

Lamberti

Chemistry for a Better Future

Designing Materials with Chemical Data

Lamberto Lamberti - Head of Lamberti Group Sustainability

Lamberti develops innovative ingredients for various industries, including energy, agriculture, surface treatment, ceramics, personal care, and natural polymers. These ingredients enhance the specific behavioral characteristics of materials.

In the past decade, design has shown a strong interest in demonstrating performance throughout the entire lifecycle of materials and products, using scientific measurement tools and methods. New application needs—such as lighter, stronger, or more sustainable materials—drive the research and development of innovative chemical ingredients that enable the synthesis of materials with unique properties, paving the way for new possibilities. In chemistry, measurement is not just data collection but a process that validates hypotheses, discovers new principles, and improves our understanding of the world.

Our work starts at the molecular level, a space where we can observe and measure how everything is arranged. This scientific approach to measurement drives improvement toward new usage categories, ensuring measurable, sustainable, and integrated advancements. Design has evolved into a systemic project, where form, function, and environmental performance guide strategies and perspectives.

Chemistry fosters cultural advancement—it is through science and people that we develop the infrastructure to innovate materials and support design in its pursuit of solutions, beauty, quality, durability, and accessibility. However, all of this works only if it is measurable.

At Lamberti, we have embraced this scientific approach to measurement, investing in expertise and resources. Through science, we ensure that measurements are accurate, reliable, and comparable, enabling informed decision-making and the development of new knowledge and technologies.

Accuracy and Precision: Key Concepts in Measurement

Accuracy refers to how close a measurement is to the true value, precision indicates how repeatable and consistent a measurement is.

Over 200 researchers apply these principles in more than 30 synthesis and application laboratories worldwide. We also operate a GLP certified Marine Ecotoxicology Laboratory, which continuously measures the impact of our solutions on the marine ecosystem.

Our applied research centers assess the behavior and performance of each product we develop in collaboration with our customers.

Sustainability as a Key Driver of Innovation

Investments in research and development have led to significant returns, including Increased sales from patented technologies and a growing share of revenue from new products. These principles also guide our data collection and process improvements for ecological transition. Sustainability is not just an R&D factor—it is embedded in our production, procurement, and logistics management.

We are committed to a sustainable supply chain by reducing reliance on non-renewable raw materials, sourcing low-impact, recycled, and recyclable materials and partnering with suppliers who share our vision

We regularly review sustainability measures through third-party evaluations and on-site audits to ensure the supply of sustainable solutions across various sectors and optimize our production processes.

Providing transparent product information and safety compliance is fundamental. Increasingly, our customers demand data-supported performance and sustainability for both our products and their own—this is becoming a defining feature of our organization.

Artificial Intelligence and Machine Learning for Chemical Data

New technologies and AI-powered tools are opening new frontiers in data management and material science. We must develop increasingly sensitive analytical techniques and software capable of handling large datasets efficiently.

Using specialized software and statistical approaches, we extract valuable insights from data, allowing us to: Speed up research, identify patterns and trends, make informed conclusions.

Artificial Intelligence (AI) and Machine Learning (ML) play a growing role in material innovation: AI algorithms analyze large datasets to identify relationships between composition, structure, and properties; ML combined with computational chemistry techniques (e.g., Density Functional Theory, DFT) accelerates material design and predicts properties). This combination enables faster, data-driven material development for specific applications.

Life Cycle Assessment (LCA) for Chemical Products

Serena Gazzo – Sustainability Data Analysis Manager

At Lamberti, we created a multidisciplinary in-house team to assess the environmental performance of our products using Life Cycle Assessment (LCA). This initiative was driven by three main objectives: Using LCA as a tool for new product and market strategies, guiding R&D toward sustainable product design, providing data to customers who require sustainability assessments

Customer demands have become a major focus, requiring detailed modeling of our production cycles and continuous data updates. We have invested time and resources in developing specific procedures and data collection tools, ensuring efficient and high-quality measurements. This cross-functional effort has involved multiple departments and production sites, making collaboration essential.

Our LCA studies follow rigorous scientific standards (ISO 14040 and ISO 14044). Currently, the most requested metric is carbon footprint calculation, performed in compliance with ISO 14067.

Lamberti's LCA Team & Achievements

A multidisciplinary team including regulatory experts, communication specialists, and technical staff with in-depth process and chemistry knowledge has developed so far 150+ LCA studies completed, including third-party certified assessments, serving more than 50+ clients, primarily in coatings, construction, ceramics, cosmetics, and oil & gas

To meet growing demand, we introduced a digital LCA tool that will automate carbon footprint calculations for all industrialized Lamberti products, with an externally verified calculation process.

Tailored LCA Approaches for Clients

We customize LCA studies based on client needs and industry requirements, defining the key impact categories, the optimal calculation methods and the applicable regulatory standards.

Case Studies:

A leading construction company required a third-party certified carbon footprint study to align with its corporate decarbonization strategy. Our certification provided credibility and helped them demonstrate real progress toward sustainability goals.

A coatings company for eco-leather requested LCA studies based on the EU's Product Environmental Footprint (PEF) methodology to evaluate environmental performance. Our expertise in LCA regulations and methodologies enabled us to meet their specific requirements.

A cosmetics company pursuing a water consumption reduction strategy needed Water Footprint data. Our support allowed them to implement sustainability initiatives aligned with their corporate goals.

Lamberti Group: Company Overview

Founded in 1911 in Lombardy, Italy, Lamberti is a global specialty chemicals company with production facilities, R&D centers, and sales networks worldwide.

Based on core manufacturing technologies such as Natural and Synthetic polymers, Oleochemicals we serve different markets: from personal care to agriculture, from ceramics to surface treatment, energy, oil & gas, textiles, leather, food, constructions.

Sustainability & Innovation at the Core

By Investing in renewable raw materials and sustainable production, developing high-performance, eco-friendly solutions, leveraging digitalization and new technologies, Lamberti represents a prototype of the Italian industrial history, that of a community that, thanks to vision, expertise, challenges, know-how has grown up to be an international leader.

As part of an international network of research labs and production facilities, Lamberti partners with clients, suppliers, and scientific institutions to tackle complex challenges and drive innovation.

Figures at a glance

2023 Lamberti's R&D Key Figures

3,6% Investments in R&D % of sales

200+ Researchers

30+ R&D Laboratories

€ 648 m Economic Value Generated

28,315 t Scope 1 Emissions
(Tons of CO2 eq.)

33,338 t Scope 2 Emissions
(Tons of CO2 eq.)

2023 Lamberti's Sustainability Key Figures

0,28 GHG emission intensity

380,46 Water consumption ML

2,55 Work-related Injuries

23,1% Turnover generated by new
products

2023 Ecofriendly Products and Raw Materials

2.619 Products/Units

1.979 Raw Materials/Units

4.351 Ecofriendly Universe (SAP
Codes)/Units

Ecotoxicological Analysis

147 In 2023

187 In 2022