

22 May 2023

Veramaris GHG Emissions Report 2022



In August 2022, Veramaris committed to reducing Greenhouse Gas (GHG) emissions by setting a science-based target (SBTi) aimed at urgently limiting global warming to below 1.5°C. Veramaris committed to achieve a 38 % reduction in absolute Scope 1 and Scope 2 emissions by 2030 from a 2021 base year. The Company also committed to measure and reduce Scope 3 emissions through actively engaging our suppliers and to reduce emissions associated with our raw material inputs. We have used the CDP Climate Disclosure Framework for Small and Medium-Sized Enterprises (SMEs) to prepare this disclosure of Veramaris' emissions inventory and report progress against our target.

CALCULATION METHODOLOGY:

The emissions have been calculated based on an LCA-approach in accordance with the GHG Protocol and built upon data from GaBi database 10. Biogenic emissions and biogenic removals are omitted.

For electricity, a market-based approach has been used and it therefore has been assumed that none of the emissions occur in Scope 2 as the electricity is generated 100 % renewably (the non-renewable share of the electricity mix is covered by RECs).

The emissions associated with the purchased steam have been split up into Scope 2 and Scope 3.3. This has been done by calculating the proportion of emissions coming from the steam generation and from the fuel supply, respectively. The efficiency of the steam generation has been reassessed (compared to 2021). The reassessment concluded that the efficiency of the boiler is slightly lower than expected. This efficiency adjustment has been considered in the emission calculation from steam for 2022.

A small amount of RTCs had been purchased in 2022. As no emission factor had been tied to these RTCs, the Scope 2 emissions were calculated in line with the GHG Protocol Scope 2 Guidance based on the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The Scope 3.3 emissions were derived from the calculated direct emissions and a carbon footprint for steam from biogas from an LCA database.

LIMITATIONS:

We decided to not report Scope 1 and 2 emissions for the reporting year, in metric tons CO₂e, per unit of physical activity or economic output. This is because the company operates with one facility and does not disclose production volumes and revenues at facility level. Instead of this, we share our product footprint data directly with customers via an Environmental Product Declaration (EPD).

EXCLUDED EMISSIONS:

1. Biogenic CO₂ emissions have been excluded. Since the biogenic CO₂ emissions and biogenic CO₂ removals (from the sequestration of CO₂ during plant growth) are expected to compensate for each other, their exclusion is considered of limited significance.
2. During Q2, Veramaris interrupted its production for the ongoing process development and to implement improvement measures. During that time, the fermenters were not used by Veramaris (non-recurring). The emissions associated with the fermenters during that time are not reported by Veramaris.

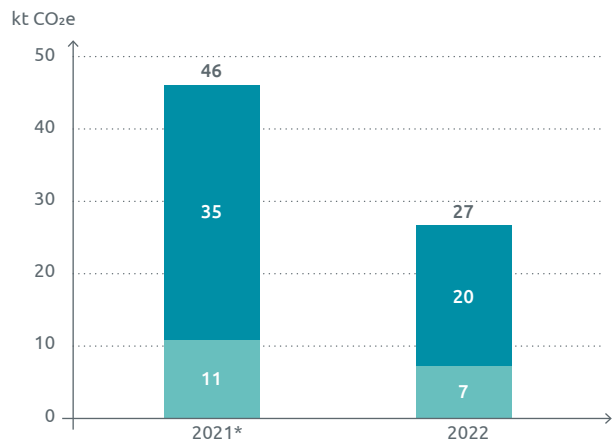
Compared to 2021, in 2022 the absolute emissions from Veramaris went down significantly; this is due to

- Lower production volume: –30 % (on omega-3 basis) due to downtime in Q2 and ramp-up in Q3
- Process efficiency increases: (steam & dextrose)
- Small methodological adjustments that started to have an effect in 2022

OUTLOOK

For 2023, an increase in absolute GHG emissions is expected due to an increase in production volume following an increase in market demand for Veramaris products.

Absolute Emissions of Veramaris in 2021 and 2022



● Scope 2 ● Scope 3

Note:

**Adjustments and corrections applied in 2022 have not been applied to 2021 as SBTi base year.*

MEASUREMENTS

Summary table for absolute emissions data:

	Units	Reporting Year 2022	Baseline Year 2021 ⁵	Notes:
Total energy consumption (purchased and/or self-generated) ¹	GJ electric	230,900	80,735	¹ The electricity Veramaris purchases is 100% renewable. This is achieved via PPAs and RECs topping up the renewable electricity share in the electricity grid mix. In December 2022, Veramaris purchased 200 mmbtu of renewable thermal certificates (RTCs) via the M-RETS system . ² During Q2 2022, Veramaris interrupted its production process for the ongoing process development and to implement improvement measures. During that time, the fermenters were not used by Veramaris. This was a one-off non-recurring event. ³ For 2022, an adjustment to fermentation medium resulted in a reduction of about 1.2 kt CO ₂ e ⁴ The efficiency of the steam generation has been reassessed. A lower efficiency has been agreed upon by experts. This efficiency adjustment has been considered in the emission calculation from steam (Scope 2 and Scope 3.3). ⁵ Adjustments and corrections applied in 2022 have not been applied to 2021 as SBTi base year.
	GJ thermal	117,513	155,192	
Scope 1: Gross global emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.	t CO ₂ e	0	0	
Scope 2: Gross global emissions from electricity purchases (and purchased heat, steam and cooling) in the reporting year	t CO ₂ e	7,246	11,079	
Scope 3.1: Purchased goods and services	t CO ₂ e	17,097	29,673	
Scope 3.3: Fuel-and-energy-related activities (not included in operational emissions)	t CO ₂ e	2,410	5,344	
Total emissions ^{2,3,4}	t CO ₂ e	26,753	46,096	

ACTION AND IMPACT

Emission reduction initiatives:

Initiative	Start date	Estimated annual emissions savings	Scope category where the emissions saving occurs	Notes:
Green Electricity: Veramaris purchased green electricity to compensate for the non-renewable share of the electricity mix that is consumed. The renewable electricity is partly purchased via Power Purchase Agreements (PPAs) and partly via Renewable Energy Certificates (RECs).	2021	Approx. 45,000 t CO ₂ e ¹	Mainly Scope 2 but also Scope 3.3	¹ Calculated based on: Difference between emissions of electricity in 2022 with CF of the supplied grid mix and the emissions of electricity in 2022 with a CF considering the PPAs and RECs that compensate for the non-renewable share of the electricity mix).
Process Improvement: In Q2 2022, Veramaris interrupted its production as part of the ongoing process development to implement process improvement measures. Specifically, the sterilization procedure has been adjusted and the fermentation performance has been increased. As part of the ongoing process development, a new algal strain has been introduced. This strain contributed to increase of process efficiency and thus allowed for emissions reduction.	Throughout 2022	Approx. 1,500 t CO ₂ e ²	Mainly Scope 3.1, but also Scope 2 and Scope 3.3	² Calculated based on: Emissions reduction due to reduced specific steam and sugar demand in 2022 compared to 2021 ³ Calculated based on: Difference between emissions associated with 200 mmbtu steam from renewable natural gas to 200 mmbtu from natural gas.
Green Steam: Veramaris purchased 200 mmbtu of renewable thermal certificates (RTCs) to decrease the steam-related emissions.	December 2022	Approx. 10 t CO ₂ e ³	Mainly Scope 2; slight increase in Scope 3.3 (overbalanced by increase in Scope 2)	

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