Algenesis Labs Announces Breakthrough in Sustainable Polyurethane Chemistry: The World's First 100% Biogenic carbon, Phosgene-Free, Isocyanate (Bio-Iso™)

New innovation eliminates fossil carbon in polyurethanes, setting the stage for truly circular materials

San Diego, CA – August 4, 2025 – Algenesis Labs, a leader in sustainable materials science, today announced the commissioning of our **Bio-Iso™** pilot plant, where we now make the world's first **100% biogenic carbon isocyanate** that is made from plants—a disruptive innovation in polyurethane chemistry. Unlike traditional isocyanates derived from petroleum and manufactured using highly toxic phosgene, Bio-Iso™ is made from plant-based dicarboxylic acids and manufactured without the use of phosgene. This novel process is both modular and scalable, setting a new benchmark for performance, safety, and sustainability.

For decades, the global plastics industry has been dependent on fossil fuel-based isocyanates, locking manufacturers into a cycle of environmental harm and hazardous processes. Bio-Iso™ breaks that cycle—offering a solution that performs on par with petroleum-based isocyanates while fully eliminating fossil carbon and phosgene from the isocyanate supply chain.

> *"This isn't just a greener alternative. Bio-Iso™ represents a fundamental shift in how we think about polyurethane production," said Dr. Stephen Mayfield, CEO at Algenesis Labs. "Combined with our Soleic® polyol, Bio-Iso now enables a 100% biobased TPU—validated through ASTM D6866-24 analysis by Beta Analytic—that delivers truly circular, sustainable materials without compromising durability or performance."*

Bio-Iso™ is the foundation for a new class of plant-based polyurethanes, enabling manufacturers to align their products with global sustainability goals and meet increasing regulatory and consumer demands for safer, eco-conscious materials.

Algenesis is actively scaling the Bio-Iso™ process at its San Diego facility, and is seeking **strategic partners to support global industrial-scale commercialization**. These partnerships may include financial, technical, engineering, or operational collaboration. In return, early partners will gain **priority access to Bio-Iso materials**, options for future volume, and shared leadership in transforming the urethanes industry.

A **technical data pack** is available, including detailed analytical results and performance data on Soleic® TPU materials made with Bio-Iso™.

Key Benefits of Bio-Iso™:

- **100% Biogenic carbon derived from plants** – The carbon in our isocyanates is derived entirely from renewable, plant-based feedstocks
- **Phosgene-Free Processing** – Our green chemistry processes offers safer and more environmentally responsible chemical manufacturing
- **Lower Carbon Footprint** – Significantly reduces greenhouse gas emissions compared to petroleum-based isocyanates
- **Petroleum-Comparable Performance** – High durability and functionality across applications
- **Circularity-Ready** – Enables the design of products that biodegrade at end-of-life without leaving behind persistent microplastics

The **Bio-Iso™** pilot plant was developed and built under a United States Department of Energy (DOE) Small Business Innovation Research (SBIR) grant, # DE-SC0022936, awarded to Algenesis. This launch marks the latest milestone in Algenesis Labs' mission to create sustainable materials that help eliminate microplastic pollution and fossil fuel dependency.

Learn more at **www.algenesislabs.com**.

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About Algenesis Labs

Algenesis leads the way in sustainable materials, using cutting-edge science to deliver durable, accessible, and biodegradable plant-based polymers that empower customers to reduce plastic pollution. Rooted in research from the University of California San Diego, the company's **Soleic®** materials enable real-world circularity and sustainable design across industries.

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