Unlocking a Circular Future with Natural Polymers

Traceless, a Game-Changing Biomaterial

In this interview, Christene Smith from CHEManager talked with Anne Lamp, the CEO & Co-Founder of Traceless Materials, to delve into the groundbreaking world of natural biopolymer materials. Developed as a natural, plant-based plastic alternative, the Traceless material aims to tackle the environmental impact of plastics head-on. Join us as we explore the challenges faced in making industrial production fit for the future and uncover the potential of this pioneering biobased company.

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Anne Lamp, CEO & Co-Founder, Traceless Materials

Personal Profile

Anne Lamp is CEO and co-founder of the bioeconomy startup Traceless Materials from Hamburg. Holding a PhD in process engineering, she is the inventor of Traceless' technology. Describing herself as an environmental scientist by conviction and a tech enthusiast at heart, she is guided by circular economy principles from her voluntary work at the Cradle to Cradle NGO. Her work benefits from her extensive experience in biorefinery processes, commercial product development and her scientific expertise in environmental impact assessments.

CHEManager: What inspired you to start Traceless Materials, and what was the initial problem you aimed to address?

Anne Lamp: The inspiration behind the development of Traceless came from witnessing the alarming environmental impact of conventional plastics. Already during my studies as a process engineer, I was involved with the concept of circular economy, and volunteered with the "Cradle to Cradle" NGO. My initial goal was to create a material that is truly biocircular, one that is 100% plant-based, naturally compostable, and free of harmful substances. I aimed to provide a solution to the growing plastic waste problem and contribute to a cleaner, greener future.

Can you share a bit about your journey from the early experiments to the founding of the company?

A. Lamp: The idea for the technology arose during my PhD in process engineering in the field of biorefinery, which was focused on the valorization of biomass side streams. I discovered that residues of agricultural grain processing, like brewery or starch production side streams (which occur globally in high volumes), can be used to produce a plastic-like material. The first samples of Traceless materials were born. With a vision to bring this idea to scale, I filed a patent and founded the company together with my co-founder. We established a pilot plant, refined the production process, and started the development of product applications.

What were the key challenges you faced during the development of Traceless and the establishment of the company?

A. Lamp: Developing a new material and establishing a company around a novel technology came with several challenges. Scaling up the technology from lab scale to pilot scale and achieving price competitiveness with conventional plastics are significant hurdles. We are working relentlessly to optimize the production process and material properties, optimizing our materials for a wide range of processing technologies and product applications. Securing funding and building partnerships were also crucial steps.

How has Traceless been received in the market so far?

A. Lamp: Although we are still in the scale-up phase and full market entry is still ahead of us, the reception of Traceless in the market has been overwhelmingly positive. Collaborations with pioneering brand owners like Otto, Lufthansa and C&A allow us to showcase the potential of our product through pilot projects. We successfully launched our first in-store market pilot product with fashion retailer C&A: together, we developed an injection-molded hook made of Traceless material. Besides the brand owners, the interest from partners from the plastic converting industry has also been remarkable, and we are actively exploring partnerships to expand the applications of our material further.

Where do you see application potential for your material—can it replace all plastics?

A. Lamp: The plastics industry has played a crucial role in advancing high-performance applications for decades, and we recognize its continued significance in those areas. To now make these products truly circular, we must establish reuse, ecodesign, and closed material loops. For applications where reusable solutions are not sustainable and technical recycling is not feasible, we see biomaterials like Traceless offering a compelling alternative. We specifically focus on single-use packaging and products with low to medium requirements, as well as "hidden" plastics in adhesives and paper coatings, which can easily end up in the environment.

What are the next steps for your company? Are there any upcoming plans for scaling production or exploring new applications for the material?

A. Lamp: Our ambitious goal is to produce one million tons of Traceless material by 2030. To achieve this, we will first build a large-scale demonstration production plant with an output of several thousand tons of material per year, taking us one step closer to industrial-scale production. Recently, we received a €5 million grant for this step from the German Federal Ministry for the Environment. And of course, we're growing our team! Many passionate experts from process engineering, chemistry, plastics engineering, environmental and material sciences have joined our team already, and we're constantly looking for more talented people.

Business Idea

Biomaterial Revolution

Traceless Materials leads a biomaterial revolution with their material, a groundbreaking innovation. The female-founded circular bioeconomy startup envisions a future free of pollution and waste, where the materials we use impact positively on the planet. Their core idea centers around providing a natural and biocircular alternative to conventional plastics.

At the heart of Traceless lies a mission to combat global plastic pollution. By utilizing plant residues from the agricultural industry, the company has created a fully biobased thermoplastic granulate based on natural biopolymers. This material closely resembles plastics in appearance and functionality but is certified as plastic-free. The company produces their material in the form of pellets that can be further processed using many standard technologies of plastic processing like injection moulding, film extrusion or paper coating technologies.

Driven by a commitment to decarbonization and transitioning from fossil-based to renewable materials, Traceless achieves an outstanding ecological footprint. Carbon emissions are reduced by 91% and fossil energy demand by 89% compared to the production and disposal of virgin plastics. The patent-pending process is scalable, efficient, and environmentally friendly, positioning Traceless as a competitive alternative to plastics. While recognizing the indispensability of plastics in high-performance applications, Traceless Materials understands the urgency to address single-use products and applications with limited recycling potential. With Traceless, they offer a compostable and natural solution, ideal for applications like single-use packaging and products, paper coatings and adhesives.

The pioneering journey the team embarked on a few years ago, is founded on cooperation and collaboration. By bridging the gap between the agricultural industry and plastic processing, the company fosters a business model where multiple stakeholders' benefit.

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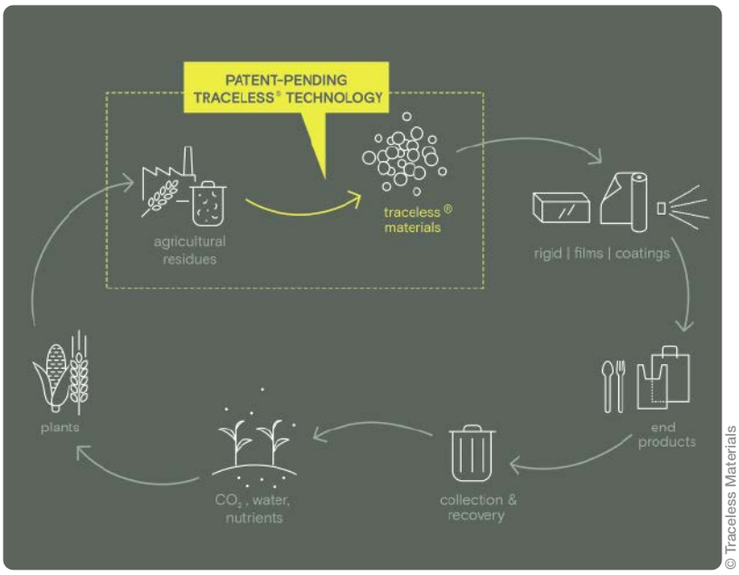

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Traceless provides a natural and biocircular alternative to conventional plastics.

Elevator Pitch

Plastic Solution

The circular bioeconomy startup has developed the technology to turn agricultural industry residues into a novel, sustainable plastic alternative: Traceless material. Founded in 2020, the team plans to bring its innovation to market as quickly as possible. Collaborating with brand owners and converters on product applications, they launched a first market pilot in 2022.

With the aim of replacing plastics in large quantities soon, the company is scaling its technology from pilot scale to an initial large-scale implementation, which is planned for 2024. The continuously growing, interdisciplinary team consists of experts from various fields with a focus on technology and product development and is united by a strong mission: To offer a solution that tackles global plastic pollution as well as climate change, resource crisis and biodiversity loss, and be a change enabler for the green transformation of the industry.

Milestones

2019
- Technology development breakthrough at laboratory scale, at Technical University Hamburg

2020
- Foundation of Traceless Materials in Hamburg, Germany, by Anne Lamp & Johanna Baare, with a first voluntary team
- Winner of Advanced Materials Competition (AdMaCom) by INAM

2021
- Seed Investment closing with impact investor Planet A, High-Tech Gründerfonds and Biotechnology VC b.value
- Grant funding of 150k€ by IFB Hamburg
- Grant funding of €2.42 million from the European Innovation Council (EIC) under the Horizon Europe program
- Winner of Biopolymer Innovation Award, Science Breakthrough of the Year at Falling Walls Ventures, Top 50 German Startup Ranking Nr.1

2022
- Successful commissioning of Pilot plant near Hamburg, Germany
- Official announcement of cooporations with Sund, Das Futterhaus & Gala
- Launch of first in-store pilot product made of our material (fashion packaging/injection moulded hook) in collaboration with fashion retailer C&A (see below)
- Winner of German Founders Award, Next Economy Award (Deutscher Nachhaltigkeitspreis), German Startup Award (Female Newcomer of the Year for Johanna Baare) & Wissenschaftspreis

2023
- Grant funding of €5 million from the German Federal Ministry for the Environment (BMUV) for the demonstration plant
- Winner of Innovation Award Renewable Material of the Year 2023, Nomination for The Sustainability Awards by Packaging Europe
- Traceless featured in German Science-TV show Galileo

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