

Sustainable Logistics & Air Pollution

SUSTAINABLE LOGISTICS

E-BIKES INITIATIVE

We have 85 bikes around all our plants to support our employees with a convenient travel and minimize regular car usage. This reduces car emissions, noise pollution, poor air quality, and urban congestion.



DIESEL CONSUMPTION

We focus optimising logistics and warehousing in addition to enhancing inventory control and management.

In 2022, we achieved a reduction in road movement of 1.4 million kilometers, leading to a reduction in ~150,000 imperial gallons of diesel and savings of 1,884.9 tons CO2e of emissions.

Further, we saved 182.6 tons CO2e of emissions, by replacing 3 diesel operated forklifts with battery operated trucks.

-1.4M KM

reduction in road movement resulting in

-150,000

Imperial Gallons of Diesel saved &

-1,844.9 TONS

CO2e emissions avoided

AIR POLLUTION

We are dedicated to maintaining excellent air quality standards and minimizing dust emissions within our premises. We have implemented a comprehensive air emissions monitoring program to ensure compliance with regulatory requirements. Here are the key findings from our recent air emissions monitoring report:

Concentration of Total Suspended Particles (TSP), Sulphur dioxide (SO2), Nitrogen Oxides (NOx), and Carbon monoxide (CO) measured in all stacks from S1 to S28 are within the prescribed limits during the monitoring period. This demonstrates our successful control of emissions from various processes such as ball mining, mixing, processing, glazing, firing, and surface quarry.

Concentration of Total Suspended Particles (TSP), Sulphur dioxide (SO2), and Carbon monoxide (CO) measured at the Power Plant – Engine 3 FIFO Stack (29) are within the prescribed limits during monitoring. This indicates our effective management of emissions from the power generation facility.

However, the concentration of Nitrogen Oxides (NOx) measured at the Power Plant – Engine 3 HFO Stack (S29) exceeded the prescribed limits during monitoring. As a result, we took proactive measures to address this issue by replacing Heavy Fuel Oils (HFOs) with natural gas in 2022. This transition will help us mitigate NOx emissions and improve air quality.

By closely monitoring air emissions and promptly addressing any exceedances, we are committed to maintaining a clean and healthy environment for our employees, surrounding communities, and the broader ecosystem.

Pollutants	mg/Nm3 Ave./hr.	
	2021	2022
NOX	3713.1	2351.03
SOX	417.86	346.68
Total Suspended Particles (TSP)	425.17	446.24
CO	1417.5	1946.87

Emissions Reduction

OVERVIEW

As a manufacturing company, we recognize our role in reducing emissions to combat climate change. Hence, our efforts are geared towards improving our environmental stewardship throughout our value chain, sourcing our raw materials sustainably, and operating our manufacturing processes as efficiently as possible. Our choices of equipment and production processes are centered around reducing and efficiently managing resources.

PROGRESS TOWARDS REDUCING EMISSIONS

We have been reporting our carbon emissions since 2019. In 2022, we updated our emission calculation methodology to align with the UNFCCC calculator. This methodology has been applied to report our 2021 figures, to ensure consistency.

Key highlights on our emissions are discussed below:

- Scope 1 emissions: Our Scope 1 emissions increased by 9.97%. This is due to a 41.5% increase in our natural gas consumption in our power plant, as a result of replacing our HFO engines.

Emissions in 2021 & 2022 by Scope (kt CO2e)

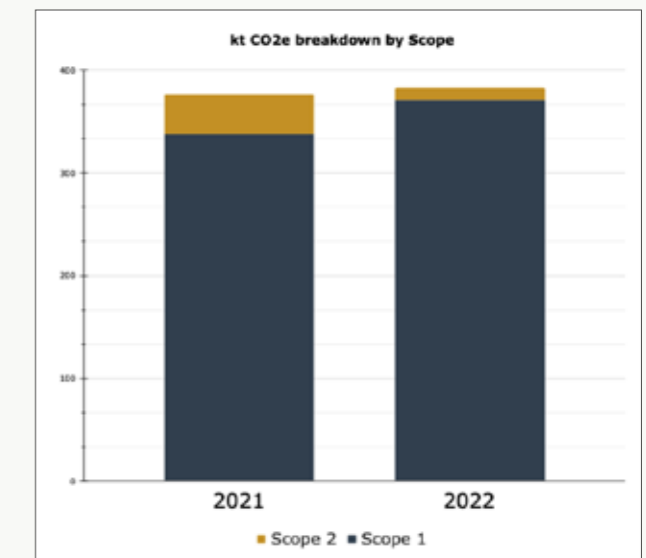
Year	Scope 1	Scope 2	Total
2021	337.36	38.14	375.50
2022	371.01	11.92	382.93
Change	9.97%	-68.76%	1.98%

Initiatives for 2023

- Calculate our Operational Emissions globally.
- Develop a methodology to calculate our Scope 3 emissions.
- Continue our efforts & investments towards energy savings.
- Explore concepts such as carbon capture and biogas generation from solid waste, for implementation in the near future.

- Scope 2 emissions: Our Scope 2 emissions reduced by 68.1%. This is because we reduced our purchased electricity by the same percentage, and increased the electricity generation from our power plant by 51% from 155.1 KWh (Million) in 2021 to 234.2 KWh (Million).
- Reduction in Emissions Intensity of Sales: Although our total emissions have increased, we have achieved a 17.1% reduction in emissions intensity of sales between 2021-22.

Throughout our production processes, we continuously invest in equipments and upgrades to optimise our energy consumption and emissions, and reduce the emissions intensity of our outputs. For example, while internal combustion engines are more efficient in the cogeneration processes, we choose to use gas turbines, to minimise our natural gas consumption.



Emissions breakdown by Scope in 2021 & 2022

1.9%

Increase in emissions between 2021 & 2022

-17.1%

Reduction in emissions intensity of sales between 2021 & 2022