TotalEnergies Corbion

2025

TotalEnergies Corbion
Sustainability Report

Contents

Message from CEO

At TotalEnergies Corbion, sustainability is embedded in how we design PLA materials, operate our assets, and collaborate across the value chain to create lasting impact.

Since our founding and inspired by the global momentum of the Paris Agreement, our mission has been clear: to advance bioplastics, particularly PLA, that support climate action, circularity, and responsible resource use. As environmental and societal expectations continue to rise, this mission remains at the core of everything we do. Fully aligned with the United Nations Sustainable Development Goals, we are committed to enabling a lower-carbon, more circular plastics economy through solutions that are science-based, scalable, and impactful today, helping customers and partners accelerate their sustainability journeys.

In 2025, we strengthened this commitment with concrete progress. We released new, independently verified life-cycle assessment (LCA) data demonstrating the strong climate benefits of Luminy® PLA including significantly lower carbon footprint and the potential to reach carbon neutrality through the use of recycled PLA (rPLA). We further advanced our portfolio, including rPLA, enabling customers to reduce their Scope 3 emissions while maintaining safety, quality, and performance. At the same time, we continued to reduce our own operational footprint by increasing renewable energy use, enhancing production efficiency, and ensuring our feedstocks are responsibly and ethically sourced.

The full potential of PLA is realized through collaboration. Together with our customers and partners, we focus on delivering end-use solutions that combine material innovation with meaningful carbon footprint reduction and appropriate end-of-life pathways, adapted to local infrastructures and real-world conditions.

Looking ahead, we will continue to invest in innovation, transparency, and partnerships to scale bioplastics responsibly. Our ambition is not only to grow the adoption of renewable and circular materials, but also to help reshape value chains and create long-term value for society and the planet.

This report reflects our progress, our shared responsibility, and our determination to move forward - through innovation, collaboration, and a steadfast commitment to a more sustainable future.

Thierry Boulfroy

Chief Executive Officer, TotalEnergies Corbion

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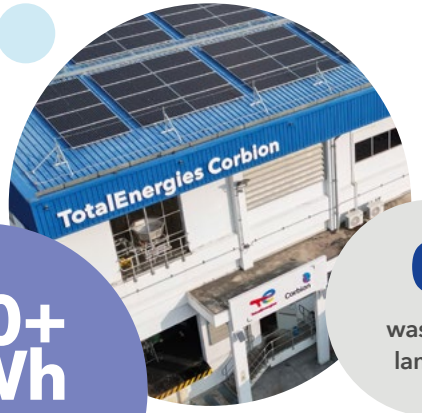
Highlights 2025

100%
renewable electricity used for production



700+ MWh
self-generated solar electricity

0
waste to landfill

150+
employees

Luminy® L040
new PLA grade launched

85% lower carbon footprint
than conventional plastics incl. biogenic carbon

0.29 kg CO_2 eq/kg
Luminy® PLA

-1.65 kg CO_2 eq/kg
Luminy® rPLA

Luminy®
PLA bioplastics

100% biobased, industrially compostable and recyclable

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Our Company

Who we are

TotalEnergies Corbion, a 50/50 joint venture between TotalEnergies and Corbion, headquartered in Gorinchem, the Netherlands, is a global leader in the production and development of Luminy® PLA, a biobased, compostable, and recyclable polymer derived from sugarcane. With its production site located in Rayong, Thailand, offering a capacity of 75,000 metric tons annually, Luminy® PLA resins are used in diverse applications, from food service ware to 3D printing and cosmetics packaging. TotalEnergies Corbion is strongly involved in the full value chain of its products from the beginning to the end-of-life, building commercial collaborations and research projects to drive the circularity of the plastics market.

Luminy® PLA is made from lactic acid produced through sugar fermentation. The sugar comes from ethically farmed sugarcane grown in Thailand. Fermentation and PLA production takes place at Corbion's and TotalEnergies Corbion's Rayong facility. Lactic acid is used as the raw material for the PLA polymerization process.

To support the sustainable end-of-life (EOL) management of PLA, TotalEnergies Corbion has developed its own chemical recycling process to demonstrate and accelerate the recyclability of PLA. Luminy® PLA with recycled content is therefore produced at TotalEnergies Corbion's plant in Thailand.

By advancing the application of PLA across sectors and collaboration throughout the value chain, we drive the widespread adoption of bioplastics.

Together with our partners, we work to transform industries to support a healthier planet.

We strive to shape a better tomorrow, envisioning a future where PLA plays an important role in fostering a sustainable planet for present and future generations. This vision aligns with our commitment to making bioplastics a cornerstone in the world's sustainability transition.

Mission

Reduce carbon footprints through bioplastics innovation.

Together with our customers, unleash the power of bioplastics innovation in reducing carbon footprints through partnerships and our entrepreneurial spirit.

Vision

Create a better planet for current and future generations through circularity.

A world in which bioplastic products contribute to a sustainable and circular economy.

Our values | The simple rules we live by:

Safety

Safety encompasses everything we do. If there is not a safe way of doing it, we will not do it.

Integrity

We expect the highest levels of integrity. This is not just obeying rules, laws, and regulations, but it also connects to our purpose of having a real and meaningful sustainability impact through the products and solutions we provide.

We enable others to do good

We cannot achieve our goals in isolation. Our products alone do not make the world a better place. By collaborating with others, we help ourselves and the environment.

Ambition

Creating a different world for future generations requires ambition and perseverance. Creating change is never easy, but now is the time to address the sustainability challenges that our planet faces.

Certifications & rewards

Certifications

ISO 9001: 2015

Quality management system at the plant verified and certified.

ISO 45001: 2018

Hand safety management at the plant verified and certified.

GHPs

Production certified according to the General Principles of Food Hygiene: Good Hygiene Practices.

Ecovadis

EcoVadis Gold level achieved for the production site.

Bonsucro

Corbion and TotalEnergies Corbion have been found compliant with the Bonsucro Chain of Custody Standard based on human rights, environmental impact, social ethics, and economic responsibility criteria. TotalEnergies Corbion can offer Luminy® PLA with Bonsucro certification to customers.

ISO 14001: 2015

Environmental management system at the plant verified and certified.

ISO 26000: 2010

Level 3 of 5 ("Intermediate") performance reached according to the voluntary guidance standard of ISO 26000:2010 on social responsibility.

HACCP (GHPs)

Production certified according to the General principles of food hygiene: Hazard Analysis and Critical Control Point.

Kosher

Luminy® products are manufactured under the supervision of the Kashruth Division of the Orthodox Union.

ISO 14064-1: 2018

Reported GHG emissions from TotalEnergies Corbion's production over the year 2024 confirmed compliance.

Rewards

Zero Accident Campaign

Award received from Thai Institute for Occupational Safety, Health and Environment Promotion (Public Organization) recognizing efforts to promote zero-accident performance, reduce workplace incidents, and strengthen safety awareness within industrial operations.

Thailand Safety Excellence Award

Thailand Safety Excellence Award received from the Department of Labor Protection and Welfare, from the Ministry of Labor of Thailand recognizing efforts and successes in occupational safety systems to meet international standards and improve worker safety.

CSR-DIW Award and CSR-DIW Continuous Award

For the fifth year, TotalEnergies Corbion received the CSR-DIW Award and CSR-DIW Continuous Award from the Department of Industrial Works reflecting the company's commitment to supporting local economic development while promoting environmental stewardship and community well-being.

White Flag Green Star

White Flag Green star award received from the Industrial Estate Authority of Thailand recognizing organizations that consistently uphold high standards of environmental management, safety, and social responsibility.

White Factory

White Factory Award level 1 received from the Office of Labor Protection and Welfare, Ministry of Labor, Thailand recognizing its focus on actively preventing and addressing drug-related issues in the workplace.

Green Industry

Green Industry award received for GI Level 4 (Green culture) from the Ministry of Industry, demonstrating its continuous improvement in production processes, environmental management, and sustainable operations.

Eco Factory Award

Eco Factory Award received from the Federation of Thai Industries recognizing continuous improvement in sustainable management, environmental performance, resource efficiency, and alignment with the Industrial Estate of Thailand (IEAT) industrial city development strategy Eco (Eco Industrial Town).

3Rs Awards/ 3Rs+ Awards/ Zero Waste to Landfill

3Rs Award (Reduce, Reuse, Recycle), 3Rs+ Gold Award, and Zero Waste to Landfill Achievement Award received from the Department of Industrial Works, Ministry of Industry.

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Our global presence

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Our products

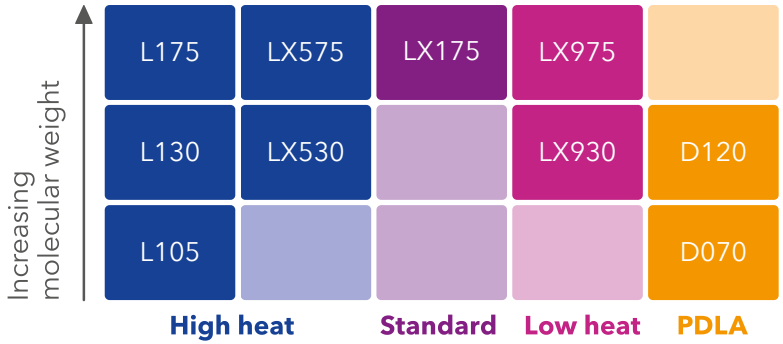
Luminy® PLA as a polymer resin and its applications

What is Luminy® PLA

Luminy® PLA production process

Luminy® polylactic acid (PLA) is a biobased, compostable and recyclable polymer. TotalEnergies Corbion produces its Luminy® PLA resin in pellets which can later be used by its customers to create plastic products, sometimes needing a compounding step.

Luminy® PLA portfolio offers specific grades depending on the application needs. This includes standard PLA grades for general applications, high heat PLA for more demanding applications, low heat PLA typically used as a seal layer and PDLA grades used as a nucleating agent or to create full stereo-complex compounds. It can be processed on most existing production lines, requiring little to no modifications.



Luminy® PLA portfolio

Technologies used to convert Luminy® PLA resin into final products

TotalEnergies Corbion also developed its own recycling process to produce rPLA made from externally collected post-industrial waste (PIW) and closed-loop post-consumer waste (PCW). This collected waste is then depolymerized after necessary pre-processing steps, converting PLA waste streams back to lactic acid which will be further on polymerized to PLA. This chemical recycling process, thanks to a relatively low temperature requirement has a low energy consumption compared to traditional chemical recycling processes.

"In 2025, we introduced the high-flow PLA for melt blown processes for filtration applications into the market, and we have more innovations – such as the developments mentioned – scheduled for launch in 2026. Bringing high-performance and sustainable products to the market is a true team effort. A successful introduction is only possible through strong collaboration across all departments, ensuring customer needs are met and every product launch runs seamlessly from start to finish."

Monda Van Eijl, *Global Product Manager*

All Luminy® PLA grades presented in the portfolio above are available with 30% and 100% mass balance allocated recycled content. Luminy® recycled PLA from chemically recycled lactic acid has the same quality and regulatory compliance (e.g., Food Contact) as Luminy® virgin PLA.

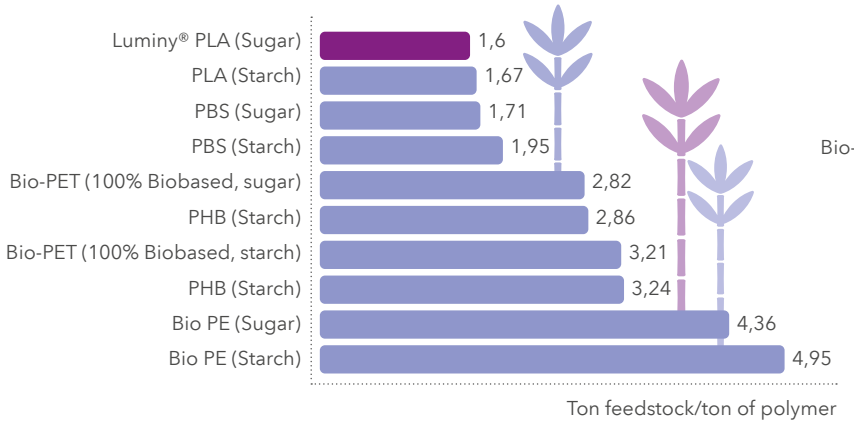
Feedstock efficiency

Luminy® PLA is produced from raw sugar derived from sugarcane, an annually renewable crop grown in Thailand.

As our population grows and global demand for resources increases, arable land will become scarce. It is, therefore, essential to use the most efficient crops available.

Feedstock efficiency" refers to how much raw material (feedstock) is needed to produce a certain amount of plastic. It depends on both the theoretical efficiency of the specific bioplastic and how efficient the production process is. As a result, different types of bioplastics and production methods require different amounts of raw material.

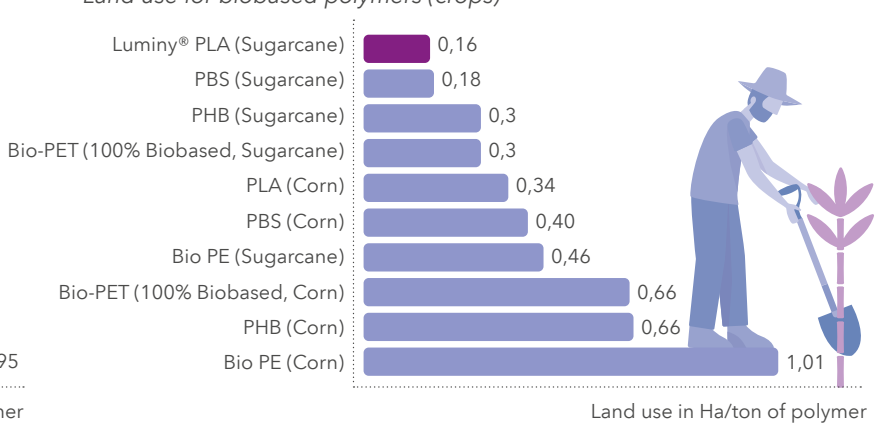
Feedstock efficiency of different biobased polymers



Over the years, both Corbion and TotalEnergies Corbion have significantly improved the internal process yields and are able to produce 1.0 kg of Luminy® PLA using just 1.6 kg of raw sugar.

The amount of feedstock needed to produce one kilogram of polymer is crucial to estimate the environmental impact of the agricultural phase. In addition, the agricultural yield determines the amount of land needed to produce one ton of crops. It differs per type of crop. Therefore, using a crop with a high agricultural yield like sugarcane to produce a feedstock efficient polymer like PLA will need the least land to be used and will significantly reduce the environmental impact of agriculture compared to other biobased polymers.

Land use for biobased polymers (crops)



Source: ifBB biopolymers facts and statistics 2025

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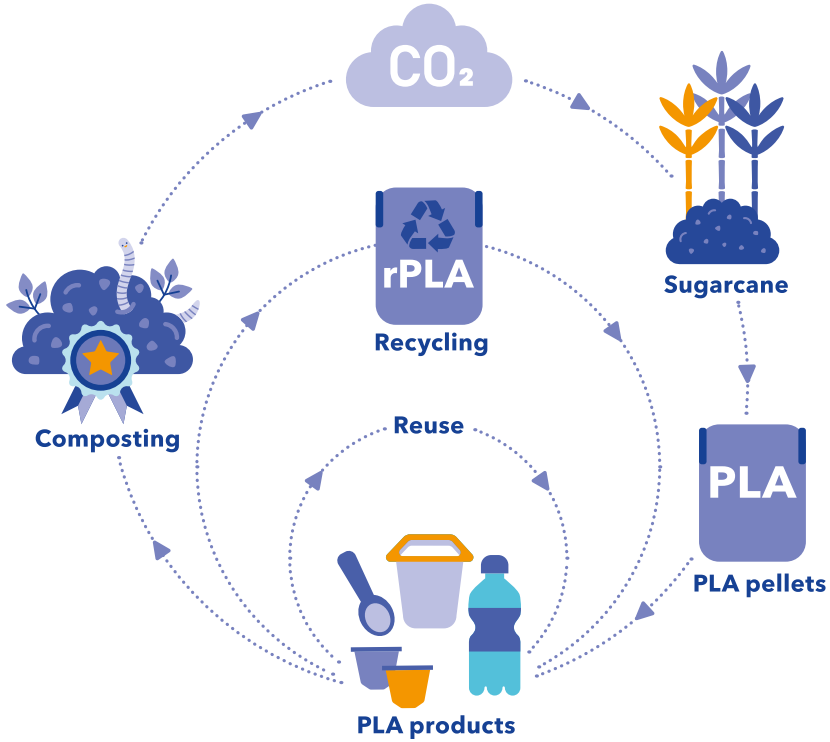
End-of-life

Our core belief is that PLA bioplastics can have a real and meaningful impact towards creating a better planet for current and future generations.

We believe that in the circular economy, so-called 'waste streams' and products at their 'end-of-life' can form the basis for new products, instead of being disposed of. This more comprehensive, sustainable approach replaces the linear economy with a circular, biobased economy where products are produced from sustainable, natural resources and are reused and recycled as much as possible. At their end-of-life, these products then have a range of options to transform them back into feedstock for new, value-added product life cycles.

Luminy® PLA life cycle fits the circular economy concept. In fact, at the end of its useful life, a PLA product becoming waste can be treated through different sustainable end-of-life. The suitable end-of-life for a PLA product depends on the application and the context (geographic and legislative).



Life cycle of PLA with its multiple end-of-life options

The following end-of-life options are available for PLA:

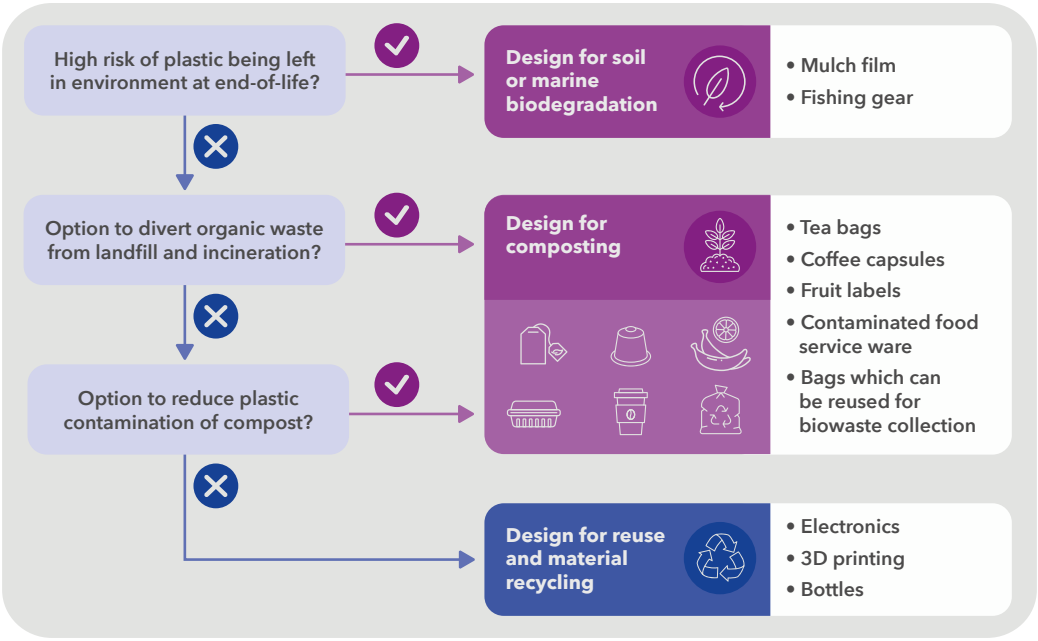
Mechanical recycling:
PLA can be mechanically recycled to produce new products for non-food contact applications.

Advanced recycling (chemical recycling):
PLA can be depolymerized via hydrolysis producing recycled lactic acid which will be repolymerized to produce new PLA.

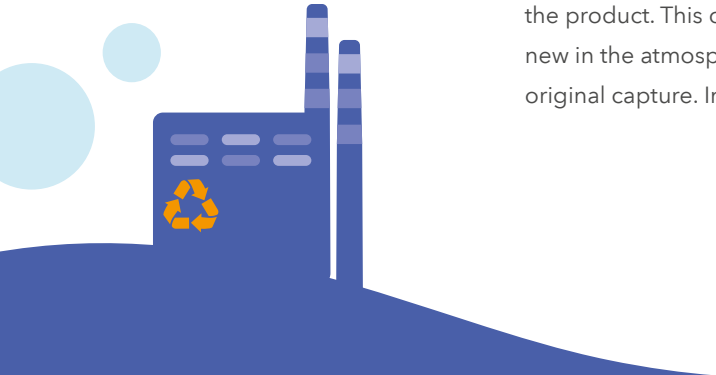
Industrial composting:
PLA is certified industrially compostable according to EN13432 and ASTMD6400.

Incineration with renewable energy recovery:
the incineration of PLA will release in the atmosphere the biogenic carbon which was previously captured by the crop and stored in the product. This carbon release is therefore not new in the atmosphere and is balanced by the original capture. In the opposite, incinerating fossil-based material will release new CO_2 in the atmosphere contributing to the global warming.

During the design phase of a product, its end-of-life should already be taken into consideration. The relevant end-of-life of a product made of PLA depends on its application. For instance, products containing residual organic matters at the end of their use phase like food packaging are relevant to be designed compostable. Composting packaging with residual organic waste may divert this organic matter from landfilling and consequently reduce greenhouse gas emissions producing a valuable output (compost).



Decision tree defining the most relevant end-of-life treatment depending on the application



Product certifications

Industrial Composting

Luminy® PLA resins are certified industrially compostable in the EU by TUV AUSTRIA and Seedling according to EN13432 and in the US by BPI according to ASTMD6400. This certification demonstrates the ability of Luminy® PLA to compost in industrial composting facilities based on pilot-scale disintegration tests, biodegradation tests, material characterization and ecotoxicity tests conducted on the retrieved compost.

Biobased

Luminy® PLA is certified 100% biobased by DIN CERTCO according to EN16785-1 and by the US BioPreferred program. The biobased content of Luminy® PLA relies on the recognized and widely accepted C14 content measurement. This standard and relative methodology allow us to determine precisely the percentage of physically present biobased content in a plastic.

Recycled content

TotalEnergies Corbion offers Luminy® PLA grades with recycled PLA content called RMB grades (Recycled Mass Balance). The recycled content allocation process following a mass balance method has been assessed and certified by a third party, SCS Global Services. The certification scheme of SCS Global Services is based on the principles of ISO22095-chain of custody. Today, Luminy® PLA 30% (RMB30) and 100% (RMB100) recycled content from a mix post-industrial and post-consumer waste are certified.

On top of the above voluntary certifications, Luminy® neat resins are compliant with the relevant regulations and standards related to bioplastics including its compliance for use in food contact applications in the EU (EC No. 10/2011), USA (FDA 21 CFR) and China (GB 9685-2016 and GB4806.7-2023) and its REACH registration for Lactide.

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Life cycle assessment (LCA)

The environmental impact of Luminy® polylactic acid (virgin and recycled) production has been assessed using cradle-to-gate Life Cycle Assessment (LCA). This study was conducted in accordance with ISO 14040/44/67, ensuring scientific rigor and third-party verification. The sixteen environmental impact categories as recommended in the Product Environmental Footprint (PEF), were considered for the hotspot analysis. The results of the identified relevant impact categories for 1 kg of Luminy® virgin polylactic acid and 1 kg of Luminy® polylactic acid with 100 % attributed recycled content are presented in Table 1 below.

Table 1. LCA results for 1 kg of virgin PLA production and 1 kg of 100% recycled PLA production at TotalEnergies Corbion factory gate for the relevant impact categories.

IMPACT CATEGORY	UNIT	LUMINY® VIRGIN PLA	LUMINY® 100% RECYCLED PLA
Climate change	kg CO_2 eq	2.12 (0.29 including the biogenic CO_2 in the product)	1.18 (-0.65 including the biogenic CO_2 in the product)
Photochemical ozone formation	kg NMVOC eq	7.78×10^{-3}	5.29×10^{-3}
Particulate matter	disease inc.	3.76×10^{-7}	2.94×10^{-8}
Acidification	mol H+ eq	4.28×10^{-2}	6.89×10^{-3}
Eutrophication, marine	kg N eq	1.70×10^{-2}	2.36×10^{-3}
Eutrophication, terrestrial	mol N eq	0.128	0.018
Land use	Pt	212.24	15.13
Resource use, fossils	MJ	18.72	14.38
Resource use, minerals & metals	kg Sb eq	1.10×10^{-5}	4.28×10^{-6}

Due to the removal of the agricultural step and lactic acid production via fermentation, the results for rPLA are lower in all impact categories.

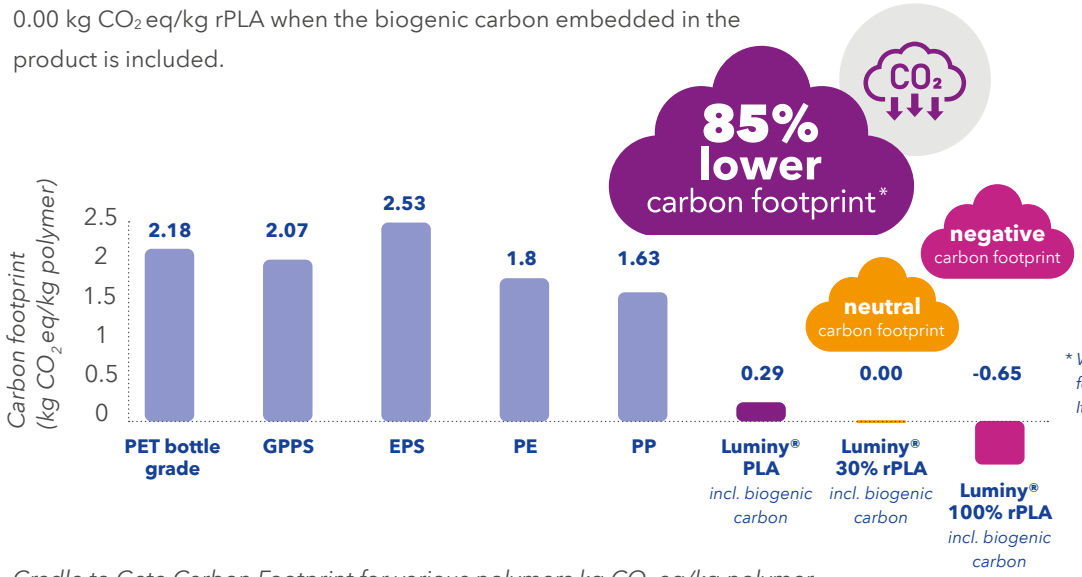
The cradle-to-gate carbon footprint of the production of 1 kg of Luminy® virgin PLA, when including the biogenic carbon in the product, is 0.29 kg CO_2 eq.

In the case of products containing carbon derived from biomass, the biogenic carbon content in the product is equal to the carbon removal from the atmosphere during plant growth. This biogenic carbon content calculated using the biomaterial storage approach is 1.833 kg CO_2 eq for 1 kg of PLA. It can then be released in the end-of-life stages.

For the production of recycled PLA, the cradle-to-gate carbon footprint, when including the biogenic carbon in the product, is -0.65 kg CO_2 eq/kg Luminy® 100% rPLA. The LCA results for the Luminy® PLA grade with 30% recycled content fall between Luminy® virgin PLA and Luminy® 100% recycled content. The carbon footprint of Luminy® 30% rPLA is, therefore, 0.00 kg CO_2 eq/kg rPLA when the biogenic carbon embedded in the product is included.

A major improvement route for the environmental impact of Luminy® PLA is to switch from conventional lactic acid to the recently developed circular lactic acid produced by Corbion. The improvements are due to the elimination of lime and sulfuric acid during the lactic acid production process, as well as the gypsum by-products. The environmental impact categories demonstrating the most significant reduction are climate change, particulate matter, acidification, and water use. This initiative in development reflects the ongoing sustainability efforts of both the JV and Corbion.

Luminy® PLA offers an 85% carbon footprint reduction compared to other conventional plastics when considering the biogenic carbon intake. The recycled Luminy® rPLA offers even neutral carbon footprint at 30% recycled content and a negative carbon footprint at 100%.



** When comparing virgin Luminy® PLA to the average carbon footprint of the fossil-based polymers presented in the graph. It can even be more for recycled PLA.*

Cradle to Gate Carbon Footprint for various polymers kg CO_2 eq/kg polymer.
Source: PlasticsEurope and TotalEnergies Corbion Luminy® PLA LCA 2025

4

Sustainability strategy

TotalEnergies Corbion has joined the United Nations Global Compact initiative, committing to ten principles on human rights, labor, environment, and anti-corruption with a focus on SDG9, SDG12, SDG13, and SDG17. The UN Global Compact aims to align businesses with sustainability principles and accelerate the achievement of the UN Sustainable Development Goals (SDGs). We are proud to contribute to responsible production and innovative initiatives that offer tangible support for climate action.

"Sustainability is the core of our business at TotalEnergies Corbion, our products are sustainable, and we implement sustainable working behaviors. Contributing to the global targets of the sustainable development goals is in everyday activities at TotalEnergies Corbion. As an example, improvement projects continuously look at reducing the environmental impact of the production and R&D and commercial projects contribute to innovation and fit perfectly in the objectives of knowledge sharing and collaboration."

Maelenn Ravard, *Regulatory & Sustainability Manager*

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As a polymer resin manufacturer, TotalEnergies Corbion actively contributes to the industrial sector by driving continuous innovation while adhering to sustainability values. Our flagship product, PLA (Polylactic Acid), inherently supports both sustainability and innovation. With our industrial operations rooted in Thailand, TotalEnergies Corbion plays a dual role in strengthening the local economy and positioning Thailand as a key player in the global manufacturing sector. As we grow, we are committed to monitoring and controlling our social, economic, and environmental impact to align with the principles of inclusive and sustainable development.

As a manufacturing company, TotalEnergies Corbion recognizes its responsibility to minimize its environmental impact through resource-efficient and sustainable production practices. We are committed to understanding the resources we consume and implementing strategies to reduce, recycle, and select materials with a lower environmental footprint.

Today, production and manufacturing industries account for approximately 20% of global greenhouse gas (GHG) emissions. This highlights the urgent need for alternative manufacturing methods and materials. PLA offers a sustainable solution as it is biobased, compostable, and recyclable. Compared to traditional plastics, PLA boasts a 85% lower carbon footprint, making it a critical component in reducing the environmental impact of production processes. As a responsible manufacturer, TotalEnergies Corbion recognizes the significance of monitoring and reducing GHG emissions associated with our production processes. We are committed to integrating sustainable practices and driving the transition toward a low-carbon economy.

PLA, a sustainable material, plays a vital role in developing a strong bioeconomy. TotalEnergies Corbion is committed to ensuring the future of PLA by sharing knowledge, expertise, and collaborating with various partners. TotalEnergies Corbion's collaborations span advocacy, standardization, research and development, and market development, fostering the growth of the bioeconomy and new applications for PLA.

4

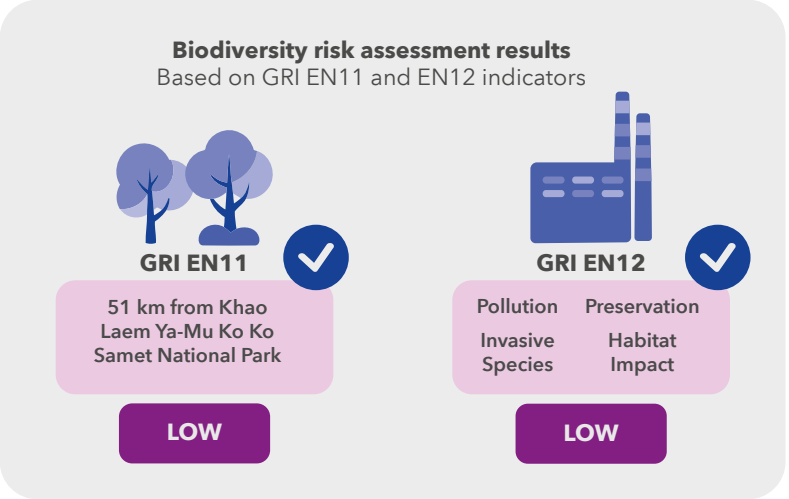
Environment

Biodiversity

TotalEnergies Corbion conducts Biodiversity and Ecosystem Services (BES) assessments to understand how operations may affect surrounding ecosystems. These assessments evaluate ecosystem dynamics, biodiversity, and key services such as water regulation and soil quality. They help identify sensitive areas, assess risks to terrestrial and aquatic habitats, and guide mitigation measures such as preserving green spaces, restoring vegetation, controlling emissions and effluents, and managing noise and dust.

Collaboration with local communities and environmental authorities is central to this work, ensuring transparency and shared responsibility. By integrating BES considerations into our operations, we reinforce our commitment to sustainability and the protection of natural resources for future generations.

TotalEnergies Corbion's Thai site biodiversity risk assessment, aligned with the indicators GRI EN11 and GRI EN 12 from the internationally recognized Global Reporting Initiative, confirms that our operations pose a low risk to biodiversity.



TotalEnergies Corbion production site biodiversity risk assessment

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Climate

TotalEnergies Corbion is committed to delivering environmentally sustainable energy performance across all operations. Guided by our Energy Policy and aligned with the United Nations Global Compact (UNGC) and Sustainable Development Goal 13 (Climate Action), we aim to reduce greenhouse gas (GHG) emissions, improve energy efficiency, and advance our transition toward low-carbon and renewable energy solutions.

Energy saving management

TotalEnergies Corbion is committed to strong energy stewardship, maintaining an effective energy management system that aligns with national efficiency goals and the environmental principles of the UN Global Compact. Our structured system covers all major energy uses—steam, natural gas, and electricity—and ensures that performance is continuously monitored, analyzed, and improved.

Energy efficiency measures are embedded in daily operations, maintenance, and investment decisions. Improvements include optimizing processes, upgrading equipment, training employees, and adopting best available technologies where feasible.

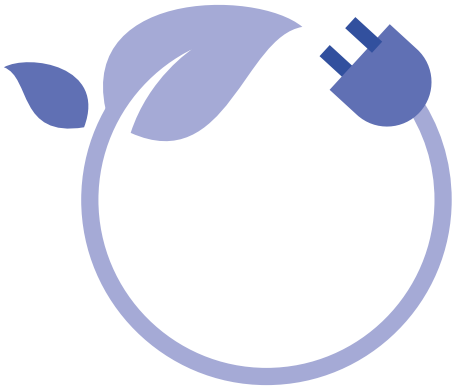
Through ongoing efficiency enhancements, TotalEnergies Corbion strengthens operational resilience, reduces greenhouse gas emissions, and supports long term sustainable growth in line with regulatory and international sustainability expectations.

2025 Highlights / Energy savings

20%
energy intensity reduction (Mwh/ton PLA produced) compared to 2023 and 5% reduction compared to 2024

709 MwH
self-generated electricity via solar panels

100%
renewable electricity consumption



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Greenhouse Gas Emissions

TotalEnergies Corbion monitors its Scope 1, 2, and 3 greenhouse gas emissions from its production site to guide its strategy for reducing the climate impact of production. Scope 1 emissions are relatively low because most energy used on site is now purchased externally. The shift to renewable electricity and reduced natural gas consumption has significantly lowered both Scope 1 and Scope 2 emissions. Scope 3 emissions are mainly driven by raw materials, with lactic acid representing the largest contribution to the overall carbon footprint.

On-site solar panels project

The company prioritizes renewable energy adoption as a key lever to reduce greenhouse gas emissions, improve energy efficiency, and enhance long-term operational resilience.

As part of this approach, the company implemented an on-site solar photovoltaic (PV) project following comprehensive feasibility studies, government permitting, and internal investment-approval processes. The project was designed to integrate seamlessly with existing operations while maintaining compliance with all applicable legal, safety, and environmental requirements.

After two years of detailed planning, regulatory approvals, and execution, the on-site solar power project was successfully completed. The project includes an installed capacity of 0.5 MWp for TotalEnergies Corbion. Electricity production started on February 1st, 2025.

This initiative directly supports the company's decarbonization strategy by reducing dependence on grid electricity and lowering Scope 2 greenhouse gas emissions.

2025 Highlights / Carbon footprint

52%
reduction of scope 1 GHG emission intensity (tCO_2 eq /ton PLA) compared to 2023

19%
reduction scope 2 GHG emission intensity (tCO_2 eq /tPLA) compared to 2023

0.29kgCO_2 eq/kg
is the carbon footprint of virgin PLA when including biogenic carbon

4

Replacing conventional lactic acid with circular lactic acid

As shown in the Life Cycle Assessment, the production of lactic acid via fermentation is one of the major contributors to the total environmental impact of PLA. Going for a more sustainable lactic acid production is one of the strategies to reduce the environmental impact of Luminy PLA.

Corbion has developed a new, innovative and circular technology for producing lactic acid with a lower environmental impact. This production process does not use lime and sulfuric acid, reducing the environmental impact of their production and the production of gypsum as by-products.

Large improvements in the environmental impact of virgin PLA production can be achieved when replacing lactic acid made in the conventional way with lime-free lactic acid. The carbon footprint of virgin PLA when using circular lactic acid decreases to -0.18kgCO_2 eq/kgPLA, a 22% reduction in the climate change impact.

Not only does the climate change impact demonstrate a significant decrease, for both 100% and 50% circular lactic acid use, in most relevant impact categories reductions, compared to the base case are achieved for particulate matter, acidification, and water use. A smaller decrease is observed for marine and terrestrial eutrophication and land use. The only impact category showing an increase is the resource use, fuel.

"TotalEnergies Corbion has established an organizational framework for energy management and greenhouse gas (GHG) reduction in line with its sustainability and energy management policies. This includes setting policies, goals, and performance indicators. We have adopted the organizational carbon footprint approach as a framework for our operations, along with establishing an energy reduction committee and environmental management committee at the organizational level to oversee and monitor results, and to drive all departments to operate in the same direction." In practice, we assess and prioritize energy-related projects, including improvements in production processes, the use of more efficient technologies, and increasing the share of renewable energy. We consider both the benefits of reduced energy costs and the potential reduction in greenhouse gas emissions simultaneously, ensuring that investment decisions are transparent and aligned with the organization's sustainability goals."

Prapanpong Pojai, *Project and Maintenance Manager , Person Responsible for Energy*

4

Water management

Water management is a key part of our environmental risk strategy. We assess water use across all operations—production, utilities, and maintenance—to ensure responsible consumption and compliance with regulatory and international standards. Our approach includes monitoring water withdrawal, use, and discharge quality, and implementing measures to reduce freshwater intake, increase reuse and recycling, and maintain high effluent treatment performance.

We evaluate potential impacts on local water sources and ecosystems, integrating these findings directly into our site water management plans. While our water risk assessment indicates that the site operates within a region experiencing increasing pressure on water resources, effective water stewardship and robust risk mitigation measures are implemented to ensure long-term sustainable water use, all used water is treated through Reverse Osmosis and biological systems before discharge, and it is not reused by other organizations.

By embedding strong water stewardship practices into daily operations, we help protect natural resources, support local communities, and contribute to broader sustainability goals.

2025 Highlights / Water management

34%
water consumption intensity (m^3/kg PLA) reduction compared to 2024, and 52% reduction compared to 2023.

21.4%
water withdrawal intensity reduction compared to 2023 for water used in production process

Pollution prevention

Operation Clean Sweep (OCS)

Operation Clean Sweep® (OCS) is an industry program aimed at eliminating plastic pellet loss and protecting water quality, wildlife, and surrounding communities. TotalEnergies Corbion has voluntarily implemented OCS standards since 2019, following best practices shared by TotalEnergies. This includes employee training, workplace improvements to prevent pellet loss, and regular site audits. All operational staff are trained in pellet loss prevention and environmental responsibility, and the company continues to strengthen controls and initiatives to minimize pellet leakage.

"The implementation of Operation Clean Sweep (OCS) serves as a key preventive measure for protecting water resources and the surrounding environment, by preventing plastic pellet leakage at the source. TEC keeps records of pellet spills, internal incident reports, and conducts daily and monthly audits to ensure no pellets remain in areas with a high potential to leak outside the facility boundary. TEC is committed to improving processes and raising awareness to ensure sustainable and environmentally safe operations."

Wachiraporn Daengprasert , *Senior Plant Technologist OCS working team leader*

4

Pollution prevention: Air quality

TotalEnergies Corbion conducts periodic analyses on the volumes of major air pollutants or ambient air quality monitoring (testing levels of PM, NOx, SO_2, VOC or heavy metals).

To comply with air quality control measures and ensure emission levels meet the industrial emission standards, the company adheres to the Ministry of Industry's regulation on air pollution control from industrial operations, B.E. 2549 (2006). The permissible NOx concentration limit is set at no more than 200 parts per million (ppm), with monitoring conducted every six months.

Improvements initiatives are continuously developed to reduce the air quality impact such as switching from oil boilers to natural gas usage and installing particles filters.

Pollution prevention: Odor

TotalEnergies Corbion is committed to responsible operations, including effective odor management to protect the well being of employees and neighboring communities. A trained panel regularly evaluates odor levels, conducts detailed mapping to identify sources, and monitors trends over time. Based on these assessments, we implement targeted odor control measures such as equipment upgrades, advanced chemical treatments, and process optimizations to reduce potential impacts. This proactive approach helps maintain a clean, safe, and pleasant environment around our facilities.

Pollution prevention: Noise

The company has implemented comprehensive noise monitoring measures to prevent pollution and protect the health of employees, nearby communities, and the environment. Noise levels across all work areas have been assessed and found to comply with Thai Ministry of Industry requirements. To reduce or prevent high noise exposure, the company applies controls such as reducing noise at the source, installing protective equipment, implementing hearing conservation programs, and providing appropriate Personal Protection Equipment.

Waste management

To manage significant waste-related impacts, TotalEnergies Corbion implements the 3Rs principles (Reduce, Reuse, Recycle) in line with its Environmental Management Policy. The company focuses on reducing waste generation at the source, maximizing opportunities for reuse and recycling, and optimizing resource efficiency across operations. Through a comprehensive waste management strategy, TotalEnergies Corbion minimizes resource depletion and environmental impacts while working toward its target of zero waste to landfills. Waste management performance is monitored through appropriate indicators, and engagement with employees and relevant stakeholders is promoted to support effective waste management and continuous improvement.

TotalEnergies Corbion generates both hazardous and non-hazardous waste from its production processes and related activities. Hazardous waste is primarily managed through recovery processes, including energy recovery and other recovery operations such as use as mixed fuel and biological treatment. Hazardous waste that cannot be recovered is directed to appropriate disposal processes in compliance with applicable legal and regulatory requirements.

For non-hazardous waste, the company prioritizes diverting waste from final disposal by promoting reuse, biological treatment, and other forms of beneficial use. As a result, landfill disposal is avoided, and environmental impacts associated with final disposal are minimized.

On top of the external waste collection, TotalEnergies Corbion recycles its internal waste via its hydrolysis process recovering new lactic acid used in the polymerization process. This ensures a sustainable waste management, also reduces the demand on new virgin raw materials.

2025 Highlights / Waste management

10%
reduction in waste generated per kg of PLA produced compared to 2024

0
waste to landfill

97%
of non-hazardous waste reused, recycled or biotreated

24%
of non-hazardous waste recycled

93%
of hazardous waste diverted from landfill and incineration

4

Sustainable sourcing: Material consumption

Material consumption is an essential topic for TotalEnergies Corbion due to its direct impact on resource efficiency, circularity, and environmental footprint across the value chain. The company manages this topic through a structured sourcing and production approach that prioritizes renewable inputs, responsible material selection, and the integration of recycled materials where technically and commercially feasible.

TotalEnergies Corbion material consumption management aims at

- Maximizing the use of renewable raw materials, particularly bio-based feedstocks.
- Minimizing reliance on non-renewable materials.
- Promoting circular material flows by incorporating recycled inputs

The majority of materials used in the production of Luminy® PLA are renewable. The use of non-renewable materials remains minimal and tightly controlled. In fact, the main raw material for Luminy® products is Lactic acid, a 100% biobased product originating from sugarcane. In 2025, the company also continued to integrate recycled materials into operations proposing a unique offer of PLA with allocated recycled content.

As a result of this sourcing strategy, the percentage of renewable input materials used improved year-on-year, reaching 99.89% in 2025, reflecting strong alignment with circular economy principles and resource efficiency objectives.

Continuous Improvement

TotalEnergies Corbion regularly reviews material sourcing performance to identify opportunities to increase recycled and renewable content where feasible, optimize material efficiency across production processes, and strengthen supplier engagement to support sustainable material availability.

Through this management approach, the company reinforces its commitment to sustainable sourcing, reduced environmental impact, and responsible growth aligned with international sustainability standards.

As an example, in 2025, TotalEnergies Corbion switched to more sustainable packaging for the distribution of its PLA pellets. The Flexible Intermediate Bulk Containers (FIBC) of 1,250kg which are used to transport Luminy® PLA to customers are now made of 30% post-industrial recycled content in their outer bags. This improvement demonstrates the company's commitment to sustainability and its thought leadership in influencing its suppliers to adopt greener solutions.

New FIBCs for PLA pellets packaging with 30% post-industrial recycled content

4

Social

Health and safety

At TotalEnergies Corbion, safety encompasses everything we do. If there is not a safe way of doing it, we will not do it. Our Environmental Health & Safety Policy states that we operate with the greatest care for safety, health and the environment for our employees and the communities we engage with. Our aim is to have zero incidents.

Our health and safety management system integrates a steadfast commitment to safety with strict adherence to legal regulations. We require all industrial units and offices to be compliant with the internal safety rules and process standards, and ISO 45001. Our strategy emphasizes proactive risk management, using risk assessments to identify, evaluate, and eliminate workplace risks. This system covers every aspect of our operations, extending its reach to all employees and third-party workers.

"Overall, I am highly satisfied with the advancement of HSE implementation at TotalEnergies Corbion manufacturing site over the past year. We have strengthened regulatory compliance, enhanced systematic risk management, and reinforced a proactive safety culture across all levels of the organization. Our key initiatives have delivered measurable improvements, particularly in incident reduction and operational discipline."

Tewan Thanklua, *EHS Manager*

2025 Highlights / Health and safety

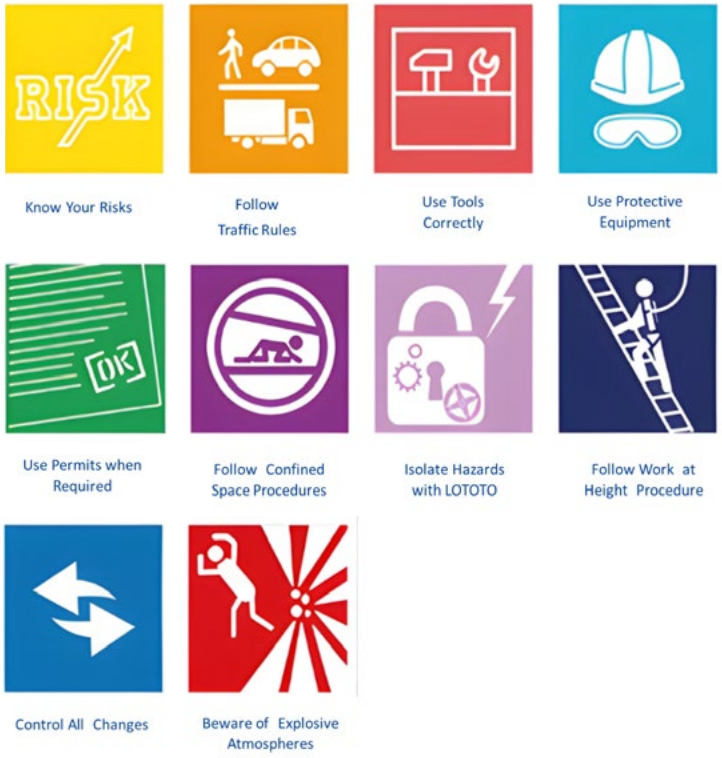
0
lowest recordable work-injuries rate (IR) since 2024

0
recordable work-injuries rate (IR) 2025

0
high-consequence injuries

Safety Rules-Reduce Life Changing Risks

TotalEnergies Corbion manufacturing site adheres to 10 Safety Rules. The company firmly communicates to employees that any activity must be done safely, both at work and in their daily lives, aligned with its safety core value and its related rules.



"Safety comes first at the R&D lab in Gorinchem.

For TotalEnergies Corbion safety comes first. That is certainly true for Research and Development, where our safety standards are kept high. Our lab and pilot facilities at TotalEnergies Corbion Gorinchem are recognized for their safety and tidiness. Since the inception of the JV, we have been continuously improving safety and are proud to mention we had no Lost Time Injury. Unsafe situations or near misses are addressed immediately and solved. Regular consultation with our colleagues in Thailand and Corbion ensures we can rely on the best practices and keep standards high. From our Corbion colleagues, we receive consistent positive feedback on our housekeeping. As our facilities are located on Corbion Site, we participate in their safety programs like 5S, the response protocol Sphera and the chemical management system SOFOS 360. "

Wilko de Lang, *R&D Specialist*

Value to society

CSR activities

TotalEnergies Corbion is committed to ensuring that its operations consistently provide global economic, social, and environmental benefits in a sustainable manner. The company aims to create positive social impact, ensure environmental sustainability, and uphold the highest standards of governance.

ACTIVITY	OBJECTIVE/ DETAIL	SDGS
Happy Children's Day 2025	TEC awarded scholarships to high achieving and financially disadvantaged students from nearby schools and organized activities at Ban Phayoon School to support student development.	
Clean for love, Paint for love	TEC held a CSR event, combining a beach cleanup at Payoon Beach with a fabric bag painting activity. One hundred painted medicine bags were donated to Ban Chang Hospital, with students and teachers from Ban Payoon School joining the effort. The cleanup collected about 50 kilograms of waste.	
Dream Building, Future Shaping	TEC held the "TEC Dream Building, Future Shaping" CSR event at the Child Welfare Protection Center in Rayong, where employees shared career and education insights to inspire and guide the youth. The company also provided a luncheon, organized recreational activities, and featured a performance by the TECT Music Club. The project reflects TEC's commitment to empowering Thai youth to pursue their goals and build a brighter future.	
Green Together	TEC held the "Green Together: Plant for the Planet" activity on June 20, 2025, planting 600 trees on a 2 rai area designated for the Ban Nong Takian community forest in Rayong as part of World Environment Month. Employees, suppliers, contractors, community leaders, and forest officials joined to expand green spaces and support long term ecosystem restoration, reflecting a shared commitment to a greener future.	
Blood Donation	TEC joined the Rayong Red Cross blood donation event on July 29, 2025, at Robinson Ban Chang to help support the national blood supply. The activity reflects the company's continued commitment to social responsibility.	

Providing scholarships for the year 2025	TEC, together with Corbion. and the Asia Industrial Estate, awarded over 100 scholarships to students from 17 nearby schools to support disadvantaged learners and school development.	
Supporting the Ban Phla small boat fishing group	TEC organized a beach cleanup and pallet recycling activity with the small fishing boat group and company contractors to promote recycling, protect the beach environment, and create a space for community dialogue on local needs and potential impacts.	
Kathin merit-making ceremony	TEC and 25 employee volunteers joined the annual Kathin robe offering at Wat Phla, setting up a food stall and making merit by offering robes. The activity reflects the company's spirit of unity and contribution to the community.	
Sponsoring Youth at Rayong's badminton club	TEC supported youth sports development by sponsoring the Rayong Open #2 badminton tournament organized by the Rayong Badminton Club, promoting healthy lifestyles, positive youth engagement, and skill development among young athletes in the community.	
Donating for flood victims	The Company and its employees supported flood affected communities in Southern Thailand by donating relief supplies, non perishable food, and 300 packs of drinking water through the Damrongdhama Center in Rayong.	
Releasing fish and beach cleaning	To support marine conservation and protect the local coastline, TEC organized a fish and crab release along with a beach cleanup at Phla Beach near the company's plant.	
Green together-Trees care	To support the growth of trees in the Ban Nong Takian Community Forest, TEC held a Tree Care activity, maintaining the trees planted six months earlier under the Green Together initiative. The activity reinforces the company's long term commitment to environmental stewardship and community sustainability.	

4

Customer orientation and product responsibility

TotalEnergies Corbion places customer trust and product responsibility at the core of its operations. Luminy® materials are primarily used in food contact applications. As such, ensuring product safety, regulatory compliance, and consistent quality is a top priority across the entire value chain.

"We are proud of the consistent high quality of our products, supported by a robust and well-established quality control management system that ensures strong lot-to-lot consistency. Customer trust is central to everything we do, and the Voice of Customer is actively integrated into our continuous improvement processes. As a result of this disciplined approach, the number of customer claims has continuously decreased over the past four years, reflecting our ongoing commitment to reliability, transparency, and excellence in product quality."

Nittaya Khamma, *QA/QC manager*

Our commitment to quality and product safety

TotalEnergies Corbion is dedicated to delivering reliable, high quality products that meet strict food contact regulations and protect consumers. This commitment is supported by a strong, integrated quality and food safety management system designed to prevent contamination, ensure full traceability, and consistently meet customer expectations.

Our approach combines internationally recognized standards with rigorous internal controls. We operate an ISO 9001–certifiable Quality Management System and a HACCP based food safety program focused on identifying risks and implementing preventive measures. Every step—from raw material qualification and process control to change management and final product release—is governed by clear product safety protocols. Contaminant monitoring programs further safeguard product integrity.

To protect customers and end users, we maintain complete traceability across the entire value chain, enabling rapid response if an issue arises. Regular internal and external audits, along with management reviews, ensure our systems remain effective, compliant, and aligned with evolving regulatory and customer requirements.

This disciplined approach reflects our commitment to delivering safe, high performing products that customers can trust.

Refresh training to ensure employee awareness on product safety, 8th May 2025

Customer Feedback and Claims Management

Customer feedback, including complaints and claims, are systematically recorded, investigated, and analyzed. Root cause analysis and corrective actions are implemented where necessary, and trends are reviewed by management to drive preventive improvements.

By integrating quality assurance, food safety management, traceability, and customer feedback mechanisms, TotalEnergies Corbion ensures that customer orientation is embedded throughout its operations. These practices support long-term customer trust, regulatory compliance, and responsible growth in food contact compliant applications.

Creating Value for Customers

At the heart of our mission is the belief that bioplastics can significantly contribute to a better planet for both current and future generations. The biobased nature of PLA (Polylactic Acid) not only reduces carbon footprint but also supports the circular economy through mechanical and chemical recycling.

To create meaningful impact, we are dedicated to helping our customers grow their businesses, which in turn expands the market for sustainable solutions. We collaborate closely with our customers to develop environmentally responsible products.

4

Sustainable procurement: Our suppliers

Sustainable procurement & responsible sourcing

Our procurement strategy focuses on ensuring reliable supply, cost efficiency, and responsible sourcing while embedding ESG principles across the value chain. We work closely with suppliers to uphold ethical conduct, quality, business continuity, and sustainability. Guided by our Quality Management System and Supplier Code of Conduct, our structured supplier management framework ensures that all partners meet defined standards for product quality, safety, compliance, and responsible business practices.

Green and Sustainable Procurement Initiatives

Environmental considerations are a core part of our procurement decisions. In 2025, we improved domestic logistics, adopted certified low carbon transport for overseas shipments, and worked with suppliers to reduce transportation emissions. Procurement also supported infrastructure projects that enable future low carbon mobility, including preparations for EV charging facilities. These efforts reflect TotalEnergies Corbion's commitment to lowering environmental impact across the supply chain. Moving forward, we will continue strengthening sustainable procurement by deepening supplier engagement, expanding ESG monitoring, and integrating sustainability criteria into supplier selection to build a resilient, responsible, and future ready supply chain.

Supplier Relationship

As a sustainable company, TotalEnergies Corbion prioritizes working with suppliers who follow responsible and socially conscious practices. This approach reduces environmental impact, supports communities, minimizes legal risks, and strengthens trust with customers and stakeholders. All suppliers are expected to meet the standards outlined in our Supplier Code, which is based on OECD Guidelines for Multinational Enterprises and the ILO's eight core labor conventions.

The Code covers seven key areas: business ethics, human rights and labor conditions, environmental protection, social responsibility, product quality and safety, intellectual property, and responsible procurement. We strictly prohibit forced, compulsory, or child labor and require the same commitment from all suppliers to ensure an ethical and responsible supply chain.

Monitoring and Evaluation

We continuously monitor our suppliers' sustainability performance through Supplier Audits and Supplier Complaint Reports to identify root causes of issues and assess their frequency. The insights gained from this monitoring inform our strategies and practices, ensuring that suppliers comply with established sustainability standards.

4

We value our people

Employees are at the heart of our sustainability approach. Our HR Policy and Human Rights framework ensure fair, inclusive, and ethical labor practices so every individual is treated with dignity, respect, and equality. We support employee well being through transparent people management, equitable recruitment, merit based evaluations, and competitive compensation and benefits. Working conditions, health and safety measures, and welfare programs—such as medical and life insurance, Provident Fund, and leave entitlements—are designed to meet legal requirements and provide a secure workplace.

Human Rights Commitment

We uphold internationally recognized human rights and comply with key standards, including the UN Universal Declaration of Human Rights, ILO conventions, OECD Guidelines for Multinational Enterprises, and the UN Global Compact. Through ongoing due diligence, we identify, and address risks related to discrimination, forced labor, child labor, and other labor rights. Employees can confidentially report concerns through our ethics channel, with guaranteed non retaliation and transparent follow up.

Our focus areas include safe working conditions, respectful treatment, prevention of harassment, freedom of association and expression, fair wages and benefits, reasonable working hours, and environmental responsibility. Together, these commitments ensure a responsible, ethical, and supportive workplace for all.

Ethics, Integrity, and Anti-Corruption

We foster a culture of integrity and ethical behavior. All employees receive mandatory training on the Code of Conduct, anti-corruption, and responsible business practices. Reports of misconduct, including harassment, discrimination, or conflicts of interest are addressed through established whistleblowing procedures as the company's process to ensure fairness and accountability.

2025 Highlights / Human Resources

150+
total global employees

120+
employees at the manufacturing site

28%
female employees

0
child labor

Safe and respectful working conditions

TotalEnergies Corbion is committed to providing a safe, healthy workplace for all employees, contractors, and visitors. We ensure that work environments are free from hazards and that appropriate safety equipment is provided whenever needed. Our Labor & Human Rights Policy reinforces this commitment by upholding dignity, respect, and ethical treatment for every individual. We strictly prohibit harassment, discrimination, forced or child labor, and slavery, and we respect freedom of association.

We comply fully with labor laws, including legal working age requirements, fair compensation, working hours, and mandated benefits. Employees receive competitive pay aligned with industry and local market standards, along with all legally required benefits and overtime provisions. Together, these commitments ensure a responsible, safe, and respectful workplace for everyone.

Diversity and Inclusion

TotalEnergies Corbion is committed to fostering a diverse, equitable, and inclusive workplace where all employees are treated with respect and provided with equal opportunities. We believe that diversity strengthens our organization and contributes to sustainable business performance.

Our approach to diversity and inclusion is governed by our Labor & Human Rights Policy, which applies to all employees. The Company does not tolerate discrimination in any form against employees or job applicants based on race, nationality, religion, gender, age, sexual orientation, disability, or any other protected characteristic. Employees are free to practice their religion, and any form of harassment, intimidation, or unfair treatment—whether by employees or by external stakeholders such as customers, suppliers, or contractors—is strictly prohibited.

"By providing dedicated space for religious practices, I recognize the company's commitment to respecting all and the diversity of backgrounds. This approach not only acknowledges what employees value, but also fosters a safe, inclusive, and respectful workplace where everyone can thrive."

Wichuda Rachpitak, *Senior Lab Analyst*

Employee Competence Development

At TotalEnergies Corbion, developing our people is essential to our long term sustainability goals. Guided by our global Talent Development policy, we support continuous learning so employees can grow their expertise and stay adaptable in a rapidly changing environment. Building strong competencies is both a personal journey and a strategic priority that strengthens our resilience and long term performance.

We offer employees opportunities to build skills for current and future needs through training, on the job learning, and knowledge sharing. Regular mandatory trainings—particularly in plant operations, safety, and IT security—ensure that essential capabilities remain strong across the organization.

By providing a structured and consistent development approach, we foster a culture of lifelong learning, strengthen internal capabilities, and prepare our workforce to support sustainable growth. This commitment creates long term value for employees, the company, and society.

Employee competence development through internal training

"TotalEnergies Corbion places great importance on employee development. In addition to mandatory annual and job-specific trainings, employees are encouraged to pursue learning in areas of personal interest, with full support, including facilities, transportation, and accommodation if needed. This approach empowers employees to grow in alignment with both personal and company goals. I had the opportunity to lead the implementation of Microsoft Power BI for data analysis and visualization, enhancing both my own skills and team efficiency. At TotalEnergies Corbion, we are more than individuals. We are a collaborative team driving positive results and tackling new challenges together."

Sitthichai Sitthisathien, *Process Technologist*

"I joined TotalEnergies Corbion in 2020 and have truly experienced continuous and sustainable growth. Working in the Operation department has been a valuable experience for a young chemical engineer like me. Collaborating with a supportive team has inspired me to keep learning – especially about how to improve the efficiency of Lactide and PLA production."

Kantapong Saklo, *Continuous Improvement and Data Analytics*

5

TotalEnergies Corbion: A major player in the future of bioplastics

Industry associations memberships

TotalEnergies Corbion is a member of different industry associations allowing good collaboration with different stakeholders, constant monitoring of the legislative environment and influencing the future of bioplastics.

In Europe

ASOBIOCOM
Asociación Española de Plásticos Biodegradables Compostables

european bioplastics

COMPOSTABLE BY DESIGN PLATFORM

HOLLAND BIOPLASTICS

edana
The voice of NONWOVENS

europen
SHAPING A SUSTAINABLE FUTURE FOR PACKAGING

In the United States

BIODEGRADABLE PRODUCTS INSTITUTE

Member of SUSTAINABLE PACKAGING COALITION®

US Composting Council®

In Asia Pacific

KOBCA
한국바이오화학산업협회
Korea Bio-Chemical Industry Association

TBSM

TBIA
Thai Bioplastics Industry Association

中国塑料加工工业协会
China Plastic Processing Industry Association

5

R&D projects

ReBioCycle

A new European blueprint for circular bioplastics upcycling solutions

The ReBioCycle project (2024-2028) is an EU-funded initiative focused on improving the recycling of bioplastics through new technologies and collaboration across partners in Italy, the Netherlands, and Spain. It brings together multiple stakeholders—from brand owners to recyclers—to develop practical, circular solutions.

The Netherlands hub, which includes TotalEnergies Corbion, Torwash, and Corbion, is working on advancing chemical recycling of PLA to about TRL 6. Torwash will recover monomers from PLA waste, Corbion will purify the lactic acid, and TotalEnergies Corbion will repolymerize it into high quality recycled PLA.

"Our R&D efforts over the years have one thing in common: collaboration. Whether it is between the different teams within the organization, with customers or – like the projects highlighted here – through multiparty consortia. We realize that no innovation will be impactful when developed in splendid isolation. Making the plastics industry a more sensible one, where carbon emissions are the main currency, will require efforts of many stakeholders. Having the opportunity to collaborate in product development ensures we hear the voice of our customers while we prepare to leave behind a healthy world for the generations to come."

Gerrit Gobius du Sart, *Senior Corporate Scientist R&D*

SEALIVE

SEALIVE was an EU funded project (2019–2024) that brought together partners across Europe to develop advanced biobased plastic alternatives in marine and soil applications and reduce plastic pollution. Over 4.5 years, the project created practical solutions using materials like PLA and PHA.

One of the key demonstrators was fishing nets made with TotalEnergies Corbion's Luminy® PLA, which can be industrially composted and breaks down forty times faster in the ocean than conventional nets. SEALIVE also supported bioplastics recycling technologies, including the development of an optical sorter that can identify and separate bioplastics from other plastics to improve circularity and reduce contamination in recycling streams.

The project additionally contributed policy recommendations to support biobased plastics in major EU and international initiatives.

Compostable fishing nets made with Luminy(R) PLA

Moebios

Improving waste management of biobased plastics and the upcycling in packaging, textile and agriculture sectors

The MoeBIOS project (2024-2028) is an EU-funded effort to improve how bioplastics are collected, sorted, and recycled. It focuses on hard to recycle materials like PLA, PHA, PBS, and PEF used in packaging, agriculture, and textiles. With 21 partners led by ITENE, the project aims to create new value chains and turn bioplastic waste into high value products using mechanical, enzymatic, and chemical recycling. It also works to integrate these improved processes into existing industrial recycling systems.

Polymer technology development with Bath University

TotalEnergies Corbion's R&D team works with universities and research centers to drive innovation by sharing knowledge and expertise. Many academic groups rarely work at kilogram scale, where industrial feasibility becomes clearer, so these collaborations help bridge the gap between lab research and real world production.

For example, researchers from the University of Bath developed new PLA production technologies in their lab, and TotalEnergies Corbion hosted them to test and benchmark these innovations under industrial conditions. This partnership reflects our commitment to advancing scientific progress while strengthening our leadership in PLA production.

5

Partnerships and collaborations for innovation

TotalEnergies Corbion realizes that innovation comes with partnerships, sharing of knowledge, expertise and resources. As a thought leader in PLA development, TotalEnergies Corbion participates in many collaborative projects with brands, customers or universities allowing the creation of new applications and new products. Below are the key collaborative projects of 2025.

Developing filters for air purifiers with Hansae

One of TotalEnergies Corbion's key partnerships is with Hansae, a leading Korean filter manufacturer. Since the early stages of the high-flow PLA meltblown project, Hansae has progressed to developing advanced air purification filters, showcased at the 2025 K Show. Starting with PLA meltblown grades from the pilot plant, it now uses material from the latest industrial production line to produce complete filtration solutions, including media, support layers, frames, and low-carbon hotmelt assembly. This collaboration demonstrates strong progress in developing a complex product and highlights how partnerships accelerate innovation and bring sustainable solutions closer to market.

"Collaboration is an essential parameter to develop the bioeconomy world, and the PLA ecosystem in particular. Collaboration permits to be faster, to share competences from different environments, to increase our influence, to strengthen our voice in the market. At the end we are stronger and more efficient. It is also crucial to develop these partnerships across the full value chain: equipment manufacturers to improve our materials, our direct customers to develop together the solution, brand-owners to better understand the real market needs. The collaborations are also valid with our competitors to cope with industry-wide challenges, with recyclers or composters to create data driven and real-life scientific proofs for example."

Laurent Daligault, *Global Market Segment Leader*

5

TotalEnergies Corbion partnership with McDonald's TMS

TotalEnergies Corbion is supporting TMS, a long time McDonald's China supply chain partner, in advancing McDonald's China sustainable packaging goals. By helping TMS integrate Luminy® PLA into selected packaging in China, the collaboration replaces conventional materials with biobased, compostable, and recyclable alternatives that lower carbon footprint and support circular design. This effort reflects the growing cooperation across brands, converters, and material innovators to accelerate sustainable packaging throughout global supply chains.

3D printing development with Kexcelled

Combining Kexcelled's deep expertise in 3D printing consumables with TotalEnergies Corbion's advanced Luminy® PLA, this partnership is expanding the potential of 3D printing across consumer and industrial sectors. By developing high-performance materials, such as heat-resistant, matte PLA, Kexcelled is unlocking new applications and aesthetic possibilities that broaden 3D printing appeal to a wider audience.

The first home-compostable overcap sleeve developed by Sleever

Sleever developed SEELCAP® ONEGO, a home-compostable tamper-evident shrink-sleeve made of PLA, targeting primarily high-end wines and spirits, although not exclusively. Its innovative design, awarded by the Oscar of Packaging, ensures that this type of packaging component can be removed remaining in one piece, hence preventing littering, and that it finds a sustainable end-of-life. In fact, such small piece of plastic could not be mechanically recycled (it would fall through the sorting sieve), but its home compostability allows for easy closure of the loop, independently of existing local waste management scheme. Thanks to the use of Luminy® PLA the carbon footprint of this sleeve is reduced by up to 45%, as compared to conventional fossil-based plastics.

5

TotalEnergies Corbion and USEON collaboration on foamed PLA

TotalEnergies Corbion and USEON formed a strategic partnership to develop and commercialize EPLA molded products—sustainable, high performance foams made from Luminy® PLA. EPLA, produced using USEON's direct bead foaming technology, is a plant based, industrially compostable alternative for packaging, thermal protection, and other molded applications. Lightweight and durable, EPLA suits packaging, food service, and cold chain uses. The partnership underscores both companies' commitment to advancing renewable materials and circular solutions.

> "With EPLA, businesses now have access to a foam material that performs well and also aligns with growing regulatory and consumer demand for circular, climate-responsible alternatives. We are excited to team up with TotalEnergies Corbion and drive the adoption of molded PLA foam at scale. The combination of direct bead foaming and high-quality biobased plastics enables sustainable innovation across the packaging industry and beyond. Together, we are redefining what's possible in foam applications."
>
> *Mr. Chen Zhiqiang, CEO of Useon*

Morphbricks empowered by Luminy® PLA

Workplaces, schools, and events increasingly need adaptable, low waste interior solutions. MorphBricks—made from biobased PLA developed by TotalEnergies Corbion and Floreon—offer a modular system for building desks, counters, partitions, meeting pods, exhibition walls, and even seating. Unlike other eco modular options, PLA MorphBricks work for both furniture and partitions, providing ABS like strength with a lower carbon footprint. They assemble without tools or adhesives, making them easy to reconfigure, dismantle, and reuse across projects.

5

Benvic and TEC collaborating for compounds development

TotalEnergies Corbion and Benvic are partnering to advance sustainable Luminy® PLA based compounds. Benvic's Plantura® portfolio, made with Luminy® PLA, offers low carbon, biobased alternatives to conventional plastics like ABS, PS, and PP. By combining PLA with other biobased materials, the collaboration enhances performance and supports the shift to eco friendly manufacturing. Together, the companies are leveraging their compounding and PLA expertise to optimize products and promote scalable PLA solutions for durable goods, especially in automotive and electronics.

"Benvic has managed a continuous focus in terms of engineering and production capabilities on Plantura® because we believe in a biobased future. With the support of TotalEnergies Corbion, we are poised to unlock new opportunities, strengthen our presence in the market, and deliver high-performance sustainable materials to our customers."

Eric GRANGE, marketing director at Benvic

TotalEnergies Corbion's PLA used by Sulapac

Sulapac uses Luminy®PLA in its biobased premium materials developed to replace conventional plastics in a range of consumer products and packaging without sacrificing quality or aesthetics. Luminy® PLA's low carbon footprint, biobased origin, and strong processing performance make it a key component in Sulapac's portfolio which includes an extrusion material for the cosmetics industry made with 100% recycled PLA. The partnership between TotalEnergies Corbion and Sulapac strengthens the promotion of high-quality, recyclable PLA solutions in sustainable packaging.

5

External communication

Throughout 2025, TotalEnergies Corbion positioned itself as a thought leader using marketing communications as a strategic lever for external education and brand building, with the dual objective of advancing understanding of PLA and strengthening the awareness and reputation of Luminy® PLA as the company's product brand. Through sustained visibility across international media, digital platforms, and global industry forums, Luminy® PLA was consistently positioned within broader conversations on sustainability, industrial transformation, and the transition toward more circular material systems.

External communication focused on building knowledge, trust, and brand credibility, in addition to product promotion. Participation at The Economist Sustainability Week in London and subsequent mediatic coverage connected to internationally recognized platforms, including the World Economic Forum, helped situate Luminy® PLA within global debates on responsible innovation, climate objectives, and scalable industrial solutions. In parallel, participation in major industry events such as K Show and Chinaplas provided opportunities to engage directly with value-chain stakeholders, reinforcing Luminy® PLA's visibility while translating sustainability concepts into practical, application-driven narratives.

Across media and event platforms, marketing communications emphasized how PLA-based materials perform in real-world conditions—their integration into existing value chains, their contribution to lower carbon footprint objectives, and their role in enabling circular design. Complementing this approach, the use of communication tools like social media and newsletters extended the reach and reinforced key messages through adapted and targeted storytelling.

"Storytelling plays a critical role in accelerating the circular economy. When innovation, data, and real-world impact come together in a clear narrative, sustainability moves from ambition to action."

Rui Veras, *Communication Manager*

Overall, in 2025, TotalEnergies Corbion's marketing communications played a central role in raising awareness and educating external audiences on the practical role of PLA in circular economy pathways. By consistently aligning education, application-driven storytelling, and brand positioning, TotalEnergies Corbion reinforced the image of bioplastics, supported customers in their market entrance and influenced legislative discussions.

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Conclusion

Sustainability is a key focus at TotalEnergies Corbion

TotalEnergies Corbion is manufacturing and commercializing polylactic acid (Luminy® PLA), a sustainable product contributing to the circular economy.

PLA is a bioplastic polymer 100% biobased, offering multiple sustainable end-of-life options and meeting the needs of its wide range of applications. It can be industrially composted, mechanically or chemically recycled, or incinerated with energy recovery.

Its biobased origins allow a significantly lower carbon footprint compared to its fossil-based alternatives. Virgin Luminy® PLA has a carbon footprint of 0.29 $kgCO_2$ eq/kg PLA when considering biogenic carbon, an 85% lower carbon footprint compared to conventional fossil-based polymers.

To enhance its efforts to offer a circular, sustainable product, TotalEnergies Corbion has developed its own chemical recycling process and is offering Luminy® PLA with 30% or 100% recycled content. These products offer a negative carbon footprint when considering biogenic carbon.

Producing a sustainable polymer is not enough; the company also cares about its sustainability strategy.

Efforts are being made at the production site to minimize environmental impact and ensure full compliance with laws and regulations. This includes monitoring of greenhouse gas emissions, energy efficiency, pollution (air, soil, water), and waste production and treatment. However, monitoring is not sufficient;; the team continuously works to improve its results through projects such as packaging with recycled content, yield improvement, renewable energy purchases, or pollution prevention actions.

Sustainable company management includes respecting social rights and making a positive contribution to society. TotalEnergies Corbion is contributing to industrial development in Thailand, offering employment in the Rayong area for the production site, in the Netherlands for the headquarters, and worldwide for support positions. It is important for TotalEnergies Corbion to ensure a fair work environment with no discrimination, promote diversity, respect labor laws, and offer career opportunities to its employees.

The company also contributes to society through corporate social responsibility initiatives, such as financial support for schools in Thailand.

Finally, as a thought leader in bioplastics, TotalEnergies Corbion focuses on continuous innovation and development. In 2025, multiple projects were conducted with partners to develop new PLA grades and new applications. Sustainability is also a matter of collaboration.

Thank you for reading!

Luminy®

Plant the future with PLA

TotalEnergies Corbion

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