

Case Study

How We Powered Our Client's Entry into the Niche **Sustainable Plastics Market** via Chemical Recycling and CO₂

Objective

A global client, aiming to advance its sustainability strategy, partnered with leB to assess the emerging technology and market landscape for sustainable plastics. The study focused on feedstock supply, recycling infrastructure, technology development, and market growth related to chemical recycling, CO₂-to-plastics, and bioplastics, aiming to identify viable routes for achieving net-zero emissions by 2050.

Our Strategic Approach

To uncover high-impact opportunities in sustainable plastics, leB leveraged a research-led, strategy-driven approach—blending technology benchmarking, feedstock analysis, and market intelligence. This approach provided a detailed lens on technology, market dynamics, and ecosystem readiness, enabling the client to identify the most promising paths toward sustainable plastics adoption.

Technology & Innovation Tracking

Reviewed current and emerging technologies in chemical recycling and CO₂-to-plastics conversion, highlighting pathways with the highest potential for scalability and environmental impact.

Feedstock & Infrastructure Evaluation

Assessed the availability of bio-based and waste-derived feedstocks, as well as the readiness of recycling infrastructure to support large-scale adoption of sustainable plastics.

Market & Sustainability Analysis

Analyzed the market potential of sustainable plastics, considering growth trajectories, regulatory drivers, and sustainability metrics. Evaluated how different plastic categories contribute to the circular economy and net-zero goals.

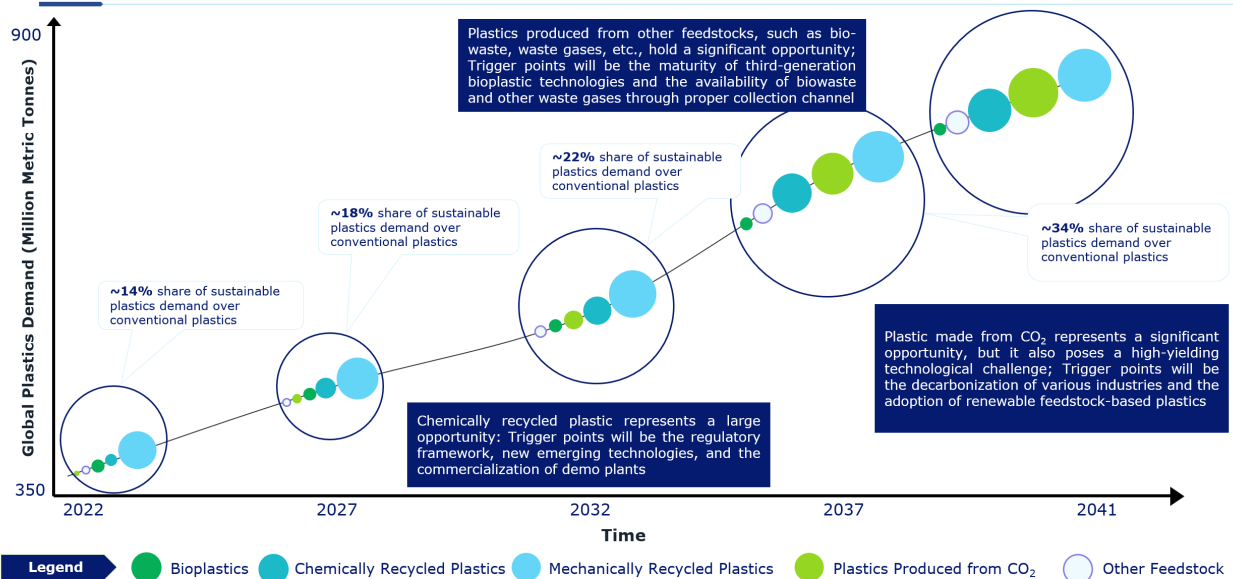
Competitive & Ecosystem Mapping

Profiled key technology providers, industry players, and value chain stakeholders shaping the chemical recycling and CO₂-to-plastics domains. Identified ecosystem gaps and collaboration opportunities for accelerating commercialization.

Snippets

Scenario Analysis – Sustainable Plastics

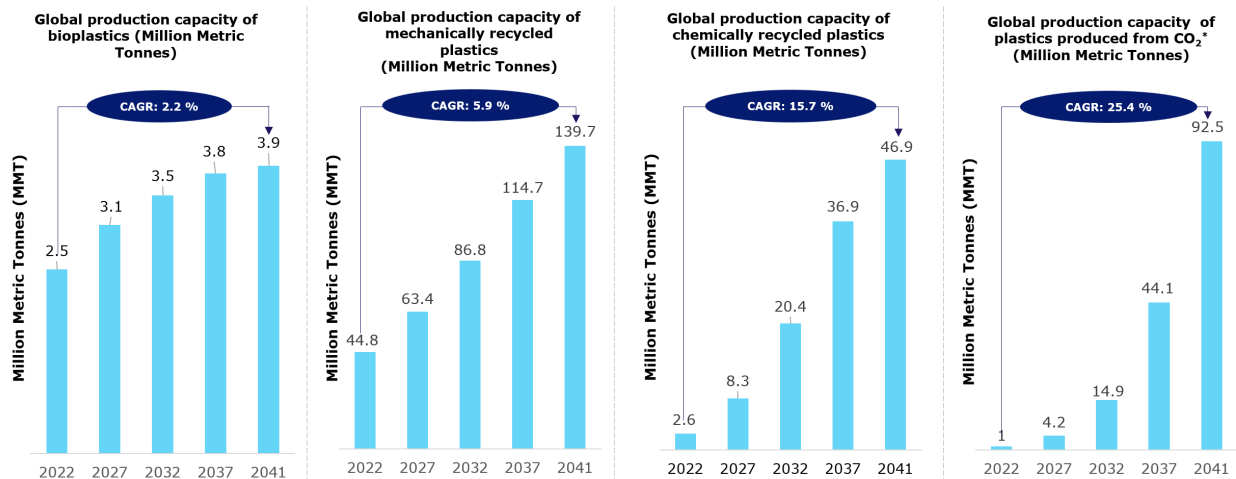
Significant support is needed to move towards sustainable plastics, a shift towards sustainable chemistry for the production of plastic, renewable feedstock, regulatory support, and technological development can create different inflection points for different sustainable plastics



Market Scenario for Sustainable Plastics – Present and Future

Despite having an established technology and ongoing development, the market for bioplastics is unlikely to expand at the same rate that experienced by other sustainable feedstock due to a number of factors, including price, and feedstock availability

Current and Forecast Production Capacity of Global Sustainable Plastics



* Definition of CO₂ plastics – It is a sustainable plastic materials that are made from waste CO₂. The CO₂ sources include:

• Traditional CO₂ sources – It includes point emission sources from industries such as power generation, cement, iron and steel, refineries, ammonia, and metals, among others

• Biogenic CO₂ source – It includes biogenic point sources such as biogas, municipal solid waste, food waste, wood waste, agriculture waste, wastewater treatment, pulp & paper, cooking oil, etc.

Impact

- Enabled the client to tap into a niche market for sustainable plastics produced using biogenic CO₂, gaining a first-mover advantage.
- Equipped the client with ongoing insights to monitor technological advances in chemical recycling, ensuring alignment with future-ready solutions.
- Highlighted that transitioning to sustainable plastics requires supply chain-wide support, including feedstock access, changes in plastic manufacturing chemistry, and alignment with evolving regulatory frameworks.

Conclusion

Through technology evaluation and market opportunity mapping, leB guided the client in understanding the transformative potential of chemical recycling and CO₂-to-plastics solutions. The study empowered the client to position itself strategically in the sustainable plastics space, balancing near-term opportunities with long-term pathways toward achieving net-zero by 2050.

Ingenious Brain

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