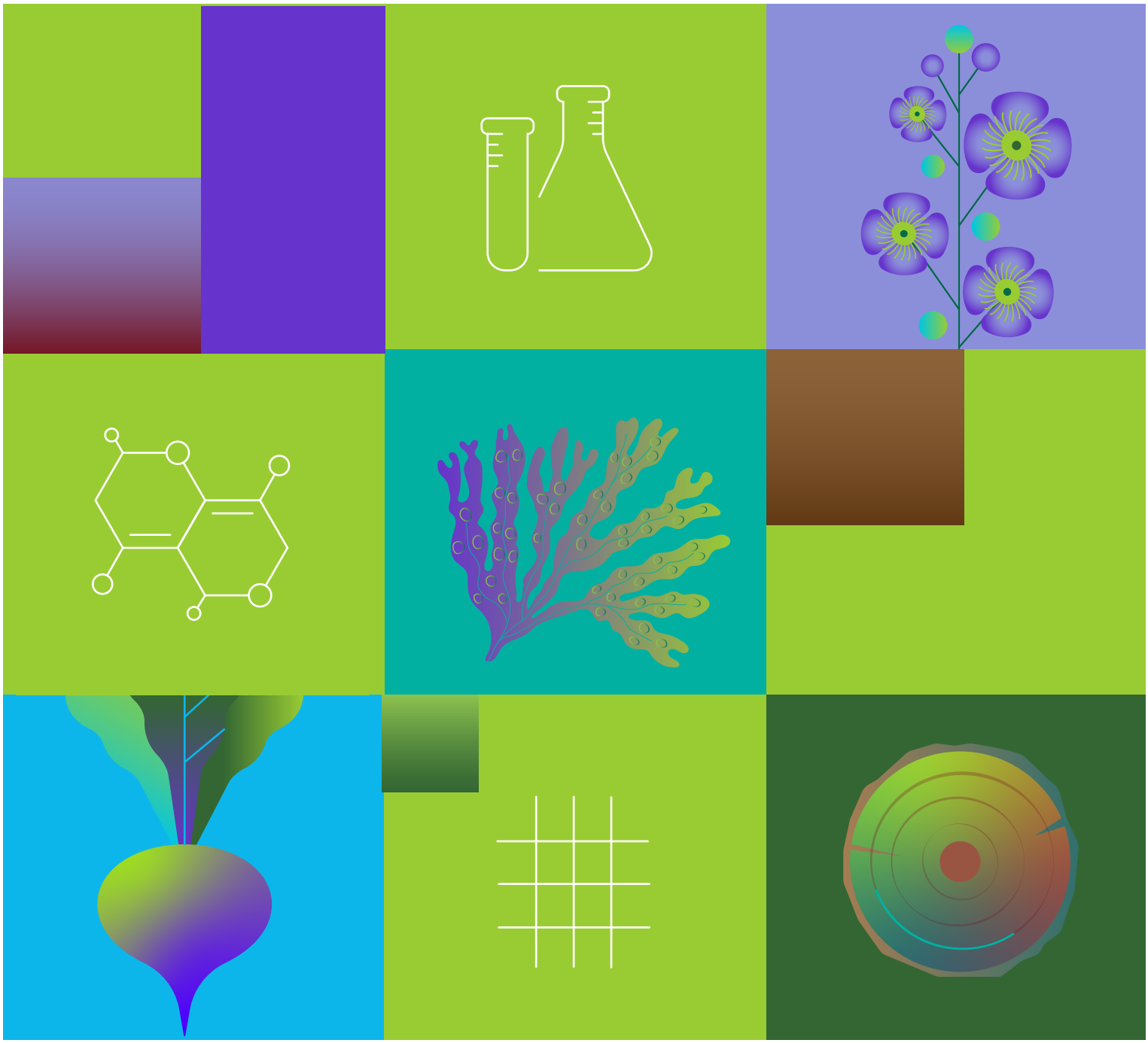
Bio-based Industries Consortium

Lead Markets for Europe's Bioeconomy

Overview and Key Findings



Why Lead Markets Matter
Turning innovation into investment, scale and market uptake

BIC's mission is to accelerate the deployment and market uptake of bio-based products in Europe. In this context, we welcomed the publication of the EU Bioeconomy Strategy, which comes at a pivotal moment — alongside a number of landmark EU initiatives that will shape the future of bio-based industries, including the Biotech Act II, the Circular Economy Act, and the Industrial Accelerator Act.
It is therefore essential that the vision outlined in the EU Bioeconomy Strategy is implemented timely and rapidly into concrete action — through the aforementioned EU initiatives and beyond.

Bridging the first innovation 'valley of death' requires, amongst others, a continuation of the Circular Bio-based Europe Joint Undertaking (CBE JU) under the new EU budget (2028-2034).

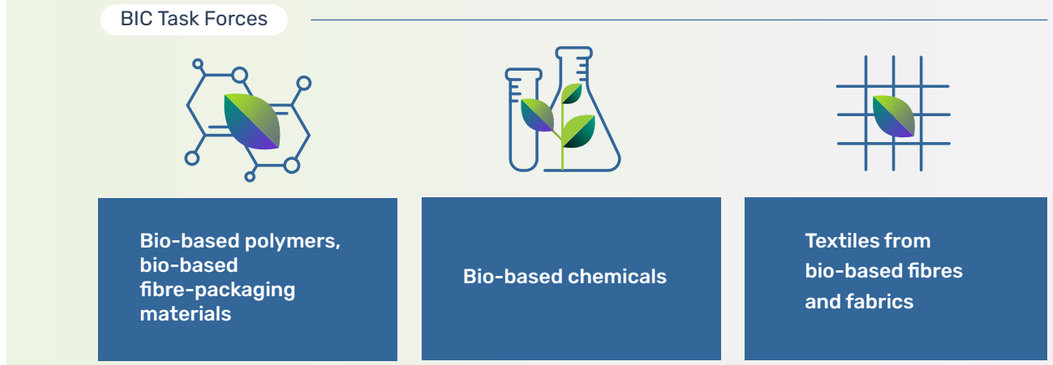
Yet bringing bio-based projects to scale (including 'First-of-a-kind") necessitates a coherent combination of market pull, investment conditions, and regulatory frameworks, particulary to overcome the second 'valley of death'. The EU Bioeconomy Strategy has identified several actions to address this challenge.

To support the implementation of the EU Bioeconomy Strategy with concrete and ambitious measures that will stimulate the market demand for bio-based products, **BIC established three task forces to address lead markets and as outlined in the EU bioeconomy strategy**[1], namely:

1. Bio-based plastics, polymers, bio-based fibre-packaging materials,
2. Bio-based chemicals, and
3. Textiles from bio-based fibres and fabrics

For BIC lead markets are markets where Europe can develop a competitive advantage. They are defined as end-markets where market pull measures can support the uptake of (bio-based) products, to scale-up innovation and promote investments in these areas and accelerate the transition to a bio-based economy and cost-competitiveness.

The creation of lead markets for bio-based products is essential to attract investments to enable scaling of these products, so they become cost-competitive with fossil-based alternatives.



At the same time, increasing the use of bio-based products contributes to reducing Europe's dependence on fossil-based feedstock, strengthening Europe's strategic autonomy and industrial resilience.

The BIC task forces delivered two reports.
This report (Deliverable 1) identified lead-markets for bio-based products and technologies, outlining concrete end-markets and/or product categories. Lead markets were assessed from three perspectives

1. Market data: current market size and/or expected growth potential in Europe
2. Sustainability: environmental benefits, substitution potential by bio-based alternatives
3. Innovation and Competitiveness: technical maturity and feasibility, existing innovation ecosystems to support domestic production, trade aspects.

In a second report (Deliverable 2) we describe market pull measures for bio-based products that are suitable to create lead markets.

In the following we provide an overview of the BIC lead market assessment, further details can be found in the respective BIC task force reports (see Part 2, 3 and 4)

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52025DC0960

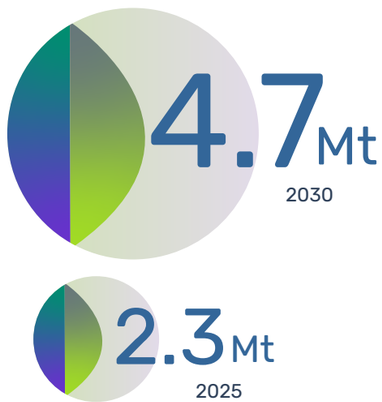
Bio-based Plastics, Polymers and Fibre-packaging Materials

Reducing fossil dependence in packaging, construction, mobility and agriculture

Bio-based plastics include a broad category of polymers including bio-based, biodegradable and compostable plastics.[2] Like fossil-based plastics, they can be used across several sectors and in everyday applications, ranging from consumer goods, car components, building materials and packaging. Today, over 99% of plastics are produced from fossil resources.

Fibre-based products are one of Europe's significant market, such as construction and packaging applications.

Current forecasts indicate that global biobased plastics production capacity will double by 2030, reflecting rising demand and the emergence of ever more advanced applications and products.



The BIC task forces identified and assessed four end-markets where substitution potential remains unrealized, namely:

1. Packaging

Europe's packaging sector is undergoing a materials transition driven by regulatory pressure, (corporate) sustainability commitments, and shifting consumer preferences. Within this report, two particularly dynamic segments are identified:

1. **Bio-based plastics packaging**

Europe is the dominant regional market, holding a 43,1 % revenue share of the global bioplastics market in 2025.

2. **Fibre-based packaging**

Fibre-based packaging generates €110 billion in revenue, €26 billion in added value, and supports 710,000 jobs across the European value chain.

2. Agriculture and horticulture

Bio-based plastics are increasingly used in agriculture and horticulture. Applications include mulch films, plant pots, seedling trays, clips, twines, greenhouse clips, irrigation components, controlled-release fertilizer coatings.

Agricultural bioplastics represent 8-9% of global bioplastic capacity (2022-27).

3. Automotive

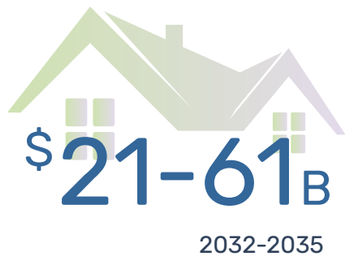
The automotive industry is rapidly adopting innovative bio-based plastics to reduce vehicle weight, lower carbon emissions, and improve sustainability. Major car manufacturers increasingly use renewable materials derived from plants, agricultural waste, or recycled biomass in interior and exterior vehicle components.

The global automotive bioplastics market was estimated at approximately USD 0.9–1.0 billion in 2025 and is expected to exceed USD 2.4 billion by 2035, with annual growth rates above 10%. Europe accounts for about one quarter of the global market.

4. Construction

Bio-based plastics and polymers are increasingly applied in the construction sector as sustainable alternatives to conventional fossil-based materials. Main applications include thermal and acoustic insulation foams, pipes and tubing, window and door profiles, flooring systems, wall panels, roofing membranes, coatings, adhesives, and sealants. In addition, fibre-based products are also used in construction.

Globally, the bio-based construction polymer market was valued at approximately USD 12.8–15.5 billion in 2024–2025 and is projected to reach



Europe is one of the leading regions for bioplastics and bio-based polymers due to strict environmental legislation, circular economy strategies, and strong adoption of green building standards.

[2] Bio-based plastics are a versatile group of materials that can be classified in different manners. For further reference, JRC report on biobased plastics "JRC Publications - Bio-based plastics in a sustainable and circular bioeconomy"

Bio-based Chemicals

Building competitive and sustainable value chains for Europe's industry

The European chemicals market is substantial in scale and offers significant potential for the development of lead markets. The industry represents around €655 billion in annual turnover, employs more than 1.2 million people, and supports key sectors such as pharmaceuticals, automotive, construction, electronics.

The current share of bio-based products in the EU chemical industry is estimated at around

8%

Bio-based) chemicals are enablers across multiple value chains, and hence an integral part of the European industrial ecosystem.

This report describes the lead-market potential for three end-markets sectors for using bio-based chemical products, namely construction, personal care, and agriculture. At the same time, the report acknowleges that bio-based chemicals can serve several end-markets, and which is reflected in the section on "Bio-based platform chemicals and derivatives" e.g. azelaic acid, tetrahydrofuran, lactic acid, propionic acid, pelargonic acid, 1,4-butanediol (BDO) as well as the section on "intermediates" e.g. bio-based binders, solvents, coatings, lubricants, paints, inks and adhesives.

Europe's competitive advantage in chemicals lies in a combination of industrial expertise; highly integrated chemical clusters connected to advanced manufacturing sectors such as automotive, aerospace, construction, and consumer industries; innovation leadership; highly innovative companiesa and a skilled workforce; leadership in high-value chemicals. 90% of carbon feedstock for chemicals is fossil. In other words, most hydrocarbon inputs (naphtha, natural gas, etc.) used as raw material in chemicals come from crude oil or gas.

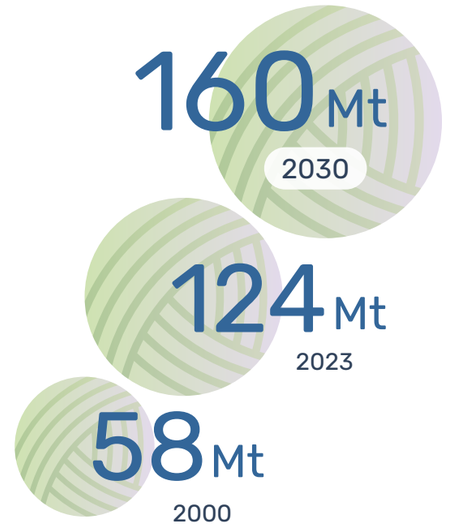
The chemical industry currently accounts for around 5–6% of global greenhouse gas emissions. Studies show that replacing major petrochemicals with bio-based alternatives could reduce greenhouse gas emissions by around 45% on average and lower total emissions from primary chemical production by up to 19% globally.

Textiles from Bio-based Fibres & Fabrics

Creating alternatives in a growing global market

The global textile system is characterised by sustained demand growth combined with a structural dependence on fossil-based synthetic fibres.

Global fibre production has increased from 58 million tons in 2000 to 124 million tons in 2023 and is projected to reach around 160 million tons by 2030.



Synthetic fibres account for approximately 67% of total production, with polyester alone representing roughly 57–60% of the global fibre market.

Despite increased attention to circularity, textile-to-textile recycling remains below 1%, reflecting structural limitations in collection, sorting and processing systems. This highlights a critical structural challenge: while recycling remains important, it is insufficient on its own to address fossil dependency at scale. In this context, bio-based fibres play a crucial complementary role by enabling substitution of fossil carbon in fibre production.

Europe holds a strong position in selected upstream segments, including man-made cellulosic fibres (MMCF) production, flax and growing hemp supply, as

well as integration with chemical and biotechnology industries. However, it remains dependent on imports for synthetic fibres and cotton, creating both a vulnerability and an opportunity to develop domestic bio-based value chains. While Europe represents a major market for textile products, textile fibre production takes place largely outside Europe (with some notable exceptions).

BIC taskforces both identified and assessed fibres, natural, bio-based, semi-synthetic, as well as specific end-markets for textiles, namely apparel, footwear, and medical and technical textile applications.

Conclusion

With this report we provide specific data and evidence on lead markets for bio-based products in Europe. We will reach out and engage with relevant (industy) stakeholders to discuss lead-markets identified in this report. Please also refer to Deliverable 2, the BIC report with policy-recommendations for creating lead-markets.

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