



USINA
COPURÍPE

Greenhouse Gas (GHG) Emissions Inventory

Reporting year 2024

(Version 02)

Executive summary

Reporting year 2024

Aiming to make its operations more sustainable, Usina Coruripe presents its inventory of greenhouse gas emissions.

On this page is a summary of emissions, as well as tCO₂e emission indicators per ton of processed sugarcane, calculated for Scopes 01 and 02 and 01, 02 and 03.

Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Biogenic CO ₂ removals (t)
Stationary Combustion	4,081.575	1,227.211	163.640	-	81,808.124	4,094,816.752	-
Mobile Combustion	51,265.438	4.393	2.799	-	52,130.261	9,591.892	-
Fugitive Emissions	4.190	-	-	2.847	3,961.915	-	-
Process Emissions	-	-	-	-	-	3,987,554.531	-
Agricultural Activities	39,980.653	106.826	268.830	-	114,211.753	4,920.239	-
Land Use Change	-	-	-	-	-	47,432.203	-
Solid Waste	-	175.414	9.970	-	7,553.511	2.610	-
Wastewater	-	11.012	0.044	-	319.910	-	-
Total Scope 01	95,331.856	1,524.856	445.283	2.847	259,985.473	8,144,318.227	-
Scope 02							
Purchased Electricity (location-based)	37.439	-	-	-	37.439	-	-
Scope 03							
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	9,212.535	146.651	2.892	-	14,085.256	4,465.596	38.502
Upstream Transportation and Distribution	40,736.953	2.960	2.001	-	41,349.993	5,330.010	-
Waste Generated in Operations	340.698	2.211	0.100	-	428.984	62.005	-
Business Travel	203.058	0.003	0.006	-	204.845	-	-
Employee Commuting	4,442.541	0.365	0.231	-	4,513.931	660.960	-
Downstream Transportation and Distribution	36,972.346	2.713	2.012	-	37,581.602	5,466.028	-
Use of Sold Products	-	181.279	6.043	-	6,677.120	687,644.396	-
Total Scope 03	91,908.131	336.182	13.285	-	104,841.731	703,628.996	38.502
Total Emissions	187,277.427	1,861.038	458.568	2.847	364,864.643	8,847,947.223	38.502

Emission Indicator - Scopes 01 and 02	
tCO ₂ e/processed cane (t)	0.016

Emission Indicator - Scopes 01, 02 and 03	
tCO ₂ e/processed cane (t)	0.023

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Introduction

Usina Coruripe addresses climate change with genuine commitment in the pursuit of new processes and solutions. In this way, the organization uses analytical tools to assess and measure its impacts.

The Greenhouse Gas (GHG) emissions inventory is a management tool that enables the accounting of emissions related to the organization's activities and serves as an indicator for the continuous reduction of GHG emissions.



Introduction

This report will present all identified emission sources, as well as a quantitative and qualitative analysis of these emissions. All GHGs identified were converted into tons of CO₂e, respecting their Global Warming Potential. Additionally, the emission sources were categorized into categories, which will be explained later.

Meeting the growing demand for information on climate related issues and the demand for the transition toward a low-carbon economy, **Usina Coruripe** is always improving on its own climate goals, presenting its emissions both on absolute emissions, and through emission intensity indicators (e.g., tCO₂e/tons of processed sugarcane). Therefore, future emission reduction actions will always be based on the information derived from the inventory.

This inventory is defined according the operational control approach, in which **Usina Coruripe** is responsible for the emission sources of all operations it controls.

Reporting year

The period covered by this inventory corresponds to the year 2024.

Summary of activities

- Project Mobilization
- Presentation of the work plan
- Definition of the work methodology
- Identification and selection of emission sources
- Collection and transfer of information
- Qualitative analysis of emission sources
- Quantitative analysis of emission sources
- GHG accounting and emissions report



Reporting facilities

CAMPO FLORIDO Facility

Santa Adelaide Farm, Cruzeiro do Sul Road, Km 42. Access via highway: MG-255. ZIP Code: 38130-000. Campo Florido/MG, Brazil

CARNEIRINHO Facility

Bom Sucesso Farm, no number, Rural Area. Access via highway: MG-497. ZIP Code: 38290-000. Carneirinho/MG, Brazil

ITURAMA Facility

BR-497 Highway, no number, Km 15. P.O. Box: 91. Access via highway: MG-262. ZIP Code: 38280-971. Iturama/MG, Brazil

LIMEIRA DO OESTE Facility

Barreiro Farm, no number, Rural Area. Access via highway: MG-255. ZIP Code: 38295-000. Limeira do Oeste/MG, Brazil

CORURIBE Facility

Triunfo Farm, no number – Rural Area. Access via highway: BR-101. ZIP Code: 57230-000. Coruripe/AL, Brazil



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Base year

2024

Climate Change



Total emissions in 2024 were estimated at **41.6** billion tons of carbon dioxide.



The year **2024** was the hottest ever recorded, having reached an increase of **1.55°C** compared to pre-industrial levels.



Last **decade was the hottest on record**, with the planet warming consistently every decade since the 1950s.



Under the Paris Agreement, we committed to working toward ensuring that the global average temperature does not exceed **1.5°C** by the end of the century.

Consequences



Adaptation costs to the effects of climate change could reach **US\$387 billion** per year.



Approximately **3.3 to 3.6 billion people** live in contexts highly vulnerable to climate change.



US\$4 trillion is the estimated value of likely climate-related risks by 2030, according to CDP data.



Climate change slows progress in fighting hunger. More than **78 million** people may face chronic hunger by 2050 compared to a world without climate change.

Actions being carried out

Companies are advancing in climate management:

mitigation and adaptation policies,
carbon footprints, climate risk
matrices, carbon credits and
internal carbon pricing.



There are already **75 carbon pricing initiatives** worldwide, **39** of which are at the national level.



More than 11,095 companies have committed to the Science Based Targets initiative (SBTi), of which **8,443** have already had their targets approved and **1,963** have also committed to being net-zero.



+23,000 companies and **+1,100** cities respond to the CDP, and investors managing **over US\$142 trillion** in assets analyze company performance in the CDP.



Thousands of institutions and organizations have committed to achieving net-zero emissions **by 2050**, participating in initiatives beyond SBTi, such as Race to Zero and others.



Company Positioning

Usina Coruripe Açúcar e Álcool S.A. is a 100% Brazilian company, headquartered in Coruripe (AL) with four additional industrial facilities in Minas Gerais, located in the cities of Iturama, Campo Florido, Limeira do Oeste, and Carneirinho. Together, these facilities have a crushing capacity of 16 million tons of sugarcane per harvest. With this structure, they ensure the production of sugar, alcohol, energy, and derivatives that are distributed both within Brazil and abroad.

Celebrating its centennial in 2025, Usina Coruripe has established itself as one of Brazil's largest sugar-energy producers in Brazil and a leader in the North/Northeast market, as well as having a significant presence in the global market. Its journey is marked by innovation and commitment to sustainability, values that continue to guide its operations and expand its horizons.



Company Positioning

Over its 100 years, Usina Coruripe has fostered a business chain oriented by the circular economy, with growth based on sustainable practices. Furthermore, the organization places circularity at the center of its operations, fully valuing agricultural raw materials and integrating sustainability into every stage of its journey.

The cultivation of sugarcane, its main raw material, plays a significant role in combating climate change, especially due to its role in carbon sequestration and emissions reduction through the sustainable use of biomass and biofuels. Thus, emissions management and climate change mitigation are strategic priorities for Usina Coruripe, aligned with its commitment to sustainability and the environment.

Principles and Guidelines

This page presents the principles and guidelines considered in this inventory to ensure its quality.

Guidelines

Brazilian GHG Protocol Program
ISO 14064-1

Principles

Relevance – Selection of necessary information so that the GHG inventory reflects the company's GHG emissions and meets **Usina Coruripe's** decision making needs.

Completeness – Inclusion of all sources and activities of GHG emissions within the chosen inventory boundary, with justification for any exclusions.

Consistency – Credibility in methodologies to allow meaningful comparisons of emissions over time.

Accuracy – Quantification of GHG emissions in values close to reality and reduction of uncertainties to the extent practicable.

Transparency – Disclosure of sufficient and appropriate information related to GHG emissions and the methodologies used.

Scopes Description

To initiate the inventory, all emission sources are mapped and their impacts understood. Once recognized as GHG emitters, each source is organized within the inventory according to its scope and category, and then the emissions calculation are performed. The scopes in which the emissions are classified are presented below, and on the next page, the emission categories identified for Usina Coruripe within each scope are described.

Scopes Description



Scope 01

Direct greenhouse gas emissions

These are emissions from sources that are owned or controlled by the company.



Scope 02

Indirect GHG emissions from purchased energy

These are emissions resulting from the generation of the electricity purchased by the company.



Scope 03

Indirect GHG emissions from the company's value chain

These emissions are a consequence of the company's activities but occur from sources not controlled by the company.



Scope 01

Direct greenhouse gas emissions.

Categories description

Stationary Combustion: Direct emissions from fuel consumption in sources that are not intended to transport people or objects. For Usina Coruripe, the following sources were identified: combustion of wood and sugarcane bagasse in boilers; cutting and welding with acetylene gas; use of LPG in the cafeteria; diesel consumption in stationary equipment such as fire pumps and generators; and use of gasoline in brushcutters.

Mobile Combustion: Emissions related to fuel combustion in vehicles and equipment used with the intend to transport people or goods. In 2024, Usina Coruripe used a light fleet powered by ethanol and diesel, as well as heavy vehicles and equipment running on diesel, LPG and gasoline-powered forklifts, and aviation kerosene used in company owned aircraft.

Fugitive Emissions: Emissions that occur due to unintentional gas leaks from equipment. In 2024, Usina Coruripe recharged CO₂ fire extinguishers and air-conditioning equipment. Additionally, Agamix gas was used in the cutting and welding process.



Scope 01

Direct greenhouse gas emissions.

Categories description

Process Emissions: Non-combustion GHG emissions resulting from physical or chemical processes. For Usina Coruripe, the emission of biogenic CO₂ from the fermentation process was accounted for.

Agricultural Activities: Emissions related to the application of nitrogen fertilizers, lime, and urea. For Usina Coruripe, were considered emissions from the application of fertilizers, dolomitic lime, filter cake, vinasse, crop residue decomposition in the soil, and crop residue burning.

Land Use Change: CO₂ flows, emissions or removals from land use category conversions. In 2024, biogenic CO₂ emissions were recorded from land use change from pasture to sugarcane crop.

Solid Waste: Emissions related to solid waste treatment managed by the company itself. In 2024, landfilling and composting of organic waste were carried out at company facilities.



Scope 01

Direct greenhouse gas emissions.



Scope 02

Indirect GHG emissions from purchased energy.

Categories description

Wastewater: Emissions from the wastewater treatment conducted internally by Usina Coruripe. For the calculation of wastewater treatment emissions, data such as treatment type, number of employees at the Coruripe and Iturama facilities, volume of wastewater generated, and BOD parameter for the Campo Florido, Carneirinho, and Limeira do Oeste facilities were used.

Purchased Electricity: Indirect emissions from electricity generation, calculated based on the company's consumption. An energy balance calculation was performed for the Campo Florido, Carneirinho, Coruripe, and Iturama facilities. For the Limeira do Oeste facility, emissions were calculated using the location-based approach for electricity acquisition.



Scope 03

Indirect GHG emissions from the company's value chain.

Categories description

Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02): Emissions related to the extraction, production, and transport of fuels and energy purchased and consumed by Usina Coruripe in the inventory year, which are not accounted for in Scopes 01 and 02. For 2024, emissions were accounted for the following fuels: gasoline, diesel, kerosene, acetylene, wood, LPG, accounting also for the electricity acquisition.

Upstream Transportation and Distribution: Emissions from transport and distribution services of products and inputs performed by third parties but paid for by Usina Coruripe in the inventory year. These emissions include road and rail transport of sugar and ethanol.

Waste Generated in Operations: Emissions from the treatment and/or final disposal of solid waste from Usina Coruripe's operations, carried out at facilities owned or operated by third parties. Emissions in this category result from landfilling and incineration of food waste, rubber, leather, plastic, healthcare waste, hazardous waste, and water and oil containing waste.



Scope 03

Indirect GHG emissions from the company's value chain.

Categories description

Business Travel: GHG emissions from employee travel on business trips using third-party airline services.

Employee Commuting: Emissions from employee transportation between home and work, carried out using company chartered or private vehicles.

Downstream Transportation and Distribution: Emissions from product transport and distribution services performed by third parties and not paid for by Usina Coruripe in the inventory year. In the inventory year, downstream road transport and distribution were carried out.

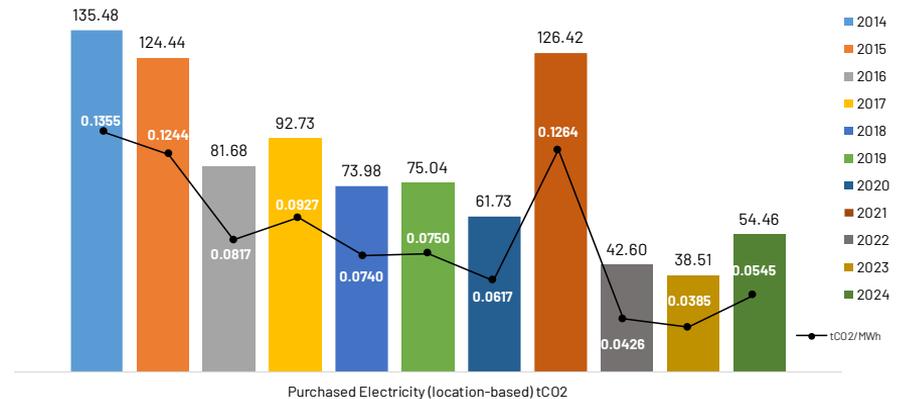
Use of Sold Products: GHG emissions that occur over the lifecycle of products and services sold by the reporting organization. This category includes indirect emissions associated with the sold goods, based on the PBGHG Protocol calculation tool for anhydrous ethanol, hydrated ethanol, and filter cake.

Methodology and calculation of GHG emissions

The annual preparation of the GHG emissions inventory is essential to support climate management within organizations, enabling the monitoring of emissions over time, the setting of reduction targets, and the identification of improvement opportunities.

In addition, it is important to stay updated on methodological changes and variations in emission factors published annually, which can impact results even when consumption remains constant. Among the main year-to-year variations is the emission factor of the National Interconnected System (NIS), used to calculate emissions associated with electricity consumption in Brazil. This factor, expressed in tCO₂/MWh, is calculated monthly by the Ministry of Science, Technology and Innovation (MSTI), based on the composition of the country's electricity matrix in each month—that is, the proportion between renewable and fossil sources.

Although an annual average is published, the use of monthly factors is recommended when monthly electricity consumption data are available, as this provides greater accuracy in the calculation. The graph illustrates the annual variation, presenting both the emission factors and the estimated emissions (in tCO₂) for constant consumption of 1,000 MWh from 2014 to 2024.



Methodology and calculation of GHG emissions

Emissions associated with the consumption of liquid fuels such as gasoline and diesel can also vary over time due to changes in the proportion of biofuels blended with these fossil fuels. This variation directly impacts the emission factor and, consequently, the GHG inventory results.

Since 2016, the proportion of anhydrous ethanol in regular gasoline has been fixed at 27%, which provides stability in calculations related to this fuel. On the other hand, the proportion of biodiesel blended with diesel changes periodically, according to determinations by the federal government. In 2024, for example, the blend was 12% in January and February, increasing to 14% in the following months, resulting in an annual average of 13.7%.

These variations change the emission intensity per liter of fuel consumed, including the share of biogenic emissions. For this reason, it is recommended that fuel consumption data be organized by month, rather than only in consolidated annual form. This practice improves calculation accuracy, avoids distortions, and contributes to greater traceability of the information.

Methodology and calculation of GHG emissions

To allow different greenhouse gases (GHGs) to be compared with each other and summed into a single emission value, the concept of Global Warming Potential (GWP) is used. GWP represents the ability of a gas to retain heat in the atmosphere compared to carbon dioxide (CO₂), considering a 100-year time horizon (GWP100). The resulting unit of measurement is carbon dioxide equivalent (CO₂e), which allows emissions from each gas to be converted to a common basis.

Currently, the GHG Protocol adopts the GWP values from the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC). Although the Sixth Report (AR6) has already been published, the use of AR5 ensures consistency with still current methodological standards for reporting and comparability between organizations.

In addition to the previously mentioned emission factor variations, it is important to remember that calculation methodologies may be updated over time, with the introduction of new parameters, approaches, or specific factors. Therefore, it is essential that organizations follow updates and always apply the most recent versions recommended by reference methodologies.

The table on the side presents the GWP100 values used in the inventory, according to the IPCC's AR5.

Greenhouse Gas	GWP - AR5
CO ₂	1
CH ₄	28
N ₂ O	265
SF ₆	23,500
HFCs	4 - 12.400
PFCs	6.630 - 23.500
NF ₃	16,100

Methodologies used to account different types of emissions sources

The emissions accounted on this GHG Emissions Inventory considered the emission factors provided by the calculation tool of the Brazilian GHG Protocol Program. For the calculation of GHG emissions from sources whose emission factors were not available in the tool, other references were used, as indicated in the tables below.

Stationary Combustion

Activity	Emission factor Calculation approach	Reference
Use of commercial firewood in boilers	Total amount consumed in $m^3 \times$ density Commercial firewood density: $390 \text{ kg}/m^3$	National Energy Balance (BEN 2024)

Fugitive Emissions

Activity	Emission factor Calculation approach	Reference
Use of Agamix gas - cutting and welding	Total amount consumed in $m^3 \times$ density \times 20% CO_2 Agamix: 20% CO_2 and 80% argon Agamix density: $1.691 \text{ kg}/m^3$ at $20^\circ C$	National Energy Balance (BEN 2024)

Methodologies used to account different types of emissions sources

Process Emissions

Activity	Emission factor Calculation approach	Reference
Ethanol fermentation	0.7546 t/m ³	RTI, Internacional, EPA Greenhouse Gas emissions estimation methodologies for biogenic emissions from selected source categories

Agricultural Activities

Activity	Emission factor Calculation approach	Reference
Application of synthetic nitrogen fertilizers	FE: 0.02235 kg of N ₂ O/kg N	Technical Note PBGHGP Equations for calculating agricultural emissions from the use of synthetic nitrogen fertilizers and lime – version 1.0
Application of lime	FE: 0.4767 kg of CO ₂ /kg	
Application of organic fertilizers	FE: 2.357 kg of N ₂ O/ha	
Crop residue decomposition	FE: 0.00002 kg N ₂ O/kg of production	GHG Protocol Tool – Agriculture
Application of vinasse	FE: 0.0052 kg N ₂ O/kg N Nitrogen content in vinasse: 0.433 kg N/m ³	Fourth National Inventory of Anthropogenic Greenhouse Gas Emissions and Removals – Agriculture: managed soils, liming, and urea application subsectors
Burned crop residue	FE CO ₂ : 40.433g CO/kg of burned crop residue FE N ₂ O: 0.07 gN ₂ O/kg of burned crop residue FE CH ₄ : 0.933 gCH ₄ /kg of burned crop residue Residue combustion factor: 0.8	

Methodologies used to account different types of emissions sources

Purchased Electricity (Location-based)

Activity	Emission factor Calculation approach	Reference
Electricity consumption	The annual energy balance for the Campo Florido, Carneirinho, Coruripe, and Iturama facilities was positive, making it unnecessary to estimate emissions.	FGV EAESP – Center for Sustainability Studies. Guidelines for accounting Scope 2 emissions in organizational greenhouse gas inventories under the Brazilian GHG Protocol Program. Version 4.0

Upstream Transportation and Distribution

Activity	Emission factor Calculation approach	Reference
Transportation of anhydrous and hydrated ethanol	Total amount transported in m ³ (or liters) × ethanol density Anhydrous ethanol density: 0.791 kg/liter Hydrated ethanol density: 0.809 kg/liter	GHG Protocol Tool – Emission Factors Tab

Downstream Transportation and Distribution

Activity	Emission factor Calculation approach	Reference
Transportation of anhydrous and hydrated ethanol	Total amount transported in m ³ (or liters) × ethanol density Anhydrous ethanol density: 0.791 kg/liter Hydrated ethanol density: 0.809 kg/liter	GHG Protocol Tool – Emission Factors Tab

Methodologies used to account different types of emissions sources

Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)

Activity	Emission factor Calculation approach	Reference
Gasoline (automotive)	Emission: (amount consumed × fuel percentage × emission factor) + (amount consumed × (1 - fuel percentage) × density × emission factor)	Ecoinvent 3.11
Diesel oil (commercial)	Emission: (amount consumed × fuel percentage × emission factor) + (amount consumed × (1 - fuel percentage) × density × emission factor)	
Kerosene	Emission: (amount consumed × fuel percentage × emission factor) + (amount consumed × (1 - fuel percentage) × density × emission factor)	
Acetylene	Emission: (amount consumed × fuel percentage × emission factor) + (amount consumed × (1 - fuel percentage) × density × emission factor)	
LPG (Liquefied Petroleum Gas)	Emission: (amount consumed × fuel percentage × emission factor) + (amount consumed × (1 - fuel percentage) × density × emission factor)	
Electricity purchase	Emission factor for electricity purchase for CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ , biogenic CO ₂ , and removals.	

Assumptions used

The following tables present the assumptions adopted for performing the GHG emissions calculations.

Stationary Combustion

Activity	Assumption
Use of commercial firewood in boilers	The data was provided in cubic meters (m ³). To convert it into kilograms (kg), the density of commercial firewood (390 kg/m ³) was used and then divided by 1,000 to convert it into tons (the unit used by the tool).

Fugitive Emissions

Activity	Assumption
Use of Agamix gas - cutting and welding	The data was provided in cubic meters (m ³). To convert it into kilograms (kg), the density of Agamix gas—provided in its SDS—was used: 1.691 kg/m ³ at 20 °C. The result was then multiplied by the percentage of CO ₂ contained in Agamix. Argon gas is part of the Agamix composition at a concentration of 80%, but since it is an inert gas, it is not accounted for in emissions.
Gases R11, 141B, R22, and 141b	Emissions related to the consumption of gases R11, 141B, R22, and 141b were accounted for under the “Fugitive - non-Kyoto GHG” tab in the tool, as these are fugitive emissions from gases not covered by the Kyoto Protocol. However, the tool allows for their calculation separately.

Assumptions used

Process Emissions

Activity	Assumption
Ethanol fermentation	The data was provided in cubic meters (m ³) of fermented mash. Therefore, it was multiplied by the ethanol fermentation process emission factor, 0.7546 t/m ³ , provided by RTI International, EPA Greenhouse Gas Emissions Estimation Methodologies for Biogenic Emissions from Selected Source Categories.

Agricultural Activities

Activity	Assumption
Application of synthetic nitrogen fertilizers	Emissions from nitrogen fertilizers were calculated using the amount of fertilizer consumed, multiplied by the nitrogen content in the fertilizer, and then by the emission factor for synthetic fertilizers, 0.02235 kg N ₂ O/kg N, as provided in the technical note of the Brazilian GHG Protocol Program (PBGHG Protocol).
Application of limestone	Emissions from lime application were calculated using the amount of lime consumed, multiplied by the emission factor for lime, 0.4767 kg CO ₂ /kg, as provided in the technical note of the PBGHG Protocol.
Application of filter cake	Emissions from filter cake application were calculated based on the amount of cake used, the number of hectares where the cake was applied, and the nitrogen content present in the filter cake. The calculations were carried out using the GHG Agriculture Spreadsheet, which requires the calculation of both direct and indirect emissions (volatilization and leaching) from filter cake application. The calculations are detailed in the supporting file spreadsheet named "E1 - Agricultural Activities - Usina Coruripe." The emission value considered for the tool corresponds to the "total emission" value in the supporting file spreadsheet "E1 - Agricultural Activities - Usina Coruripe."

Assumptions used

Agricultural Activities

Activity	Assumption
Crop residue decomposition	<p>To calculate emissions from crop residue decomposition, the amount of residue on the soil was multiplied by the area covered with residue—both values provided in the data collection spreadsheet, with units in kg/ha and ha, respectively. This value was then divided by 1,000 to convert it into tons. Next, the result was multiplied by the emission factor for residue decomposition, 0.00002 kg N₂O/kg of production, as established by the GHG Agriculture Spreadsheet.</p>
Vinasse application	<p>To calculate emissions from vinasse application, the amount of vinasse applied to the soil (in m³) was multiplied by the nitrogen content in vinasse (0.433 kg N/m³), and then by the vinasse emission factor (0.0052 kg N₂O/kg N). Both the emission factor and the nitrogen content in vinasse were sourced from the Fourth National Inventory of Anthropogenic Greenhouse Gas Emissions and Removals – Agriculture: managed soils, liming, and urea application subsectors.</p>
Burned crop residue	<p>To calculate emissions from burned crop residue, the amount of residue on the soil per hectare of sugarcane was multiplied by the combustion factor for burned residue (0.8), and then by the emission factor for each greenhouse gas (GHG). The emission factors considered for each GHG were:</p> <p style="padding-left: 40px;">EF CO₂: 40.433 g CO/kg of burned crop residue EF N₂O: 0.07 g N₂O/kg of burned crop residue EF CH₄: 0.933 g CH₄/kg of burned crop residue</p> <p>The emission and combustion factors used were sourced from RR_4CN_3.F_Queima de Resíduos Agrícolas_final_Jan 2021.pdf, page 22.</p>

Assumptions used

Solid Waste

Activity	Assumption
Landfilled waste	To calculate emissions from landfilled waste at the Carneirinho, Iturama, and Limeira do Oeste facilities, a supporting calculation spreadsheet from the PBGHG Protocol tool was used. The calculations were performed in the "Generated solid waste" tab under Scope 3, in the "Landfilled waste" item. The resulting emission values were then entered into the main PBGHG Protocol tool, under the "Solid waste" tab, in the item "Reporting of GHG emissions estimated using other calculation tools."

Wastewater

Activity	Assumption
Domestic wastewater	To calculate emissions from domestic wastewater at the Coruripe and Iturama facilities, a supporting calculation spreadsheet from the PBGHG Protocol tool was used. The calculations were carried out in the "Generated wastewater" tab under Scope 3. The resulting emission values were then entered into the main PBGHG Protocol tool, under the "Wastewater" tab, in the item "Reporting of GHG emissions estimated using other calculation tools." Additionally, for these facilities, since no data was provided on wastewater volume or BOD/COD parameters, emissions were estimated based on the number of employees at each facility. For the Campo Florido, Carneirinho, and Limeira do Oeste facilities, emissions were calculated directly under Scope 1, using data on the volume of wastewater generated and BOD/COD parameters.

Assumptions used

Purchased Electricity (location-based)

Activity	Assumption
Electricity consumption	The annual energy balance for the Campo Florido, Carneirinho, Coruripe, and Iturama facilities was positive, eliminating the need to estimate emissions. For the Limeira do Oeste facility, however, it was necessary to calculate emissions related to electricity procurement. This calculation was carried out directly in the PBGHG Protocol tool, using the location-based approach.

Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)

Activity	Assumption
Fuels and energy procurement	To calculate emissions for Category 3 - Fuel and energy related activities not included in Scopes 1 and 2, the consumption of fuels and electricity in stationary combustion, mobile combustion, and electricity procurement (location-based) was considered and converted into tons of CO ₂ emissions, according to the emission factor defined by Ecoinvent 3.11. Two supporting spreadsheets were used: "Cat 3 E3 - Fuel and energy - compiled Usina Coruripe" and "Cat 3 E3 - electricity - compiled Usina Coruripe". The emissions associated with each GHG were entered into the "Scope 3 Categories" tab of the PBGHG Protocol tool, in the field for "Category 3 - Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)."

Assumptions used

Upstream Transportation and Distribution

Activity

Assumption

Upstream transportation and distribution

To properly calculate emissions related to upstream transportation and distribution, it was necessary to compile the data provided in order to determine the transported load and the distance traveled. For estimating the distances traveled for each transport, the Google Maps tool was used, which provides the distance in kilometers. The average distances were calculated and entered into the PBGHG Protocol tool. To calculate the transported loads, it was necessary to convert the volumes of anhydrous and hydrated ethanol using their respective densities:

Anhydrous ethanol density: 0.791 kg/liter

Hydrated ethanol density: 0.809 kg/liter

Assumptions used

Business Travel

Activity

Assumption

Air travel

The data provided on air travel were in the format of total flight segments, such as: BSB/MCZ//SSA/CGH/CWB. Each segment between airports, indicated by a “/”, was considered as a separate leg of the journey (departure and arrival). When a “//” was present, it was considered that the next segment was not directly connected to the previous airport. Following the example above, the following were considered:

SEGMENT	DEPARTURE	ARRIVAL
Segment 1	BSB	MCZ
Segment 2	SSA	CGH
Segment 3	CGH	CWB

Assumptions used

Downstream Transportation and Distribution

Activity	Assumption
Downstream transportation and distribution	<p>To properly calculate emissions related to downstream transportation and distribution, the provided data were compiled to determine the transported load and the distance traveled. For estimating the distances traveled for each transport, the Google Maps tool was used, which provides the distance in kilometers. The average distances were calculated and entered into the PBGHG Protocol tool. To calculate the transported loads, it was necessary to convert the volumes of anhydrous and hydrated ethanol using their respective densities:</p> <p style="padding-left: 40px;">Anhydrous ethanol density: 0.791 kg/liter Hydrated ethanol density: 0.809 kg/liter</p>

Use of Sold Products

Activity	Assumption
Anhydrous and hydrated ethanol	<p>To calculate emissions from the sale of anhydrous and hydrated ethanol from the Campo Florido, Iturama, and Limeira do Oeste facilities, a supporting calculation spreadsheet from the PBGHG Protocol tool was used. The calculations were carried out in the "Mobile Combustion" tab under Scope 1, item "Table 2." The resulting emission values were then entered into the main PBGHG Protocol tool under the "Scope 3 Categories" tab, in the item "Category 11 - Use of sold goods and services."</p>
Filter cake	<p>To calculate emissions from filter cake sold by the Campo Florido facility, a supporting calculation spreadsheet from the PBGHG Protocol tool was used. The calculations were carried out in the "Agricultural Activities" tab under Scope 1, item "Table 1." The resulting emission values were then entered into the main PBGHG Protocol tool under the "Scope 3 Categories" tab, in the item "Category 11 - Use of sold goods and services."</p>

Results

Next, the results of the GHG emissions calculations for Usina Coruripe for 2024 will be presented.

The results are displayed in various formats to facilitate the visualization of categories and emission sources, supporting the understanding of each category's impact and how the company's emissions profile is distributed across the inventory scopes.

*Minor rounding differences may occur, as the calculations use more decimal places than those shown in the report to ensure greater accuracy.

Total emissions by scope

Reporting year 2024

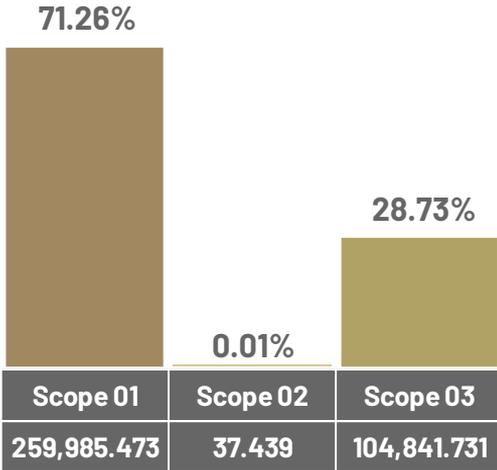
Next to it is a representation of emissions by scope.

The distribution shows 71.26% from Scope 01, 0.01% from Scope 02, and 28.73% from Scope 03.

This analysis is critical for understanding the allocation of emissions and for developing effective reduction strategies.

In 2024, Usina Coruripe emitted most of its greenhouse gases from sources classified under Scope 01, those under the company's direct control.

Emissions by scope (tCO₂e)



Scope 01	Scope 02	Scope 03
259,985.473	37.439	104,841.731

Total emissions by emission category

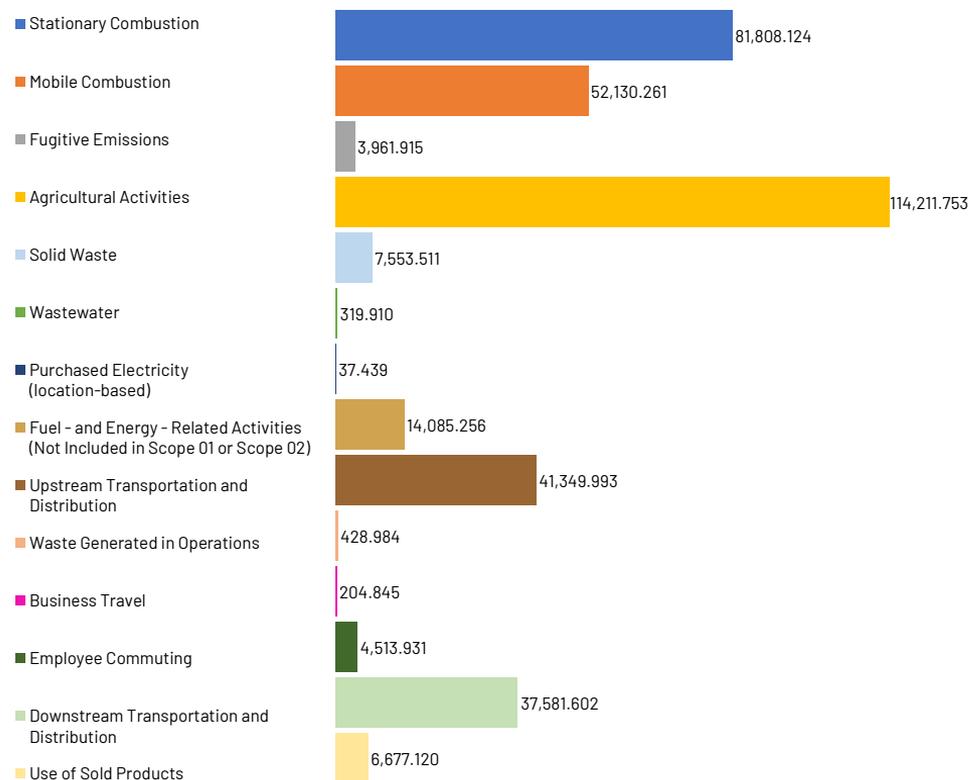
Reporting year 2024

The table beside specifies the total emissions for each scope and their respective categories, as well as the emissions of each type of gas. Accordingly, within Scope 1, the category with the highest GHG emissions for Usina Coruripe in 2024 was agricultural activities, representing 31.30% of total emissions. Within Scope 3, the most representative category was upstream transportation and distribution, accounting for 11.33% of total emissions.

Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Stationary Combustion	4,081.575	1,227.211	163.640	-	81,808.124	4,094,816.752	22.42
Mobile Combustion	51,265.438	4.393	2.799	-	52,130.261	9,591.892	14.29
Fugitive Emissions	4.190	-	-	2.847	3,961.915	-	1.09
Process Emissions	-	-	-	-	-	3,987,554.531	-
Agricultural Activities	39,980.653	106.826	268.830	-	114,211.753	4,920.239	31.30
Land Use Change	-	-	-	-	-	47,432.203	-
Solid Waste	-	175.414	9.970	-	7,553.511	2.610	2.07
Wastewater	-	11.012	0.044	-	319.910	-	0.09
Total Scope 01	95,331.856	1,524.856	445.283	2.847	259,985.473	8,144,318.227	71.26
Scope 02							
Purchased Electricity (location-based)	37.439	-	-	-	37.439	-	0.01
Scope 03							
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	9,212.535	146.651	2.892	-	14,085.256	4,465.596	3.86
Upstream Transportation and Distribution	40,736.953	2.960	2.001	-	41,349.993	5,330.010	11.33
Waste Generated in Operations	340.698	2.211	0.100	-	428.984	62.005	0.12
Business Travel	203.058	0.003	0.006	-	204.845	-	0.06
Employee Commuting	4,442.541	0.365	0.231	-	4,513.931	660.960	1.24
Downstream Transportation and Distribution	36,972.346	2.713	2.012	-	37,581.602	5,466.028	10.30
Use of Sold Products	-	181.279	6.043	-	6,677.120	687,644.396	1.83
Total Scope 03	91,908.131	336.182	13.285	-	104,841.731	703,628.996	28.73
Total Emissions	187,277.427	1,861.038	458.568	2.847	364,864.643	8,847,947.223	100.00

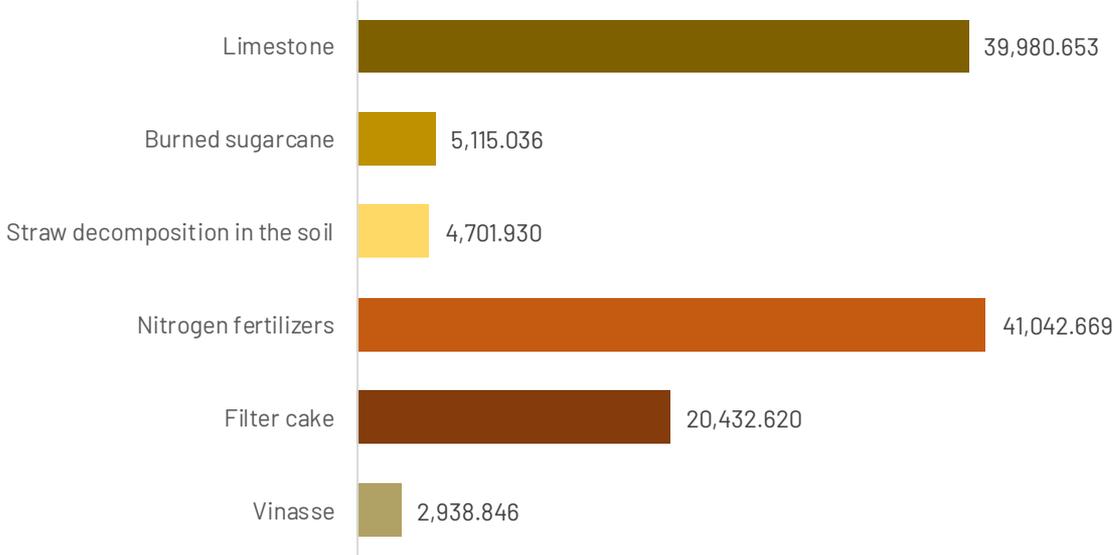
Emissions by emission category (tCO₂e)

The presented chart shows the emissions of each identified emission category during the reporting year, where the agricultural activities category (Scope 1) stands out as the most significant among all inventoried categories, with emissions of 114,211.753 tCO₂e, followed by the stationary combustion category (Scope 1) and the mobile combustion category (Scope 1), with emissions of 81,808.124 tCO₂e and 52,130.261 tCO₂e, respectively.



Emissions from agricultural activities (tCO₂e)

Taking a closer look at the agricultural activities category (identified as the highest emitter for the inventory year) the largest source was the use of nitrogen fertilizers, responsible for 41,042.669 tCO₂e in 2024, followed by the use of limestone, which emitted 39,980.653 tCO₂e in the same year.



Total emissions by emission source

Reporting year 2024

Analyzing emissions by source enables the company to assess the individual impact of each one and, in turn, develop targeted mitigation strategies.

The following tables present emissions by source, followed by a discussion of the most significant ones.

Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Stationary Combustion	4,081.575	1,227.211	163.640	-	81,808.124	4,094,816.752	22.42
Cutting and welding - acetylene	52.759	-	-	-	52.759	-	0.01
Boilers - sugarcane bagasse	-	1,226.884	163.585	-	77,702.684	4,093,704.583	21.30
Boilers - firewood / wood	-	0.143	0.019	-	9.079	534.382	0.002
Dining hall - LPG	138.214	0.002	0.0002	-	138.333	-	0.04
Stationary equipment - various engines - diesel	3,867.436	0.180	0.036	-	3,882.000	571.520	1.06
Stationary equipment - ethanol	-	0.00001	0.000002	-	0.001	0.212	0.0000002
Stationary equipment - gasoline	9.400	0.001	0.0001	-	9.441	2.456	0.003
Gardening - gasoline	13.767	0.001	0.0001	-	13.827	3.598	0.004
Mobile Combustion	51,265.438	4.393	2.799	-	52,130.261	9,591.892	14.29
Light vehicles	54.877	0.526	0.020	-	75.041	1,987.199	0.02
Buses	33.352	0.002	0.002	-	33.902	5.003	0.01
Trucks	20,234.996	1.490	1.102	-	20,568.658	3,027.575	5.64
Tractors	12,737.980	0.935	0.693	-	12,947.898	1,885.225	3.55
Forklifts	123.764	0.116	0.001	-	127.204	0.941	0.03
Heavy machinery	17,963.405	1.322	0.978	-	18,259.599	2,685.948	5.00
Airplane	117.065	0.001	0.003	-	117.959	-	0.03
Fugitive Emissions	4.190	-	-	2.847	3,961.915	-	1.09
Agamix	2.080	-	-	-	2.080	-	0.0006
CO ₂ extinguishers	2.110	-	-	-	2.110	-	0.001
Air conditioning	-	-	-	2.847	3,957.723	-	1.08
Process Emissions	-	-	-	-	-	3,987,554.531	-
Wort fermentation	-	-	-	-	-	3,987,554.531	-
Agricultural Activities	39,980.653	106.826	268.830	-	114,211.753	4,920.239	31.30
Nitrogen fertilizers	-	-	154.878	-	41,042.669	-	11.25
Vinasse	-	-	11.090	-	2,938.846	-	0.81
Filter cake	-	-	77.104	-	20,432.620	-	5.60
Straw decomposition in soil	-	-	17.743	-	4,701.930	-	1.29

*The table continues on the next page.

Total emissions by emission source

Reporting year 2024

Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Burnt sugarcane	-	106.826	8.015	-	5,115.036	4,920.239	1.40
Limestone	39,980.653	-	-	-	39,980.653	-	10.96
Land Use Change	-	-	-	-	-	47,432.203	-
Pasture converted to sugarcane cultivation	-	-	-	-	-	47,432.203	-
Solid Waste	-	175.414	9.970	-	7,553.511	2.610	2.07
Landfills	-	9.256	-	-	259.157	2.610	0.07
Composting	-	166.158	9.970	-	7,294.354	-	2.00
Wastewater	-	11.012	0.044	-	319.910	-	0.09
Domestic wastewater	-	11.012	0.044	-	319.910	-	0.09
Total Scope 01	95,331.856	1,524.856	445.283	2.847	259,985.473	8,144,318.227	71.26
Scope 02	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Purchased Electricity (location-based)	37.439	-	-	-	37.439	-	0.01
Total Scope 02	37.439	-	-	-	37.439	-	0.01
Scope 03	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	9,212.535	146.651	2.892	-	14,085.256	4,465.596	3.86
Acetylene	80.369	0.187	-	-	85.598	-	0.02
Purchased electricity (location-based)	17.150	0.957	0.020	-	49.220	16.308	0.01
Diesel	9,049.115	144.506	2.711	-	13,813.574	4,448.887	3.79
LPG	43.052	0.663	-	-	61.625	-	0.02
Gasoline	7.348	0.099	0.003	-	10.803	0.272	0.003
Firewood/wood	4.462	0.012	0.159	-	47.054	0.129	0.01
Kerosene	11.040	0.227	-	-	17.382	-	0.005
Upstream Transportation and Distribution	40,736.953	2.960	2.001	-	41,349.993	5,330.010	11.33
Road transport	36,051.961	2.644	1.963	-	36,646.089	5,330.010	10.04
Rail transport	4,684.991	0.316	0.038	-	4,703.904	-	1.29

*The table continues on the next page.

Total emissions by emission source

Reporting year 2024

Scope 03	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Biogenic CO ₂ emissions (t)	Representativeness (%)
Waste Generated in Operations	340.698	2.211	0.100	-	428.984	62.005	0.12
Landfills	-	2.211	-	-	61.912	1.115	0.02
Incineration	340.698	-	0.100	-	367.072	60.890	0.10
Business Travel	203.058	0.003	0.006	-	204.845	-	0.06
Air travel	203.058	0.003	0.006	-	204.845	-	0.06
Employee Commuting	4,442.541	0.365	0.231	-	4,513.931	660.960	1.24
Chartered transport	4,403.679	0.349	0.226	-	4,473.405	651.044	1.23
Private vehicles	38.862	0.016	0.005	-	40.527	9.916	0.01
Downstream Transportation and Distribution	36,972.346	2.713	2.012	-	37,581.602	5,466.028	10.30
Road transport	36,972.346	2.713	2.012	-	37,581.602	5,466.028	10.30
Use of Sold Products	-	181.279	6.043	-	6,677.120	687,644.396	1.83
Anhydrous and hydrous ethanol	-	181.279	6.043	-	6,677.120	687,644.396	1.83
Total Scope 03	91,908.131	336.182	13.285	-	104,841.731	703,628.996	28.73
Total Emissions	187,277.427	1,861.038	458.568	2.847	364,864.643	8,847,947.223	100.00

Total emissions by emission source

Reporting year 2024

The most significant emission source for Usina Coruripe falls under Scope 1 and corresponds to the combustion of sugarcane bagasse in boilers, resulting in 77,702.684 tCO₂e for the year 2024, which accounts for 21.30% of total emissions. As a sugar and ethanol production facility, sugarcane bagasse is the primary fuel used, as it is a by-product of sugar and ethanol production. Due to its calorific value, it is utilized to generate energy for internal consumption within the facility.

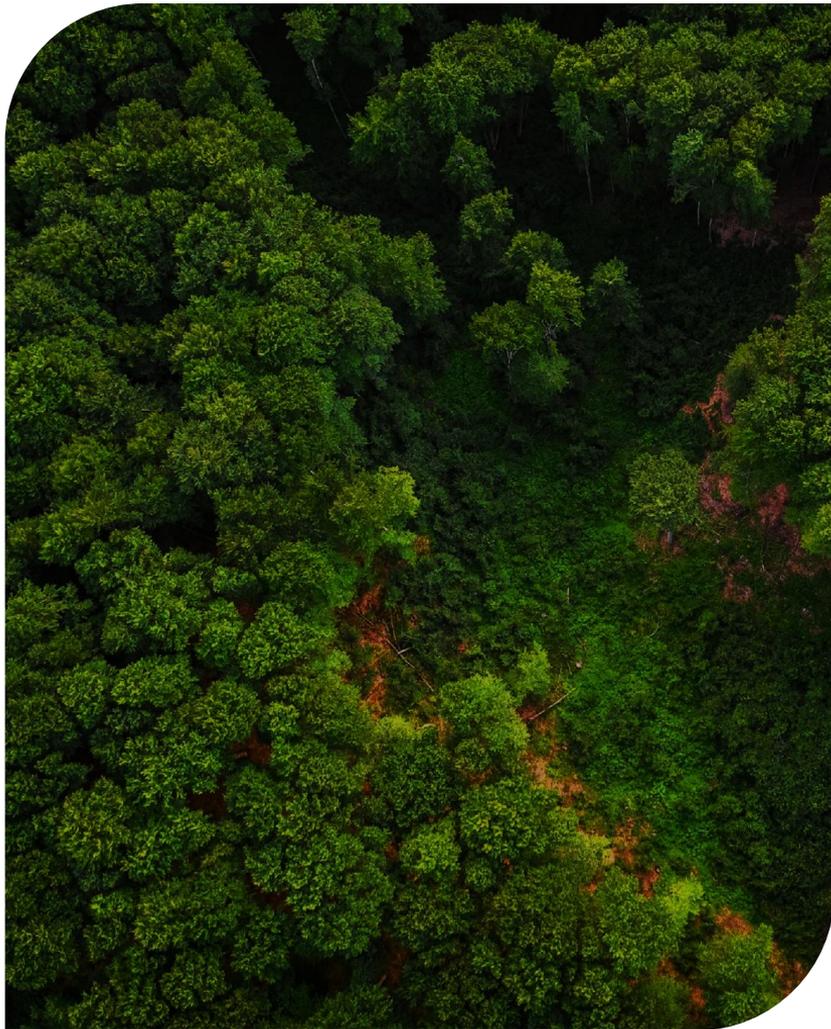
The second most significant emission source for Usina Coruripe is also categorized under Scope 1, associated with the use and application of nitrogen-based fertilizers to soil, accounting for 11.25% of total emissions, with 41,042.669 tCO₂e emitted. Following this, the next major emission source was the use and application of lime (limestone) to soil, which represented 10.96% of total emissions, amounting to 39,980.653 tCO₂e.

It is also worth highlighting that road transport and distribution emissions (both upstream and downstream) were significant. Emissions from downstream road transport and distribution totaled 37,581.602 tCO₂e, representing 10.30% of total emissions, while upstream road transport and distribution accounted for 36,646.089 tCO₂e, or 10.04% of total emissions.

Emissions by Gas Type

Another important aspect of this study was identifying the types of greenhouse gases emitted by the company. CO₂ (carbon dioxide), CH₄ (methane), N₂O (nitrous oxide), and HFCs (hydrofluorocarbons) were identified. These gases were then converted to CO₂e (carbon dioxide equivalent) based on their global warming potentials. The table presents each gas's contribution, as well as the corresponding tCO₂e values for 2024.

Gas	tGHG	tCO ₂ e
CO ₂	187,277.427	187,277.427
CH ₄	1,861.038	52,109.068
N ₂ O	458.568	121,520.423
HFCs	2.847	3,957.725
TOTAL		364,864.643



Biogenic CO₂

Biogenic CO₂ refers to carbon dioxide from sources related to the natural carbon cycle. Its emissions occur during the combustion of biofuels, such as biodiesel blended with diesel or ethanol in gasoline, or during processes involving digestion, fermentation, decomposition, or processing of bio-based materials.

CO₂ emissions resulting from any land-use change that reduces carbon stocks and is not related to native vegetation must also be reported as biogenic CO₂ emissions. CH₄ and N₂O emissions from biomass combustion are considered because these gases were not previously removed from the atmosphere by plants, unlike CO₂.

Biogenic CO₂

The GHG Protocol and the IPCC recommend reporting biogenic CO₂ emissions but not including them in total emissions. However, any increase in CO₂, regardless of source, contributes to climate change. Therefore, it is essential to implement strategies to reduce and mitigate all CO₂ emissions. Notably, to define a science-based target and report progress under the SBTi initiative, biogenic emissions must be included.

For Usina Coruripe, the categories responsible for biogenic CO₂ emissions and their contributions are presented in the adjacent table.

Emission Category	tCO ₂ biogenic
Stationary Combustion	4,094,816.752
Mobile Combustion	9,591.892
Process Emissions	3,987,554.531
Agricultural Activities	4,920.239
Land Use Change	47,432.203
Solid Waste	2.610
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	4,465.596
Upstream Transportation and Distribution	5,330.010
Waste Generated in Operations	62.005
Employee Commuting	660.960
Downstream Transportation and Distribution	5,466.028
Use of Sold Products	687,644.396
Total	8,847,947.223

Biogenic CO₂ Removals

Biogenic CO₂ can also be removed from the atmosphere through capture. One of the main removal mechanisms is photosynthesis, in which plants absorb CO₂ from the atmosphere and, using water and sunlight, produce glucose and oxygen, incorporating carbon into their biomass.

This process occurs through agricultural activities, such as CO₂ uptake by planted species or via land-use conversions that increase the company's carbon stock.

These carbon stocks vary over time when land use changes occur, meaning that all stored carbon can eventually be released back into the atmosphere, creating new CO₂ emission and removal flows.

In 2024, for Usina Coruripe, biogenic CO₂ removals were accounted for under Scope 3, Category 3 – Fuel- and energy-related activities not included in Scope 1 or Scope 2, that is, removals related to the supply chain of fuels purchased and consumed during the reporting year. Accordingly, the total biogenic CO₂ removal for Usina Coruripe in 2024 was 38.502 tCO₂ biogenic.

Non-Kyoto Gases

In addition to the previously mentioned gases, recharges of HCFC-22 (R22) and R-141b were identified at Usina Coruripe's facilities. These substances are not included in the inventory because they fall under the Montreal Protocol rather than the Kyoto Protocol. The Montreal Protocol aims to eliminate the production and consumption of ozone-depleting substances (ODS), with each signatory country having specific targets for phasing out each type of ODS.

In Brazil, some of these substances are already banned, such as chlorofluorocarbons (CFCs), while others, like hydrochlorofluorocarbons (HCFCs), are restricted and scheduled for total phase-out by 2040.

Thus, R22 and R-141b are both greenhouse gases that contribute to climate change and ODS that damage the ozone layer. It is recommended to replace them as soon as possible, as they cause environmental harm and will soon be removed from the market.

The table presents the R-22 and R-141b recharges performed at Usina Coruripe facilities in 2024, along with their tCO₂e conversions.

Facility	tR-22	tR-141b	tCO ₂ e
Campo Florido	0.002	0.002	5.084
Carneirinho	0.015	0.003	28.236
Iturama	0.130	0.015	240.750
Limeira do Oeste	0.015	0.002	27.841
Un. Coruripe	0.476	-	837.971
Total	0.638	0.022	1,139.882

Indicators

To monitor the evolution of the company's greenhouse gas (GHG) emissions, emission indicators per ton of sugarcane processed were developed.

These indicators are relevant for management activities, enabling monitoring and evaluation within the organization. They allow the company to track goal achievement, identify progress, drive quality improvements, correct problems, benchmark against market competitors, recognize the need for changes, ensure data reliability, and respond to potential environmental agency requirements. The table next to it presents the data for these indicators.

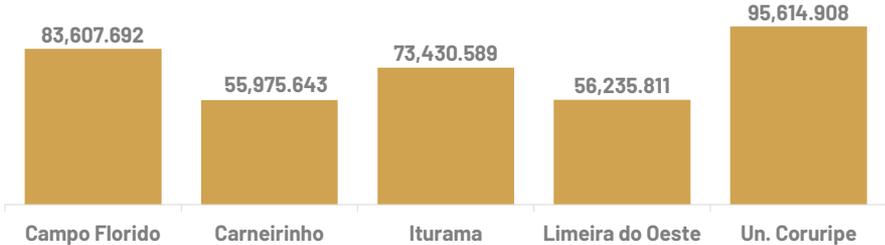
Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	260,022.912
tCO ₂ e (Scopes 01, 02 and 03)	364,864.643
Emission indicator per sugarcane processed	
Tons of sugarcane processed	15,966,568
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.016
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.023



Emissions per Facility (tCO₂e)

In addition to analyzing Usina Coruripe’s overall GHG emissions, it is important to examine the emissions of each individual facility. This allows for comparison and the development of tailored targets and action plans based on the specific profile of each site. The bar chart below illustrates the total emissions for each facility of Usina Coruripe.

The Coruripe facility was the highest emitter of tCO₂e in 2024, with total emissions of 95,614.908 tCO₂e, followed by the Campo Florido facility, which emitted 83,607.692 tCO₂e during the reporting year.



Emissions per Facility

On the right is the quantification of the types of greenhouse gases emitted by the company per facility, including CO₂ (carbon dioxide), CH₄ (methane), N₂O (nitrous oxide), and HFCs (hydrofluorocarbons).

The table next to it presents the contribution of each gas and their tCO₂e conversions for 2024 for each operational facility of Usina Coruripe.

Facility	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)
Campo Florido	56,059.472	447.400	56.244	0.078	83,607.692
Carneirinho	32,532.099	187.527	66.144	0.504	55,975.643
Iturama	35,590.703	408.024	94.982	0.943	73,430.589
Limeira do Oeste	31,268.667	254.772	65.328	0.395	56,235.811
Un. Coruripe	31,826.485	563.316	175.869	0.927	95,614.908

More information for each facility/activity is presented next.

Total Emissions by Emission Category

Campo Florido Facility

The following tables and charts detail total emissions per scope and their respective categories identified in 2024, along with the emissions of each type of gas for each Usina Coruripe facility.

Accordingly, within Scope 1, the category with the highest GHG emissions for the Campo Florido facility in 2024 was stationary combustion, with the main emission source being the combustion of sugarcane bagasse in boilers. In Scope 3, the category with the highest emissions was upstream transportation and distribution, with road transport identified as the main emission source.

*The annual energy balance for the Campo Florido facility was positive, eliminating the need to estimate emissions.

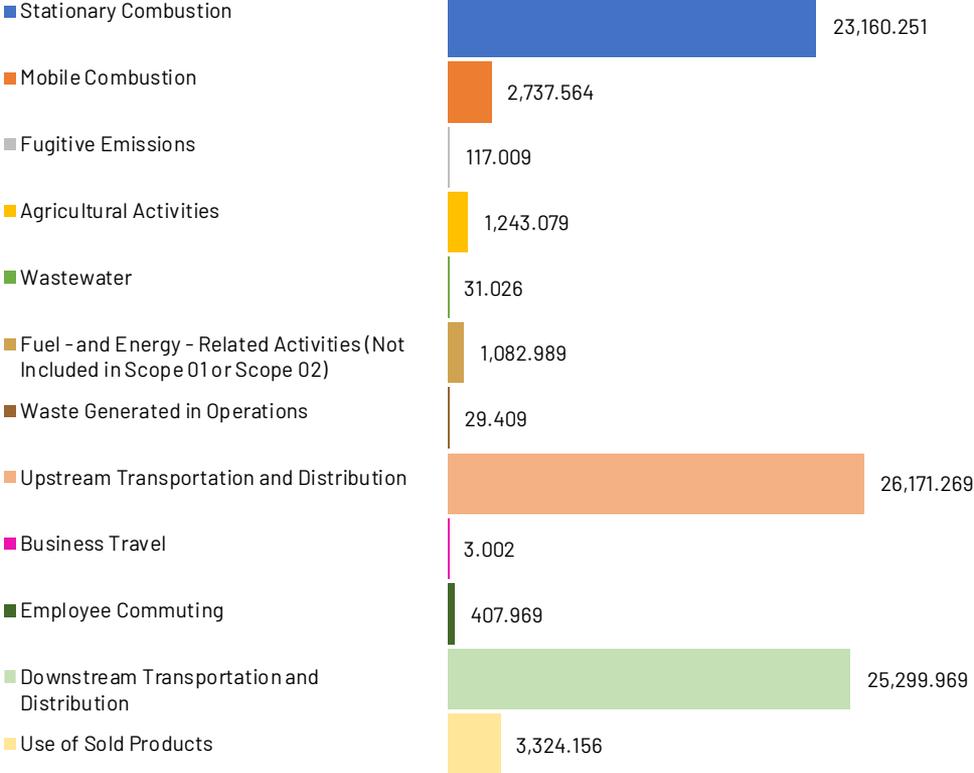
Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O(t)	HFC(t)	Total emissions (tCO ₂ e)	Representativeness (%)
Stationary Combustion	1,577.149	340.766	45.440	-	23,160.251	27.70
Mobile Combustion	2,690.801	0.318	0.143	-	2,737.564	3.27
Fugitive Emissions	0.748	-	-	0.078	117.009	0.14
Agricultural Activities	-	-	4.691	-	1,243.079	1.49
Wastewater	-	1.108	-	-	31.026	0.04
Total Scope 01	4,268.698	342.191	50.274	0.078	27,288.930	32.64
Scope 02						
Purchased Electricity (location-based)*	-	-	-	-	-	-
Scope 03						
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	711.169	11.212	0.218	-	1,082.989	1.30
Upstream Transportation and Distribution	25,760.011	1.884	1.353	-	26,171.269	31.30
Waste Generated in Operations	24.691	-	0.018	-	29.409	0.04
Business Travel	2.976	0.00002	0.0001	-	3.002	0.004
Employee Commuting	402.110	0.037	0.018	-	407.969	0.49
Downstream Transportation and Distribution	24,889.818	1.827	1.355	-	25,299.969	30.26
Use of Sold Products	-	90.249	3.008	-	3,324.156	3.98
Total Scope 03	51,790.774	105.208	5.970	-	56,318.762	67.36
Total Emissions	56,059.472	447.400	56.244	0.078	83,607.692	100.00

Total Emissions by Emission Category (tCO₂e)

Campo Florido Facility

The adjacent chart displays all emission categories (tCO₂e) identified for the Campo Florido facility during the 2024 reporting year.

Analyzing the categories, the highest-emitting one was upstream transportation and distribution, with total emissions of 26,171.269 tCO₂e in 2024. The second highest was downstream transportation and distribution, which emitted 25,299.969 tCO₂e, followed by the stationary combustion category, with 23,160.251 tCO₂e emitted during the reporting year.



Total Emissions by Emission Category

Carneirinho Facility

For the year 2024, the Carneirinho facility had agricultural activities as the highest-emitting category under Scope 1. The most significant emission source within this category was the application of lime (limestone).

Under Scope 3, the category with the highest tCO₂e emissions was upstream transportation and distribution.

*The annual energy balance for the Carneirinho facility was positive, eliminating the need to estimate emissions.

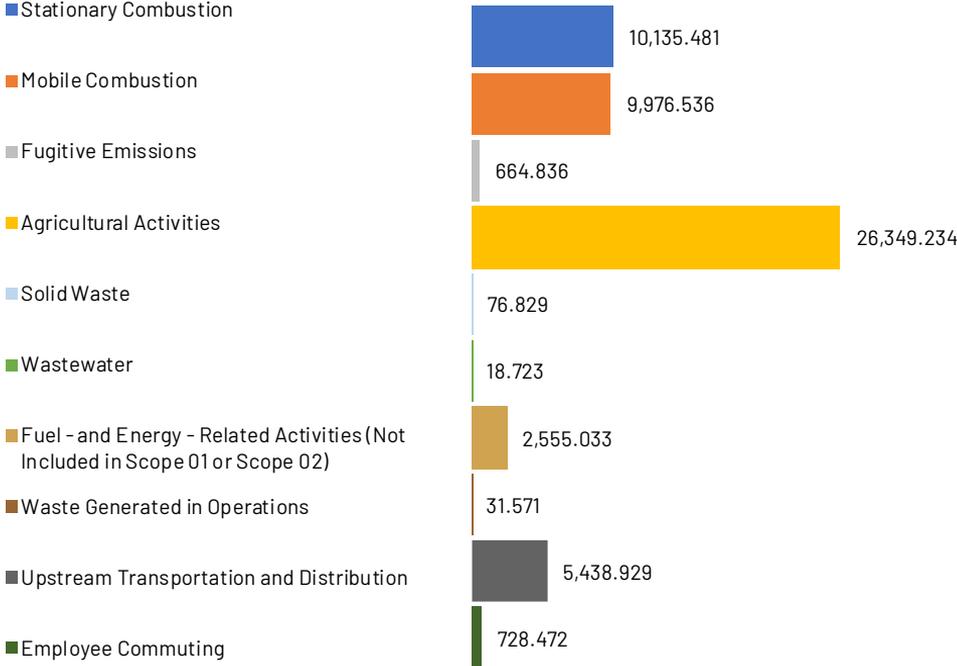
Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Representativeness (%)
Stationary Combustion	230.611	156.390	20.853	-	10,135.481	18.11
Mobile Combustion	9,812.410	0.785	0.536	-	9,976.536	17.82
Fugitive Emissions	0.330	-	-	0.504	664.836	1.19
Agricultural Activities	14,700.989	-	43.956	-	26,349.234	47.07
Solid Waste	-	2.744	-	-	76.829	0.14
Wastewater	-	0.669	-	-	18.723	0.03
Total Scope 01	24,744.340	160.588	65.345	0.504	47,221.638	84.36
Scope 02						
Purchased Electricity (location-based)*	-	-	-	-	-	-
Scope 03						
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	1,668.388	26.492	0.547	-	2,555.033	4.56
Upstream Transportation and Distribution	5,375.334	0.383	0.200	-	5,438.929	9.72
Waste Generated in Operations	26.025	-	0.021	-	31.571	0.06
Employee Commuting	718.011	0.065	0.033	-	728.472	1.30
Total Scope 03	7,787.759	26.939	0.800	-	8,754.005	15.64
Total Emissions	32,532.099	187.527	66.144	0.504	55,975.643	100.00

Total Emissions by Emission Category (tCO₂e)

Carneirinho Facility

The adjacent chart displays all emission categories (tCO₂e) identified for the Carneirinho facility in the year 2024.

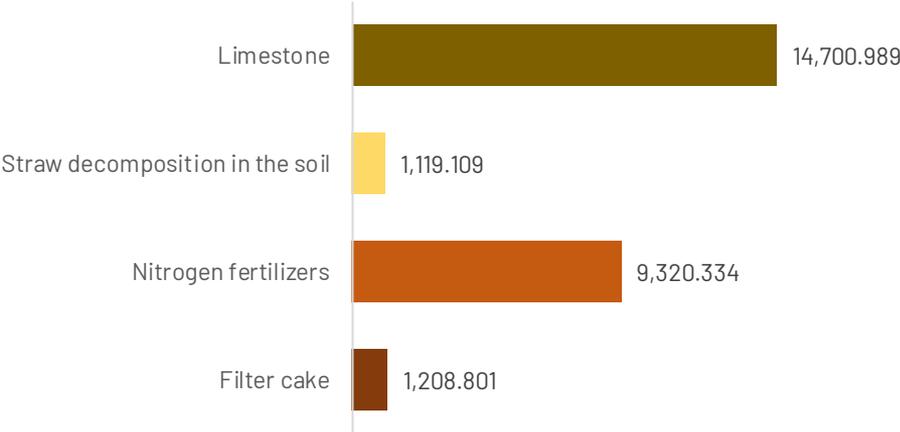
Analyzing the categories, the highest-emitting one was agricultural activities, with emissions totaling 26,349.234 tCO₂e in 2024. The second highest category was stationary combustion, which emitted 10,135.481 tCO₂e, followed by the mobile combustion category, with 9,976.536 tCO₂e emitted during the reporting year.



Emissions from Agricultural Activities (tCO₂e)

Carneirinho Facility

Taking a closer look at the agricultural activities category, the main emission source for the Carneirinho facility was the use of limestone, which emitted 14,700.989 tCO₂e in 2024. The second-largest source in this category was nitrogen fertilizers, responsible for 9,320.334 tCO₂e.



Total Emissions by Emission Category

Iturama Facility

For the Iturama facility, within Scope 1, the agricultural activities category was the highest emitter in 2024, with the most significant emission source being the use of nitrogen-based fertilizers.

Looking at Scope 3, the category with the highest tCO₂e emissions was downstream transportation and distribution.

*The annual energy balance for the Iturama facility was positive, eliminating the need to estimate emissions.

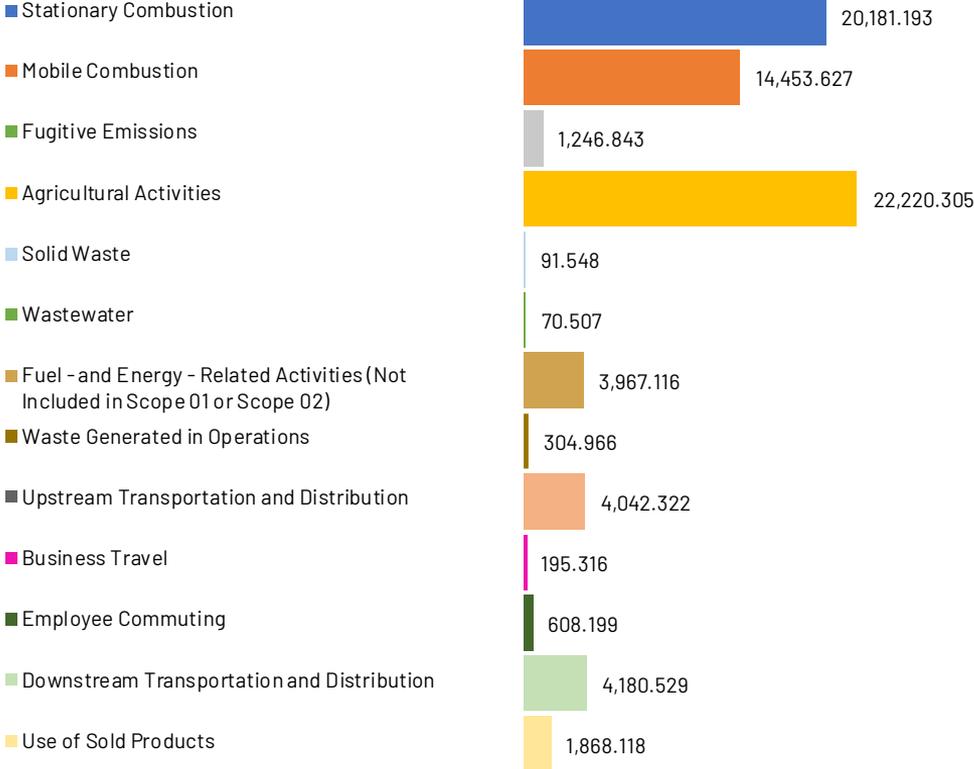
Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O(t)	HFC(t)	Total emissions (tCO ₂ e)	Representativeness (%)
Stationary Combustion	1,447.229	295.781	39.442	-	20,181.193	27.48
Mobile Combustion	14,211.447	1.281	0.779	-	14,453.627	19.68
Fugitive Emissions	1.873	-	-	0.943	1,246.843	1.70
Agricultural Activities	8,190.345	11.742	51.703	-	22,220.305	30.26
Solid Waste	-	3.270	-	-	91.548	0.12
Wastewater	-	2.390	0.014	-	70.507	0.10
Total Scope 01	23,850.894	314.464	91.936	0.943	58,264.023	79.35
Scope 02						
Purchased Electricity (location-based)*	-	-	-	-	-	-
Scope 03						
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	2,592.960	41.203	0.832	-	3,967.116	5.40
Upstream Transportation and Distribution	3,976.790	0.292	0.216	-	4,042.322	5.50
Waste Generated in Operations	265.352	0.998	0.044	-	304.966	0.42
Business Travel	193.611	0.003	0.006	-	195.316	0.27
Employee Commuting	598.339	0.044	0.033	-	608.199	0.83
Downstream Transportation and Distribution	4,112.757	0.302	0.224	-	4,180.529	5.69
Use of Sold Products	-	50.718	1.691	-	1,868.118	2.54
Total Scope 03	11,739.809	93.560	3.046	-	15,166.566	20.65
Total Emissions	35,590.703	408.024	94.982	0.943	73,430.589	100.00

Total Emissions by Emission Category (tCO₂e)

Iturama Facility

The adjacent chart displays all emission categories (tCO₂e) identified for the Iturama facility in the 2024 reporting year.

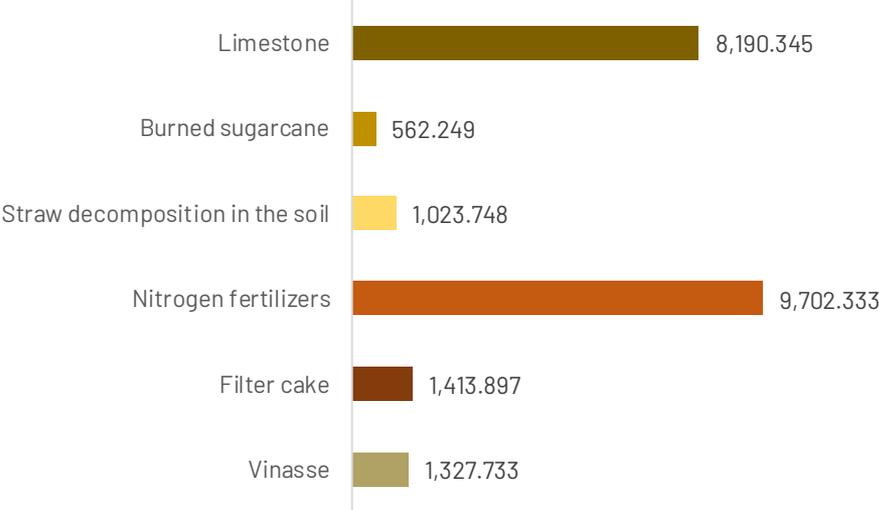
Analyzing the categories, the highest-emitting one was agricultural activities, which emitted 22,220.305 tCO₂e in 2024. The second highest category was stationary combustion, with 20,181.193 tCO₂e emitted, followed by the mobile combustion category, which emitted 14,453.627 tCO₂e during the reporting year.



Emissões de atividades de agricultura (tCO₂e)

Iturama Facility

Looking more closely at the agricultural activities category, the main emission source for the Iturama facility was the use of nitrogen fertilizers, which emitted 9,702.333 tCO₂e in 2024. The second-largest source was the use of limestone, with 8,190.345 tCO₂e in the reporting year.



Total Emissions by Emission Category

Limeira do Oeste Facility

For the Limeira do Oeste facility, in the 2024 reporting year, the agricultural activities category was the highest emitter under Scope 1, with the most significant emission source being the application of lime (limestone).

Looking at Scope 3, the category with the highest tCO₂e emissions was upstream transportation and distribution.

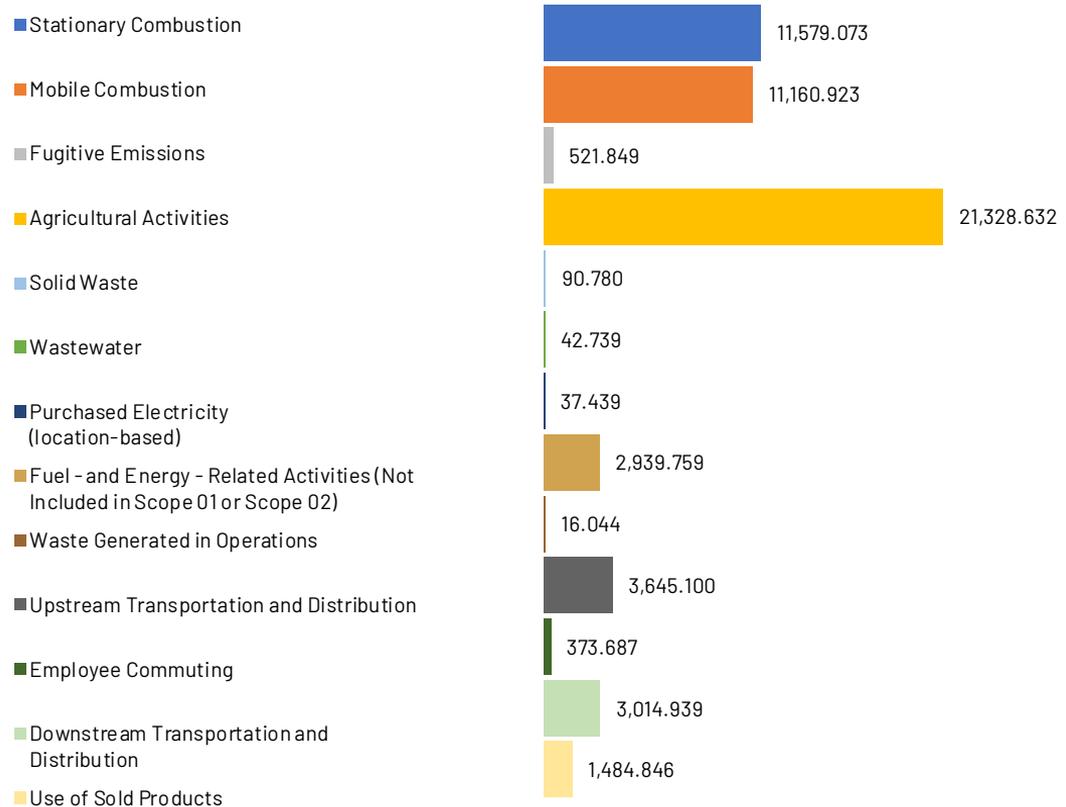
Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O(t)	HFC(t)	Total emissions (tCO ₂ e)	Representativeness (%)
Stationary Combustion	428.591	176.055	23.475	-	11,579.073	20.59
Mobile Combustion	10,977.473	0.874	0.600	-	11,160.923	19.85
Fugitive Emissions	0.130	-	-	0.395	521.849	0.93
Agricultural Activities	10,964.472	1.222	38.981	-	21,328.632	37.93
Solid Waste	-	3.242	-	-	90.780	0.16
Wastewater	-	1.526	-	-	42.739	0.08
Total Scope 01	22,370.667	182.919	63.056	0.395	44,723.997	79.53
Scope 02						
Purchased Electricity (Location-based)	37.439	-	-	-	37.439	0.07
Scope 03						
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	1,908.256	31.033	0.613	-	2,939.759	5.23
Upstream Transportation and Distribution	3,605.755	0.255	0.122	-	3,645.100	6.48
Waste Generated in Operations	12.169	-	0.015	-	16.044	0.03
Employee Commuting	368.320	0.033	0.017	-	373.687	0.66
Downstream Transportation and Distribution	2,966.062	0.218	0.161	-	3,014.939	5.36
Use of Sold Products	-	40.313	1.344	-	1,484.846	2.64
Total Scope 03	8,860.561	71.852	2.272	-	11,474.375	20.40
Total Emissions	31,268.667	254.772	65.328	0.395	56,235.811	100.00

Total Emissions by Emission Category (tCO₂e)

Limeira do Oeste Facility

The adjacent chart displays all emission categories (tCO₂e) identified for the Limeira do Oeste facility in the 2024 reporting year.

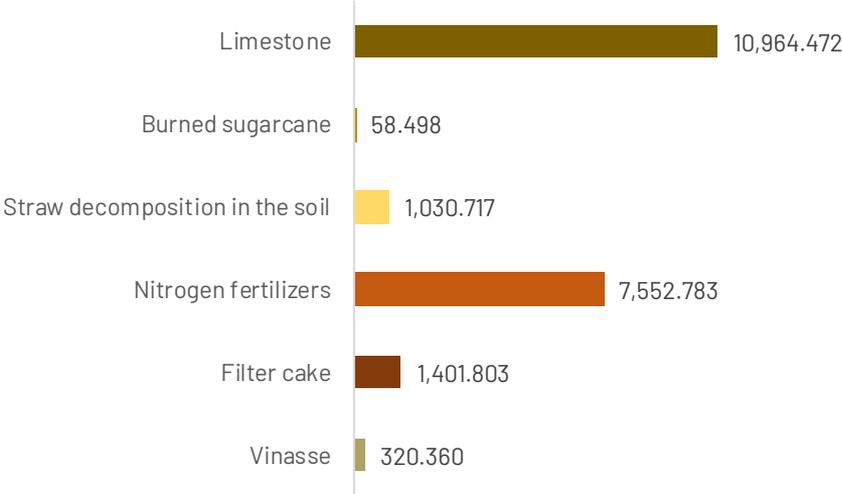
Analyzing the categories, the highest-emitting one was agricultural activities, which emitted 21,328.632 tCO₂e in 2024. The second highest category was stationary combustion, with 11,579.073 tCO₂e emitted, followed by the mobile combustion category, which emitted 11,160.923 tCO₂e during the reporting year.



Emissions from Agricultural Activities (tCO₂e)

Limeira do Oeste Facility

A closer examination of the agricultural activities category reveals that limestone use was the main emission source, accounting for 10,964.472 tCO₂e in 2024. The second-largest source was nitrogen fertilizers, which contributed 7,552.783 tCO₂e during the reporting year.



Total Emissions by Emission Category

Coruripe Facility

For the Coruripe facility, in the 2024 reporting year, the agricultural activities category was the highest emitter under Scope 1, with the most significant emission source being the application of filter cake.

Looking at Scope 3, the category with the highest tCO₂e emissions was downstream transportation and distribution.

*The annual energy balance for the Coruripe facility was positive, eliminating the need to estimate emissions.

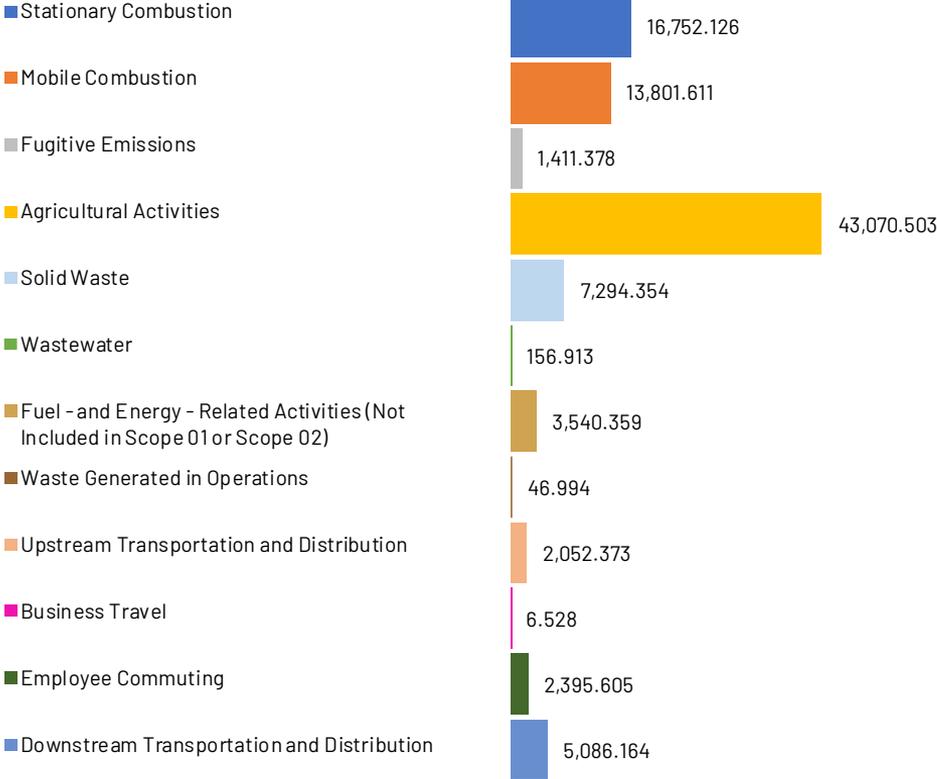
Scope 01	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	HFC (t)	Total emissions (tCO ₂ e)	Representativeness (%)
Stationary Combustion	397.995	258.220	34.430	-	16,752.126	17.52
Mobile Combustion	13,573.308	1.135	0.742	-	13,801.611	14.43
Fugitive Emissions	1.108	-	-	0.927	1,411.378	1.48
Agricultural Activities	6,124.847	93.862	129.500	-	43,070.503	45.05
Solid Waste	-	166.158	9.970	-	7,294.354	7.63
Wastewater	-	5.319	0.030	-	156.913	0.16
Total Scope 01	20,097.257	524.693	174.671	0.927	82,486.885	86.27
Scope 02						
Purchased Electricity (location-based)*	-	-	-	-	-	-
Scope 03						
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	2,331.763	36.710	0.682	-	3,540.359	3.70
Upstream Transportation and Distribution	2,019.063	0.146	0.110	-	2,052.373	2.15
Waste Generated in Operations	12.461	1.213	0.002	-	46.994	0.05
Business Travel	6.471	0.0001	0.0002	-	6.528	0.01
Employee Commuting	2,355.761	0.186	0.131	-	2,395.605	2.51
Downstream Transportation and Distribution	5,003.709	0.367	0.272	-	5,086.164	5.32
Total Scope 03	11,729.229	38.623	1.198	-	13,128.022	13.73
Total Emissions	31,826.485	563.316	175.869	0.927	95,614.908	100.00

Total Emissions by Emission Category (tCO₂e)

Coruripe Facility

The adjacent chart displays all emission categories (tCO₂e) identified for the Coruripe facility in the 2024 reporting year.

Analyzing the categories, the highest-emitting one was agricultural activities, which emitted 43,070.503 tCO₂e in 2024. The second highest category was stationary combustion, with 16,752.126 tCO₂e emitted, followed by the mobile combustion category, which emitted 13,801.611 tCO₂e during the reporting year.



Emissões de atividades de agricultura (tCO₂e)

Coruripe Facility

A closer look at the Agricultural Activities category shows that the application of filter cake was the main emission source, accounting for 16,408.119 tCO₂e in 2024. The second-largest source was nitrogen fertilizers, contributing 14,467.220 tCO₂e during the reporting year.



Facilities Indicators

In addition to the overall indicator created to monitor the evolution of greenhouse gas emissions at the Coruripe Facility, an emission indicator per ton of sugarcane processed was also established for each of its operational facilities. The following tables present this information.

CAMPO FLORIDO

Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	27,288.930
tCO ₂ e (Scopes 01, 02 and 03)	83,607.692
Emission indicator per sugarcane processed	
Tons of sugarcane processed	4,400,479
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.006
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.019

CARNEIRINHO

Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	47,221.638
tCO ₂ e (Scopes 01, 02 and 03)	55,975.643
Emission indicator per sugarcane processed	
Tons of sugarcane processed	2,411,968
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.020
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.023

Facilities Indicators

ITURAMA

Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	58,264.023
tCO ₂ e (Scopes 01, 02 and 03)	73,430.589
Emission indicator per sugarcane processed	
Tons of sugarcane processed	3,714,972
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.016
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.020

LIMEIRA DO OESTE

Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	44,761.436
tCO ₂ e (Scopes 01, 02 and 03)	56,235.811
Emission indicator per sugarcane processed	
Tons of sugarcane processed	2,345,554
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.019
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.024

Facilities Indicators

CORURIBE FACILITY

Facility Indicator	
tCO ₂ e (Scopes 01 and 02)	82,486.885
tCO ₂ e (Scopes 01, 02 and 03)	95,614.908
Emission indicator per sugarcane processed	
Tons of sugarcane processed	3,093,595
tCO ₂ e per t of sugarcane processed (Scopes 01 and 02)	0.027
tCO ₂ e per t of sugarcane processed (Scopes 01, 02 and 03)	0.031

Emissions Comparison

To maintain continuous monitoring and support ongoing improvement in climate management, a comparison was conducted of Scope 01, 02, and 03 emissions by category for the Coruripe Facility for the reporting years 2022 to 2024.

Subsequently, Scope 01 and 02 emissions were compared for the reporting years 2018 to 2024, analyzing tCO₂e emissions by category.

A comparison was also made of tCO₂e emission indicators per ton of sugarcane processed for Scopes 01 and 02 between 2023 and 2024. The following presents a comparison of total emissions for the Coruripe Facility, followed by a breakdown by operational unit.

These comparisons aim to track the company's progress and provide a historical perspective.

Comparison of Total Emissions by Emission Category (tCO₂e)

2022 to 2024

The table on the side presents a comparison of emissions from 2022 to 2024.

In 2024, total tCO₂e emissions increased by 3.14% compared to 2023.

*Absolute and percentage differences refer to the comparison between 2024 and 2023.

Scope 1	2022	2023	2024	Absolute difference*	Percentage difference (%)*
Stationary Combustion	66,855.952	78,454.376	81,808.124	3,353.748	4.27
Mobile Combustion	48,337.778	49,704.323	52,130.261	2,425.938	4.88
Fugitive Emissions	3,386.102	3,570.372	3,961.915	391.542	10.97
Agricultural Activities	115,377.536	110,405.670	114,211.753	3,806.083	3.45
Solid Waste	483.056	540.373	7,873.421	7,333.048	1,357.03
Total Scope 1	234,440.424	242,675.114	259,985.473	17,310.359	7.13
Scope 2					
Purchased Electricity (location-based)	1,261.284	880.505	37.439	-843.066	-95.75
Total Scope 2	1,261.284	880.505	37.439	-843.066	-95.75
Scope 3					
Fuel - and Energy - Related Activities (Not Included in Scope 01 or Scope 02)	-	28,731.740	14,085.256	-14,646.484	-50.98
Upstream Transportation and Distribution	-	26,043.516	41,349.993	15,306.477	58.77
Waste Generated in Operations	-	1,139.776	428.984	-710.792	-62.36
Business Travel	-	159.273	204.845	45.572	28.61
Employee Commuting	-	4,588.205	4,513.931	-74.274	-1.62
Downstream Transportation and Distribution	-	32,343.147	37,581.602	5,238.455	16.20
Use of Sold Products	-	17,211.004	6,677.120	-10,533.884	-61.20
Total Scope 3	-	110,216.661	104,841.731	-5,374.930	-4.88
Total Emissions	235,701.708	353,772.280	364,864.643	11,092.363	3.14

Comparison of Total Emissions by Emission Category (tCO₂e)

2022 to 2024

For the 2022 reporting year, Scope 3 had not yet been accounted for by the company.

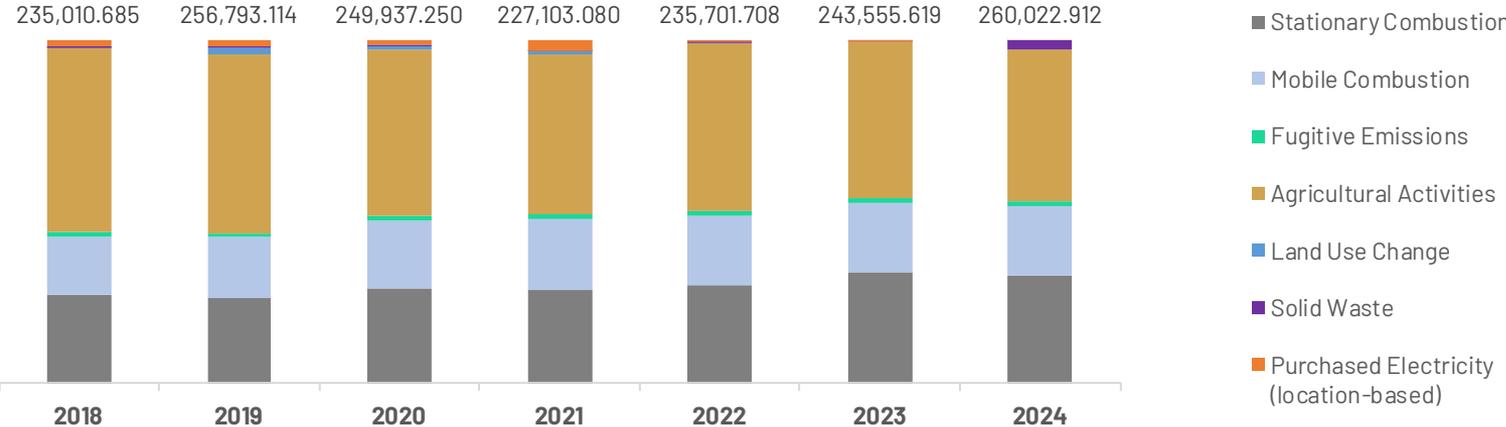
In the 2023 reporting year, Usina Coruripe reported Scope 3 of the Greenhouse Gas (GHG) emissions inventory for the first time. For Category 3 – Fuel- and energy-related activities not included in Scope 1 or Scope 2, reporting in 2023 was partial, covering only specific types of fuels due to data availability and prioritization based on materiality. The fuels and energy considered for the 2023 reporting year were: diesel, gasoline, and electricity purchase (location-based).

For the 2024 reporting year, Usina Coruripe expanded the reporting scope of this category to include all fuels used by the organization, aiming to ensure more comprehensive coverage aligned with the GHG Protocol guidelines. Thus, reporting for Category 3 was fully accounted for in this cycle. The fuels and energy considered for the 2024 reporting year were: gasoline, diesel, kerosene, acetylene, firewood, LPG, and electricity purchase (location-based).

Historical Total Emissions by Emission Category (tCO₂e)

2018 to 2024

To better understand the historical variation in GHG emissions from Usina Coruripe, the following chart presents the company's annual emissions by category starting from 2018, considering Scopes 01 and 02, as Scope 03 began being accounted for only from the 2023 reference year.



Historical Total Emissions by Emission Category (tCO₂e)

2018 to 2024

The table below details annual emissions by category for Scopes 01 and 02.

Emissions categories	2018	2019	2020	2021	2022	2023	2024
Stationary Combustion	60,109.275	63,773.650	68,937.670	61,829.550	66,855.952	78,454.376	81,808.124
Mobile Combustion	39,810.350	44,985.222	49,792.150	46,713.420	48,337.778	49,704.323	52,130.261
Fugitive Emissions	3,343.617	3,348.182	3,237.820	2,857.280	3,386.102	3,570.372	3,961.915
Agricultural Activities	126,160.758	134,218.340	120,452.950	105,733.880	115,377.536	110,405.670	114,211.753
Land Use Change	402.510	4,822.597	3,117.910	2,031.910	-	-	-
Solid Waste	432.380	309.200	223.310	648.410	483.056	540.373	7,873.421
Purchased Electricity (location-based)	4,751.795	5,335.923	4,175.440	7,288.630	1,261.284	880.505	37.439
TOTAL	235,010.685	256,793.114	249,937.250	227,103.080	235,701.708	243,555.619	260,022.912

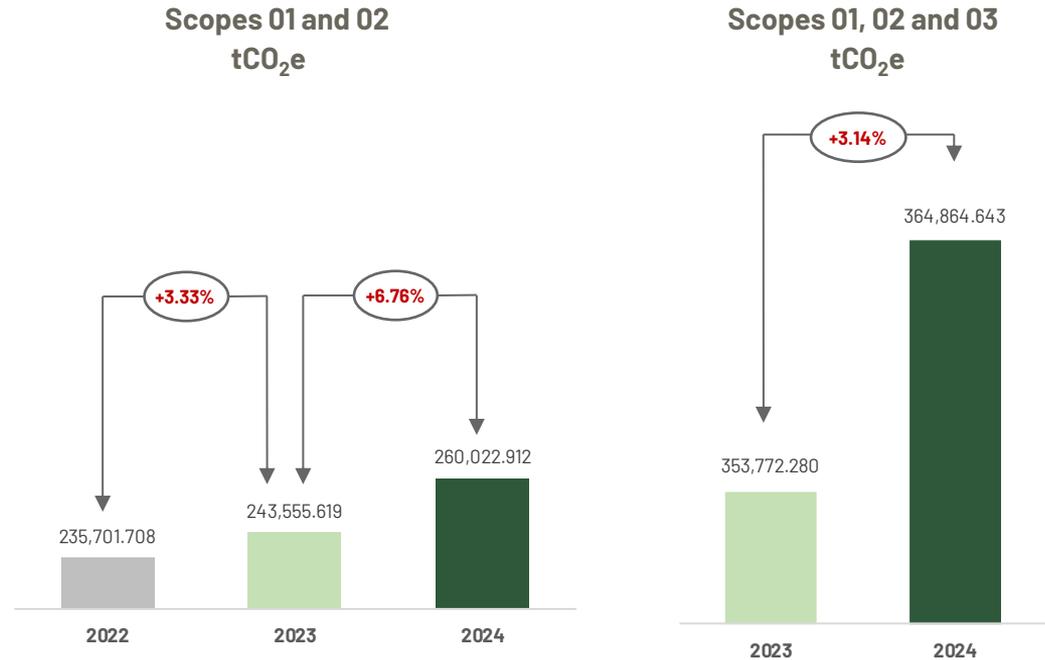
Emissions History

2022 to 2024

The adjacent charts provide a historical comparison of emissions for Usina Coruripe from 2022 to 2024.

*Scope 3 began being reported in 2023.

General Usina Coruripe



Considering only Scopes 01 and 02, total emissions from Usina Coruripe increased by 6.76% in 2024 compared to 2023.

When including Scopes 01, 02, and 03, total emissions in 2024 were 3.14% higher than in 2023.

Emissions History

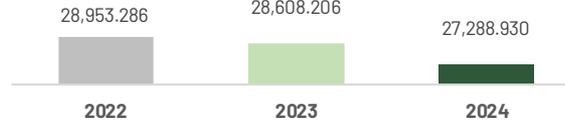
2022 to 2024

The adjacent charts present a historical comparison of emissions from 2022 to 2024 for the Campo Florido and Carneirinho facilities.

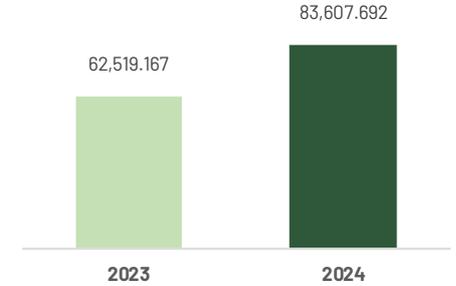
*Scope 3 began being reported in 2023.

Campo Florido

Scopes 01 and 02
tCO₂e

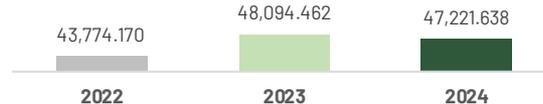


Scopes 01, 02 and 03
tCO₂e

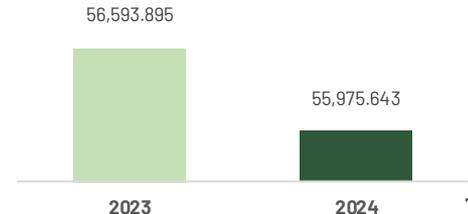


Carneirinho

Scopes 01 and 02
tCO₂e



Scopes 01, 02 and 03
tCO₂e

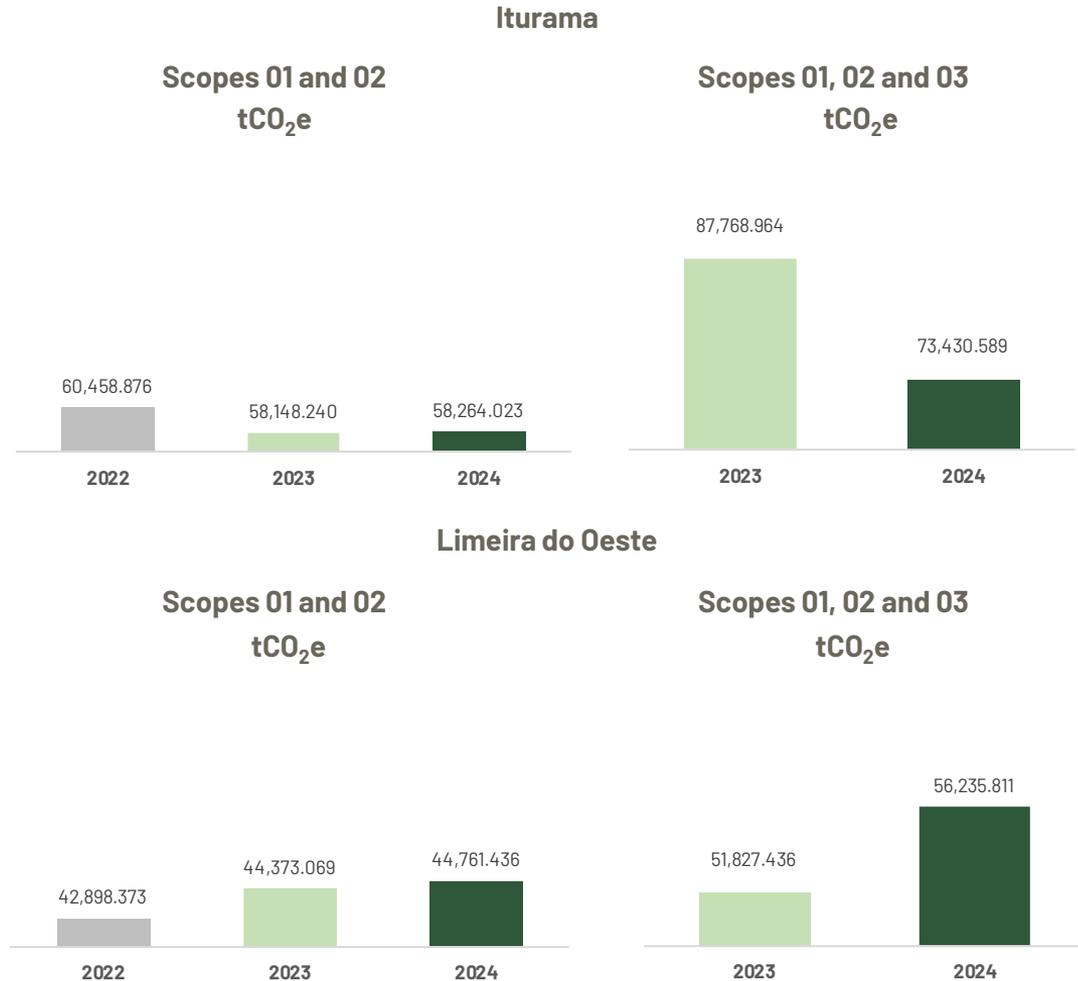


Emissions History

2022 to 2024

The adjacent charts present a historical comparison of emissions from 2022 to 2024 for the Iturama and Limeira do Oeste facilities.

*Scope 3 began being reported in 2023.



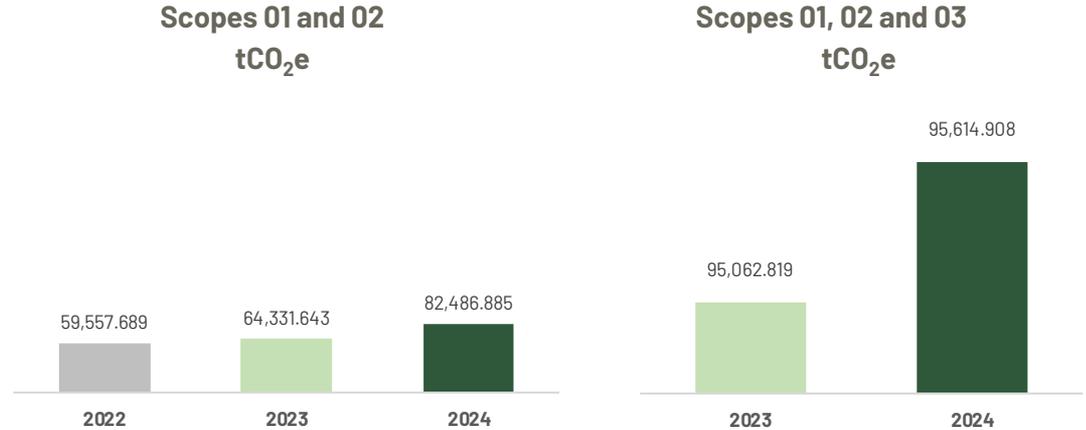
Emissions History

2022 to 2024

The adjacent charts present a historical comparison of emissions from 2022 to 2024 for the Coruripe facility.

*Scope 3 began being reported in 2023.

Coruripe Facility



Indicator history

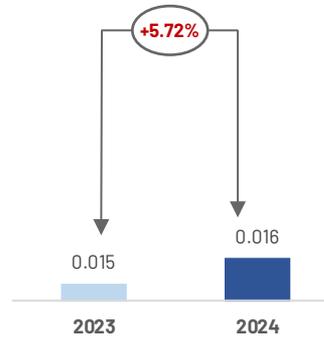
2023 and 2024

Presented next are the historical indicators for Usina Coruripe and each of its facilities, focusing on tCO₂e emissions per ton of sugarcane processed.

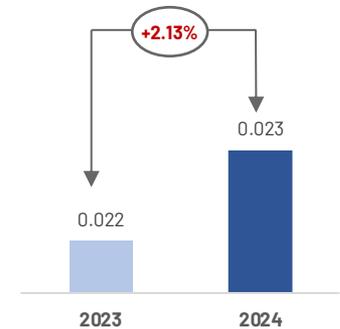
*An indicator based on Scopes 01 and 02 was developed to enable comparison with the previous year's data, as these two scopes fall under the company's direct responsibility. Additionally, an indicator including Scopes 01, 02, and 03 was created to allow for the analysis of total emissions calculated for the reporting year.

General Usina Coruripe

Scopes 01 and 02
tCO₂e/processed cane (t)



Scopes 01, 02 and 03
tCO₂e/processed cane (t)



Considering only Scopes 01 and 02, the tCO₂e per ton of sugarcane processed at Usina Coruripe increased by 5.72% in 2024 compared to 2023.

When including Scopes 01, 02, and 03, the indicator increased by 2.13% in 2024 compared to 2023.

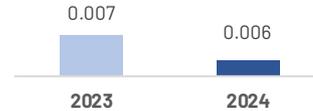
Indicator history

2023 and 2024

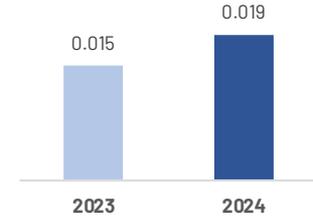
The adjacent charts present a comparison of the tCO₂e per ton of sugarcane processed indicators for the Campo Florido and Carneirinho facilities.

Campo Florido

Scopes 01 and 02
tCO₂e/processed cane (t)

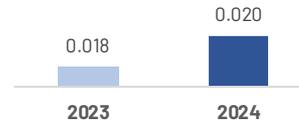


Scopes 01, 02 and 03
tCO₂e/processed cane (t)



Carneirinho

Scopes 01 and 02
tCO₂e/processed cane (t)



Scopes 01, 02 and 03
tCO₂e/processed cane (t)



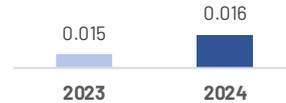
Indicator history

2023 and 2024

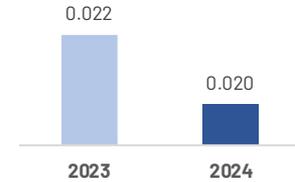
The adjacent charts present a comparison of the tCO₂e per ton of sugarcane processed indicators for the Iturama and Limeira do Oeste facilities.

Iturama

Scopes 01 and 02
tCO₂e/processed cane (t)

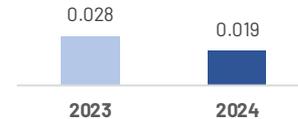


Scopes 01, 02 and 03
tCO₂e/processed cane (t)

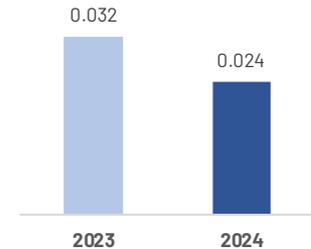


Limeira do Oeste

Scopes 01 and 02
tCO₂e/processed cane (t)



Scopes 01, 02 and 03
tCO₂e/processed cane (t)



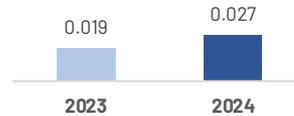
Indicator history

2023 and 2024

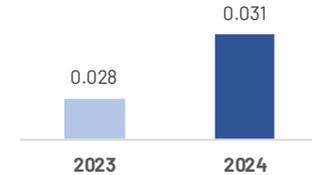
The adjacent charts present a comparison of the tCO₂e per ton of sugarcane processed indicators for the Coruripe facility.

Coruripe Facility

Scopes 01 and 02
tCO₂e/processed cane (t)



Scopes 01, 02 and 03
tCO₂e/processed cane (t)



Uncertainty Analysis

In line with the recommendations of ISO 14064-1, the uncertainty assessment of the greenhouse gas (GHG) emissions inventory should follow the guidelines established by the Brazilian GHG Protocol Program. The uncertainties associated with GHG emissions can be classified into scientific uncertainties and estimation uncertainties. Scientific uncertainties arise when the scientific understanding of GHG emission processes is incomplete. A notable example is the uncertainty in the Global Warming Potential (GWP) values of gases. Given the complexity and challenges involved in analyzing and quantifying these uncertainties, the GHG Protocol does not recommend including them within the scope of uncertainty analysis for corporate inventories. For the uncertainty assessment of this inventory, the activity data were divided into the following groups:

Uncertainty analysis

The work carried out by GSS Impact Development Company and Usina Coruripe in preparing this emissions inventory focused on establishing a high-quality data management process to minimize identified uncertainties as much as possible. A multidisciplinary working group was responsible for collecting and analyzing the data, and all emission factors applied were sourced from reliable and credible references.

1

Uncertainty in the characterization of identified items: the composition of a given emission source may have been misclassified due to misinformation from suppliers or other data sources.

2

Uncertainty in the quantification of identified items: the data used as the basis for calculations may contain inconsistencies, such as typographical errors made during unit entry.

3

Uncertainties associated with calculation tables: as the inventory involves compiling data from various sources, data entry errors may occur.

4

Discrepancy between estimates and actual values: some emission sources are based on estimated data, and significant deviations from actual values can impact results.

5

Emission factors applied: the emission factors used can significantly influence the quantification of GHG emissions.



Preparation of the GHG Emissions Inventory

To carry out this Greenhouse Gas Emissions Inventory, a working team was formed comprising employees from various departments at **Usina Coruripe**, together with specialists from **GSS Impact Development Company**.

The working team played a fundamental role in the success of this inventory – from understanding the subject matter and supporting the data collection process to performing data quality analyses – with the goal of ensuring transparency and accurately reflecting the company's reality.

This report was prepared in accordance with ISO 14064-1: Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

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