

ITENE for CBE JU Consortia



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Value Proposition

ITENE enables industrial deployment of safe and circular bio-based innovations.

- I / Industrial scale-up & pilot validation**
Turning bio-based developments into deployable solutions.
- II / Safe-and-Sustainable-by-Design integration**
Safety, circularity, LCA and regulatory readiness in one partner.
- III / Circular materials & packaging expertise**
Ensuring recyclability, biodegradability and market compliance.

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How ITENE supports CBE JU coordinators

Project design

- Identification of exploitable value chains
- SSbD integration from proposal stage
- Contribution to impact and circularity sections

Implementation

- WP leadership and task coordination
- Pilot validation & scale-up activities
- Industrial demonstration readiness

Proposal success

- Strengthening Excellence–Impact coherence
- Risk mitigation strategies
- Support to exploitation & regulatory pathways

ITENE focuses on topics where leadership or high-impact contribution is feasible.



- C- Strong leadership contribution
- P1 - Key partner role
- P2 - Supporting expertise

HORIZON-JU-CBE-2026-IAFlag-02: SSbD bio-based alternatives for fertilising and/or crop protection products

● **Materials:** Synthesis and development of bio-based, soil-biodegradable, and compostable materials for use in fertilizer encapsulation, controlled-release capsules/films, and mulching films or geotextile membranes for biodegradable crop protection.

● **Recycling:** Expertise in chemical recycling of biomass and battery recycling; provides techno-economic analysis and process scale-up. However, their experience does not focus on the production or validation of biofertilizers or agrochemicals, but rather on recycling processes, so their role is limited to support.

● **Circular Economy:** Expertise in sustainability and packaging recycling, including collection, transport, and waste management. Their experience does not cover the development or validation of biofertilizer products, but focuses on packaging sustainability and logistics, representing a partial or supporting contribution.

● **Biotechnology:** End-to-end capabilities from microorganism isolation and improvement, scalable biotechnological processes, development of biofertilizers and biocontrol agents, to agronomic validation and pilot-scale production. Leadership in related European projects and the only department with fully aligned core capacities for the development, production, and validation of Safe-and-Sustainable-by-Design (SSbD) bio-based fertilizers and agrochemicals, justifying a leadership role.

● **Safety:** Competencies in risk management, toxicology, biosensors, and modeling for environmental and health safety. While they can contribute to toxicological safety assessment of new agrochemicals or biofertilizers, their role is complementary and partial, not central to product production or validation.



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HORIZON-JU-CBE-2026-IAFlag-01: Boosting biorefinery competitiveness through biotech

● **Recycling:** LCA and some chemical treatment of biotech residues.

HORIZON-JU-CBE-2026-IAFlag-04: Diversification of nutritional food ingredient sources for increased EU resilience and strategic autonomy

● **Safety:** Toxicology.

HORIZON-JU-CBE-2026-IAFlag-03: SSbD bio-based solutions for home and/or personal care

● **Materials:** Develop and scale bio-based materials, functionalized for safety and sustainability, including polymers and specialized additives, highly aligned with the objective of SSbD bio-based solutions for personal care and household products, covering formulation, scaling, and validation.

● **Recycling:** Chemical recycling of plastics, biomass valorization, battery recycling, LCA, LCC, and eco-design, all key capabilities to validate the sustainability and circularity of bio-based solutions at industrial scale within the project.

● **Circular Economy:** Packaging sustainability and waste management, relevant for eco-friendly design and recyclability of associated packaging, but with a more consultative/supportive profile, not central leadership in bioproducts.

● **Biotechnology:** Transforming waste into bioactive ingredients and biomaterial precursors, developing and scaling biotechnological processes and biorecycling, with extensive experience in European projects for production of ingredients and enzymes relevant for SSbD bio-based formulations.

● **Safety:** Development of SSbD.

/ IA

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HORIZON-JU-CBE-2026-IA-01: Biotech routes for valorisation of residual biomass

- **Materials** : Valorization of lignocellulosic materials for obtaining high-value cellulose products: MFC, MCC, functionalization of MCC, valorization of lignin and other cascade products. This part includes sugars, acids, and oligomers along with Biotech area.
- **Circular Economy**: Pretreatment of biomass prior to further processing.
- **Biotechnology**: End-to-end capabilities ranging from the biotechnological valorization of organic waste to the development and scale-up of biotechnological processes for the production of biochemicals, ingredients, and biomaterials, with relevant coordinated projects and experience in fermentation, extraction, biocatalysis, and bio-recycling, clearly positioning them as a cross-cutting leader for the topic.
- **Safety**: Toxicology.

HORIZON-JU-CBE-2026-IA-03: Bio-based chemicals and/or materials from woody residues

- **Materials** : Valorization and extraction of additives from lignocellulosic materials (including MFC, MCC, NFC, lignin, etc) with background and experience from projects such as FUNKYFIBRE, AGRIMAX.
- **Recycling**: Chemical recycling technologies and LCA.
- **Circular Economy**: Evaluation of the theoretical and experimental recyclability of new developments. Alignment with new legislation.
- **Safety**: Toxicological and health risk assessment.

/ IA

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HORIZON-JU-CBE-2026-IA-02: Bio-based additives as alternatives to unlock and increase recyclability and/or biodegradability

- **Materials:** Synthesis and functionalization of bio-based additives, formulation, compatibilization, scaling, and transformation of materials for packaging and related applications. Comprehensive coverage from synthesis to industrial validation, perfectly aligned with the development of bio-based additives to improve recyclability and biodegradability. Pilot plant facilities and experience in SSbD, scaling, and validation of bio-based additives with a strong focus on safety and sustainability.
- **Recycling:** Chemical recycling and LCA/LCC evaluation, with experience in recycling plastics, textiles, and batteries. Methods available for designing and scaling innovative recycling and decontamination processes, which are critical for assessing and ensuring the safe release and degradation of the bio-based additives. Proven experience in techno-economic analysis and pilot testing in recycling plants for innovative processes.
- **Circular Economy:** Sustainability and recyclability of packaging, regulatory and experimental assessment of recyclability, eco-labeling, and advanced management of collection, sorting, and mechanical and chemical recycling. Key capabilities for comprehensive packaging support, including studying the impact of bio-based additives on recycling systems and their integration into a circular economy.
- **Biotechnology:** Production and formulation of bio-based additives via bioprocesses, isolation and improvement of microorganisms and enzymes, and scaling up to pilot. Development of processes for biorecycling and enzymatic degradation of polymers, production of precursors for biomaterials and additives with a clear focus on bio-based innovation for end-use, perfectly fitting the bio-based additives scope for improving circularity and biodegradability.
- **Safety:** Toxicological and health risk assessment.
- **Consultancy:** Technical-economic and environmental optimization and validation of packaging, food safety, and sustainable packaging development, supporting with testing, simulations, and industrial implementation roadmaps. Technical support capabilities in regulatory compliance, food safety, eco-design, and traceability provide value in integrating bio-based additives into end-use applications.

/ IA

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HORIZON-JU-CBE-2026-IA-04: High-performance, circular-bydesign, bio-based thermosets

- **Materials:** New BIOPU synthesis and formulation with additives.
- **Recycling:** LCA.
- **Circular Economy:** Experimental recyclability evaluation. Development of recycling processes.
- **Safety:** SSbD assessment task.

HORIZON-JU-CBE-2026-IA-05: Films and coatings for circular packaging

- **Materials :** Development of new coating and film materials, scaling of structures for target applications.
- **Recycling:** LCA and ecodesign.
- **Circular Economy:** Experimental recyclability evaluation. Development of recycling processes.
- **Safety:** Toxicology.

/ RIA

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HORIZON-JU-CBE-2026-RIA-01: Addressing separation and purification challenges in biorefineries

- **Materials:** Support in the development of new materials, polymerization for added value of final products from by-products.
- **Recycling:** Chemical separation and purification process.
- **Safety:** SSbD assessment task.

HORIZON-JU-CBE-2026-RIA-02: SSbD bio-based polymers from alternative sources

- **Materials :** Synthesis and functionalization of bio-based polymers, polymerization, copolymerization, and depolymerization of bio-based polymers derived from waste, including pilot-scale up and industrial validation with a Safe-by-Design approach.
- **Safety:** SSbD assessment task.

／ RIA

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HORIZON-JU-CBE-2026-RIA-03: High-performance, circular-bydesign, bio-based thermosets

● **Materials:** Formulation and coatings to prevent microplastics.

● **Recycling:** LCA.

● **Safety:** SSbD assessment task.

/ CSA

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- P2 - Supporting expertise

HORIZON-JU-CBE-2026-CSA-01: Supporting industry in the switch to sustainable and circular bio-based products and processes

- **Materials:** Scaling of sustainable circular materials, processing and products.
- **Circular Economy:** Support in the development of the circularity model.
- **Safety:** SSbD assessment task.

Interested in collaboration?

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The logo for ITENE, featuring the word "ITENE" in a bold, white, sans-serif font with a slightly irregular, blocky appearance. The letters are set against a solid dark teal background.

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