
- Tested on the case studies, continuous improvement



14 Scientific + industrial partners

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