



Letter of Conformance of Organizational Greenhouse Gases Emissions

It is hereby confirmed that the company

OCCL Limited

14th Floor, World trade tower, Sec-16, Noida-201301 (UP), India

Organisational Carbon Footprint is Verified and Validated by DQS India

Verification Statement:

Verification Criteria: ISO 14064-3:2019 - Specification with guidance for the verification and validation of greenhouse gas statements

Organisation Boundary: OCCL Limited

1. Head Office - 14th Floor, World trade tower, Sec-16, Noida-201301 (UP) INDIA
2. Dharuhera – Plot No. 3 & 4, Industrial Complex, Phase-1, Dharuhera-123106, District: Rewari, Haryana, India.
3. Mundra - Survey No. 141, Paiki of Mouje Mundra SEZ, Village Mundra, Taluka Mundra, District: Kutch 370421, Gujarat, India.

Verified emission in the reporting period: 01 April 2023 – 31 March 2024

The scope of the assessment included the verification of quantity GHG emissions for the above organisation and found to be in accordance with the requirements of the standard ISO 14064-1, in limited assurance level with emission details as below:

Scope	FY 2023-24
Scope 1 Emissions	21,149.83
Scope 2 Emissions	21,463.71
Scope 3 Emissions	47,930.26
Total GHG Emissions	90,543.80
Total Production (MT)	1,02,493.29
Total GHG Emission Intensity (tCO ₂ e/ton of production)	0.88

Verification registration no. 50256507

Date of Verification 30.09.2024

DQS India

Dr. Murugan Kandasamy
CEO & Managing Director



Annexure I – Scope 3 Emissions from FY 2023-2024

Scope	GHG Emissions (tCO ₂ e/annum)
Scope 1 Emissions	21,149.83
Scope 2 Emissions	21,463.71
Scope 3 Emissions	47,930.26
Cat 1 - Purchase Goods & Raw Material	25,572.92
Cat 2 - Capital Goods	315.56
Cat 3 - Fuel and Energy Related Activities	11,464.16
Cat 4 - Upstream Transportation	1,820.59
Cat 5 - Waste	135.39
Cat 6 - Business Travel	101.08
Cat 7 - Employee Commute	249.56
Cat 9 - Downstream Transportation	8,269.72
Cat 13-Downstream leased assets	1.29
Total	90,543.80



Annexure II- Scope Emissions from FY 2022-23

Scope	GHG Emissions (tCO ₂ e/annum)
Scope 1 Emissions	22,087.15
Scope 2 Emissions	24,461.09
Scope 3 Emissions	51,102.22
Cat 1 - Purchase Goods & Raw Material	29,122.93
Cat 2 - Capital Goods	982.75
Cat 3 - Fuel and Energy Related Activities	10,418.70
Cat 4 - Upstream Transportation	1,911.01
Cat 5 - Waste	131.97
Cat 6 - Business Travel	306.48
Cat 7 - Employee Commute	178.77
Cat 9 - Downstream Transportation	8,049.61
Cat 13-Downstream leased assets	72.90
Total Scope Emissions	97,650.46

Annexure III- Scope Emissions from FY 2021-22

Scope	GHG Emissions (tCO ₂ e/annum)
Scope 1 Emissions	24,641
Scope 2 Emissions	25,393

Annexure IV- Scope Emissions from FY 2020-21

Scope	GHG Emissions (tCO ₂ e/annum)
Scope 1 Emissions	23,864
Scope 2 Emissions	23,955



OCCL LIMITED

Carbon Footprint Report

April 2023-March 2024





CARBON FOOTPRINT REPORT 2023-2024

CONTENTS

EXECUTIVE SUMMARY	3
1 Introduction: OCCL Limited (OCCL).....	4
2 Organizational Boundary	6
3 Reporting Boundary	6
4 Exclusion of Any Significant GHG Sources or Sinks From the Quantification.....	8
5 Total GHG Emissions of OCCL.....	8
6 Direct GHG Emissions	9
7 Biogenic CO ₂ Emissions	10
8 Indirect GHG Emissions	10
8.1 SCOPE 2: Electricity Indirect GHG Emissions	10
8.2 SCOPE 3: Other Indirect GHG Emissions	10
9 The historical base year selected and the base-year GHG inventory	11
10 Quantification Process	13
11 Uncertainty Assessment	14
12 Future Projects & initiatives for GHG Emission Reduction	16
13 Conclusion	17
14 References.....	18
15 Annexure.....	19
15.1 Scope 1 - Direct Emissions - Emission Factors	19
15.2 Scope 2 - Indirect Emissions.....	19



LIST OF FIGURES

<i>Figure 1 Process Flow Diagram For The Manufacturing Of Insoluble Sulphur.....</i>	<i>5</i>
<i>Figure 2 Manufacturing Process Flow Diagram - Sulphuric Acid Plant.....</i>	<i>5</i>
<i>Figure 3 Scope 1, Scope 2 & Scope 3 GHG Emission for FY 2023-24.....</i>	<i>8</i>
<i>Figure 4 Scope 1 Emission Distribution for FY 2023-24.....</i>	<i>10</i>
<i>Figure 5 Scope 3 Emission Distribution for FY 2023-24.....</i>	<i>11</i>
<i>Figure 6 Comparison of Scope 1 & 2 Emissions of OCCL in the Base & Current Year.....</i>	<i>12</i>
<i>Figure 7 Comparison of Scope 1 & 2 Emission Intensities in the Base & Current Year based on Production</i>	<i>12</i>
<i>Figure 8 Comparison of Scope 1 & 2 Emission Intensities in the Base & Current Year based on Revenue</i>	<i>13</i>

LIST OF TABLES

<i>Table 1 Reporting Boundaries of Scope 1</i>	<i>6</i>
<i>Table 2 Reporting Boundaries of Scope 2</i>	<i>6</i>
<i>Table 3 Reporting Boundaries of Scope 3</i>	<i>7</i>
<i>Table 4 Emission Source Exclusions.....</i>	<i>8</i>
<i>Table 5 Total GHG Emissions for FY 2023-24</i>	<i>8</i>
<i>Table 6 Scope 1 Emission Distribution for FY 2023-24</i>	<i>9</i>
<i>Table 7 Scope 2 Emission for FY 2023-24.....</i>	<i>10</i>
<i>Table 8 Scope 3 Emission Distribution for FY 2023-24</i>	<i>11</i>
<i>Table 9 Comparison of Scope 1 & 2 Emissions of OCCL in the Base & Current Year</i>	<i>11</i>
<i>Table 10 Emission Sources with their Uncertainty Level.....</i>	<i>14</i>
<i>Table 11 Uncertainty Analysis with Accuracy scale</i>	<i>15</i>

LIST OF ABBREVIATIONS

DA - Dissolved Acetylene

HSD – High Speed Diesel

LDO – Light Diesel Oil

LPG - Liquefied Petroleum Gas

PNG – Piped Natural Gas



EXECUTIVE SUMMARY

OCCL Limited believes that with their immense managerial and innovative capacity, they can contribute significantly towards making a transformational change in society. OCCL Limited focuses on spurring innovative strategies that would enable them to make a growing contribution along the triple bottom lines of building economic, environmental, and social capital.

Carbon footprint is becoming a widely used measure of an organization's contribution to climate change. Calculating a carbon footprint helps organization to understand the link between how they operate and what they consume in terms of energy and fuels and the impact on the environment through carbon emissions.

As part of their environmental capital, OCCL Limited is focusing to ensure a positive environmental footprint and thus engaged with DQS India (Third -party verification body) to verify their carbon footprint emissions with limited level of assurance for their sites for the financial year 01st April 2023 - 31st March 2024. The report has been prepared in accordance with GHG protocol. The GHG intensity estimated is **0.88 TCO₂e/MT**.

Scope	GHG Emissions (tCO ₂ e)	% of total Emissions
Scope 1	21,149.83	23.35
Scope 2	21,463.71	23.69
Scope 3	47,930.26	52.96
Total Emissions	90,543.80	

1 INTRODUCTION: OCCL LIMITED

Established in 1978, OCCL Limited (hereby referred to as 'OCCL') is part of the JP Goenka Group of Companies, with Mr. JP Goenka serving as the Chairman.

The Company is a globally respected manufacturer of Insoluble Sulphur. They possess more than 25 years of experience in manufacturing this product. Over the years, their knowledge has translated into the ability to manufacture customised and value-added grades for their customers. These grades have helped them address the demanding requirements of some of the largest global quality-driven tyre manufacturers.

The Company is driven by a profound sense of customer service. Their service mindset reflects in proactive investments in people, plant & processes, to deliver quality product. They are focused on Interactive technical services with their clients and this ability has enabled them to provide holistic solutions to their customer.

OCCL provides an extensive array of Insoluble Sulphur grades in powder form. The organization produces Commercial-grade, Battery-grade sulphuric acid, and Oleum. This product serves as a dehydrating agent, catalyst, and active participant in various chemical processes, as well as in solvents and absorbents. Battery Grade is used in storage batteries, rayon, dye, acid slurry and pharmaceutical applications. Commercial Grade is used in the manufacturing of steel, heavy chemicals and super-phosphates.



Dharuhera Unit



Mundra Unit

Confidential

Figure 1 Process Flow Diagram For The Manufacturing Of Insoluble Sulphur

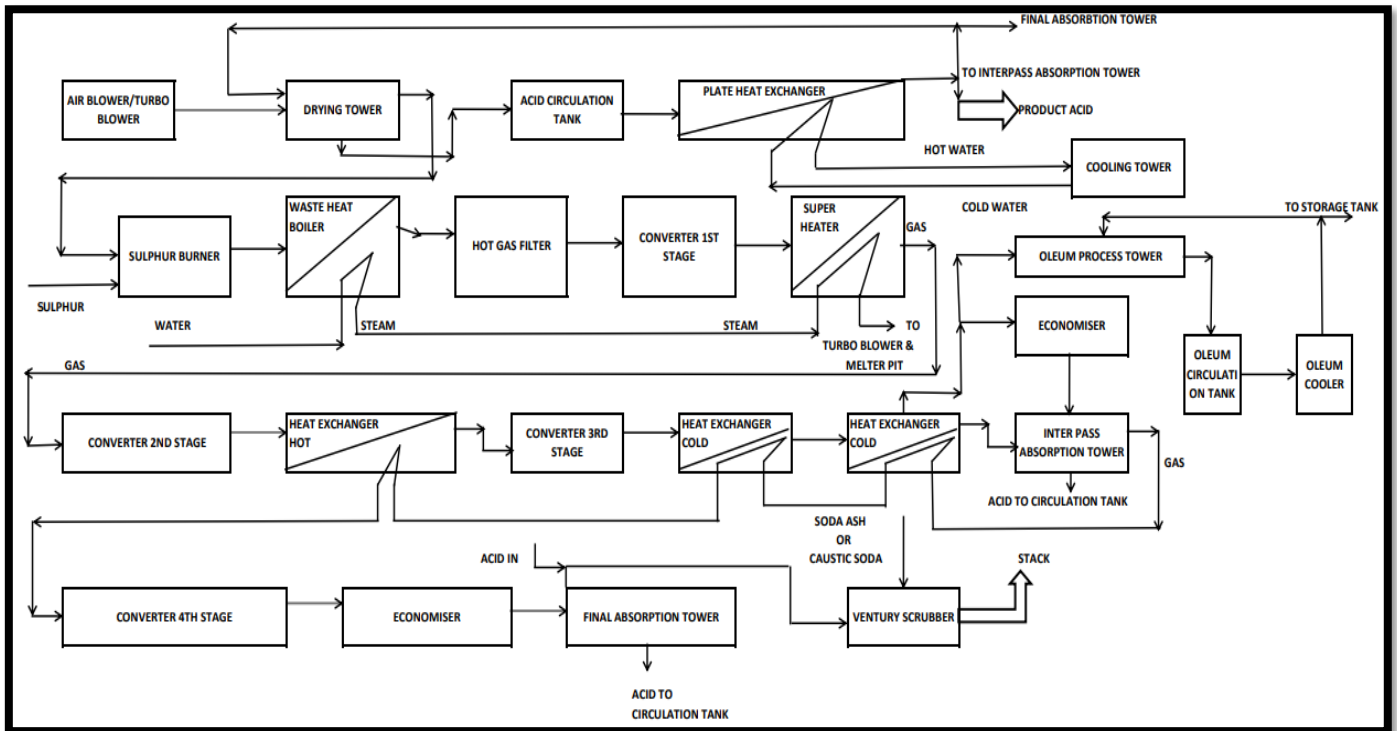


Figure 2 Manufacturing Process Flow Diagram - Sulphuric Acid Plant



CARBON FOOTPRINT REPORT 2023-2024

Locations covered in the boundary –

1. Head Office - 14th Floor, World trade tower, Sec-16, Noida-201301 (UP) INDIA
2. Dharuhera – Plot No. 3 & 4, Industrial Complex, Phase-1, Dharuhera-123106, District: Rewari, Haryana, India.
3. Mundra - Survey No. 141, Paiki of Mouje Mundra SEZ, Village Mundra, Taluka Mundra, District: Kutch 370421, Gujarat, India.

Person or entity responsible for the report – Mr. Prakash Kumar, Tech & Management System

The Reporting period is from **1st April 2023 - 31st March 2024**

2 ORGANIZATIONAL BOUNDARY

The initial stage in establishing a carbon footprint involves delineating the organizational boundaries. This process recognizes that companies exhibit diversity not only in their legal framework but also in their organizational structure, encompassing activities ranging from in-house operations to alliances, subcontractors, and various other forms of engagement. Through the definition of organizational limits, a company chooses a method to aggregate its greenhouse gas (GHG) emissions.

The company has chosen **Operational control approach** and under this framework, the company holding control over an operation but not necessarily financial control, whether directly or through one of its subsidiaries, must account for 100% of the emissions generated by that operation. It's important to note that this doesn't imply the company has the ability to make every decision regarding the operation, but rather signifies its responsibility for the emissions associated with it.

3 REPORTING BOUNDARY

The company has criteria determined by the organization to define significant emissions.

Scope 1 emissions (direct emissions): emissions that result from the activities that the organisation controls.

Scope 2 emissions (indirect emissions): emissions of the organisation due to the use of electricity sourced from outside.

Scope 3 emissions (other indirect emissions): emissions of the products and services of the organisation. They are induced by the activities of the company, but they occur in sources that are not owned or controlled by the company.

Table 1 Reporting Boundaries of Scope 1

Category as per ISO 14064:2018	Category as per GHG protocol	Description of Categories	Data Sources
Category 1- Direct GHG emissions and removals	Scope 1-Direct Emission	Combustion in Stationary sources	Coal (MT), Briquette (MT), LDO (KL), PNG (Kg), LPG (kg), Propane (Kg), DA (Kg)
Category 1- Direct GHG emissions and removals	Scope 1-Direct Emission	Combustion in mobile sources	HSD (KL), Diesel(L) and Petrol (L) consumed in company owned vehicles
Category 1- Direct GHG emissions and removals	Scope 1-Direct Emission	Combustion in fugitive sources	R22 (kg) and R32 (kg)

Table 2 Reporting Boundaries of Scope 2



CARBON FOOTPRINT REPORT 2023-2024

Category as per ISO 14064:2018	Scope Category	Description of Categories	Data Sources
Category 2- Indirect GHG emissions from imported energy	Scope 2 - Indirect Emission	Purchased electricity	Company uses electricity and tracks it through supplier metering and internal metering (MWh).

Table 3 Reporting Boundaries of Scope 3

Category as per ISO 14064:2018	Scope 3 Category	Description of Categories	Data Sources
Category 4- Indirect GHG emissions from products used by the organisation	Category 1	Purchased Goods and Services	Purchase data (Quantity in tonnes (T) and value in INR) with finance team
Category 4- Indirect GHG emissions from products used by the organisation	Category 2	Capital Goods	Capital expenditure data INR by category of expense with finance team
Category 3- Indirect GHG emissions from transportation	Category 3	Fuel- and Energy-related Activities	Same as scope 1 and 2 data
Category 3- Indirect GHG emissions from transportation	Category 4	Upstream Transportation	Shipment wise weight (T) and distance (km) from inward register
Category 4- Indirect GHG emissions from products used by the organisation	Category 5	Waste	Waste category wise generation (T) and disposal method from EHS compliances
Category 3- Indirect GHG emissions from transportation	Category 6	Business Travel	Mode of transport wise Pax-Km data from HR admin records
Category 3- Indirect GHG emissions from transportation	Category 7	Employee Commute	Mode of transport wise km data from HR admin records
Category 3- Indirect GHG emissions from transportation	Category 9	Downstream Transportation	Shipment wise weight (T) of finished goods and distance (km) from outward register
Category 5 - Indirect GHG emissions associated with the use of products from the organization	Category 13	Downstream Leased Assets	Warehouse which only has Electricity consumption associated (kWh)

4 EXCLUSION OF ANY SIGNIFICANT GHG SOURCES OR SINKS FROM THE QUANTIFICATION

The emissions sources listed below have been identified but are not included in the emissions inventory. These sources are considered insignificant or immaterial to stakeholders, the inventory's context, and/or are currently not feasible or practical to calculate. For the exclusion of subsidiary unit- it is a management decision for a reason.

Table 4 Emission Source Exclusions

Emission Source	Methodology & Materiality
Category 10, 11, 12	The product manufactured has a lot of variability in its downstream value chain, hence these categories are not possible to track. That is why they have been omitted in accordance with GHG Protocol.
Subsidiary unit – Duncan Engineering	Even though this unit is under operational control of OCCL, emissions from this unit has been excluded from the overall emission of OCCL as a conscious decision of the management, as they will be demerging from this unit in near future

5 TOTAL GHG EMISSIONS OF OCCL

OCCL Limited’s carbon footprint in FY 2023-24 is **90,594.93 MTCO₂e**. Scope 1 accounts for 23.35% (21,149.66 MTCO₂e), Scope 2 accounts for 23.69% (21,463.71 MTCO₂e) and Scope 3 accounts for 52.96% (42,981.56 MTCO₂e) of the total emissions. The GHG intensity estimated is **0.88 tCO₂e/MT**.

Table 5 Total GHG Emissions for FY 2023-24

Scope	GHG Emissions (tCO ₂ e)	% of total Emissions
Scope 1	21,149.83	23.35
Scope 2	21,463.71	23.69
Scope 3	47,930.26	52.96
Total Emissions	90,543.80	

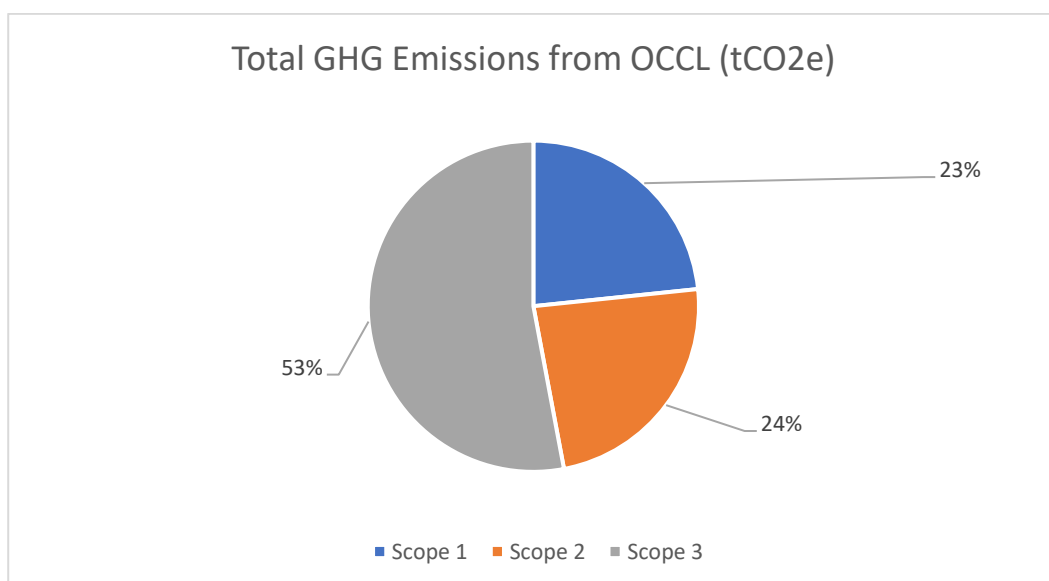


Figure 3 Scope 1, Scope 2 & Scope 3 GHG Emission for FY 2023-24



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6 DIRECT GHG EMISSIONS

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from fuel burned in stationary equipment like DG sets, mobile equipment like vehicles and fugitive emission like refrigerant & fire extinguisher.

Activity data are those that are associated with the consumption of energy or consumables of the organisation. These must be precise, transparent, complete, reliable, accurate in terms of information, consistent and reproducible. Activity data is collected at the site level by OCCL.

The collection of data has been prioritised so that they are of the highest possible quality, with the aim of reducing the uncertainty of the calculations. The data for GHG emissions from OCCL Limited has been derived directly from purchased order bills, electricity bills /meter readings of Electricity Board and then conversion factors are employed to convert into GHG reporting metrics. The uncertainty lies in the conversion factors.

OCCL Limited’s Scope 1 emissions for FY 2023-24 is **21,149.66 MTCO₂e**.

Table 6 Scope 1 Emission Distribution for FY 2023-24

Sub-category	Activity Source	Fuel/Gas Used	CO ₂ Emissions (tCO ₂ e)	CH ₄ emissions (tCO ₂ e)	N ₂ O emissions (tCO ₂ e)	Total Emissions (tCO ₂ e)
Stationary Combustion	Boiler	LDO	367.64	0.04	4.63	372.31
	Boiler	Coal	18413.460	53.650	78.463	18545.57
	Boiler/Thermic fluid unit	PNG	310.93	0.47	0.15	311.54
	Domestic/Boiler/Thermic fluid unit	LPG	435.36	0.38	0.24	435.98
	Canteen	LPG	435.36	0.38	0.24	435.98
	Thermic fluid unit	Propane	569.704	0.492	0.313	570.51
	Welding	Dissolved Acetylene (DA)	-	-	-	24.37
Mobile Combustion	Vehicles	HSD	199.58	0.02	2.51	202.11
	Company owned vehicles	Diesel	12.06	11.91	0.00	0.15
		Petrol	0.25	0.00	0.00	0.25
Fugitive Combustion	Split AC	Refrigerant - R22	-	-	-	562.52
	Split AC	Refrigerant – R32	-	-	-	78.64
		TOTAL	20,343	55	86	21,149.66

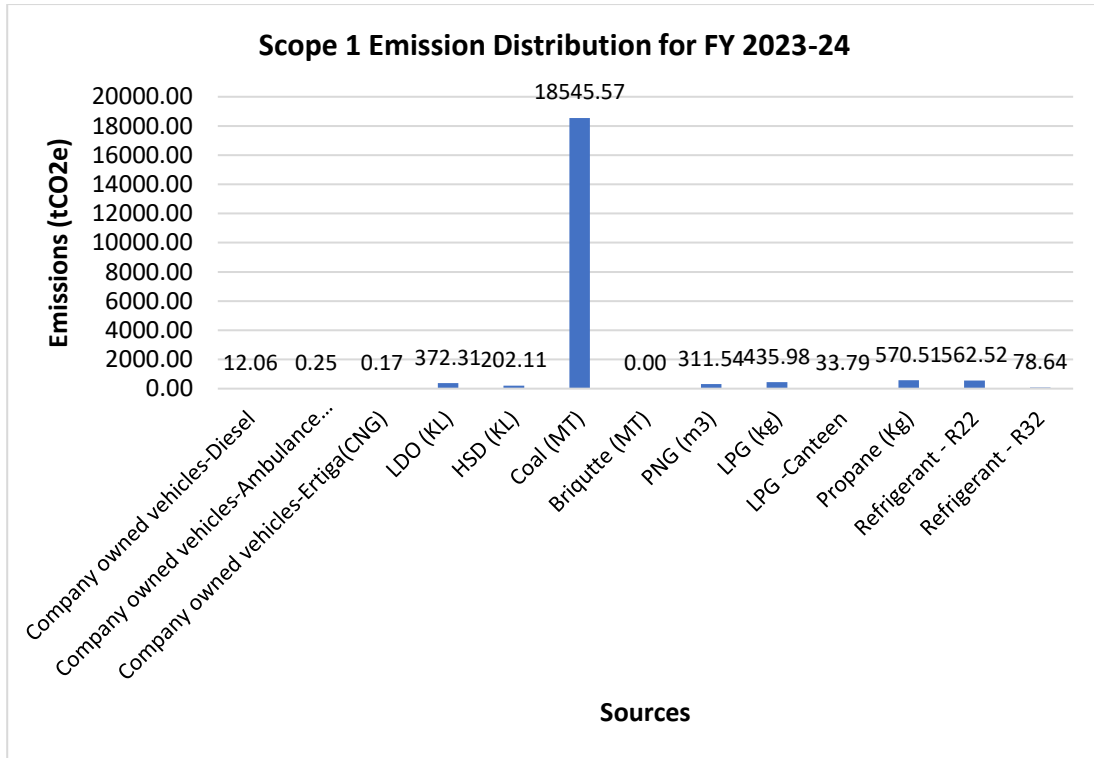


Figure 4 Scope 1 Emission Distribution for FY 2023-24

7 BIOGENIC CO₂ EMISSIONS

There is no such emission occurring within the boundary.

8 INDIRECT GHG EMISSIONS

8.1 SCOPE 2: Electricity Indirect GHG Emissions

Scope 2 accounts for GHG emissions from the purchased electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occurs at the facility where electricity is generated.

OCCL Limited’s Scope 2 emission for FY 2023-24 is **21,464 tCO₂e**.

Table 7 Scope 2 Emission for FY 2023-24

S. No	Emission Sources	Unit of Measurement	Activity data	Total Emission in tCO ₂ e
1	Electricity	KWh	2,99,77,254	21,464

8.2 SCOPE 3: Other Indirect GHG Emissions

These are emissions of the products and services of the organisation. They are induced by the activities of the company, but they occur in sources that are not owned or controlled by the company.

OCCL Limited’s Scope 3 emission for FY 2023-24 is **47,930.26 tCO₂e**.

For OCCL, the Scope 3 emission sources considered are emissions from the following categories:

Table 8 Scope 3 Emission Distribution for FY 2023-24

Category	Total Emissions (tCO ₂ e)
Category 1 - Purchased Goods and Services	25,572.92
Category 2 - Capital goods	315.56
Category 3 - Fuel- and energy-related activities	11,464.16
Category 4 - Upstream transportation and distribution	1,820.59
Category 5 - Waste generated in operations	135.39
Category 6 - Business Travel	101.08
Category 7 - Employee commuting	249.56
Category 9 - Downstream transportation and distribution	8,269.72
Category 13 - Downstream leased assets	1.29
TOTAL	47,930.26

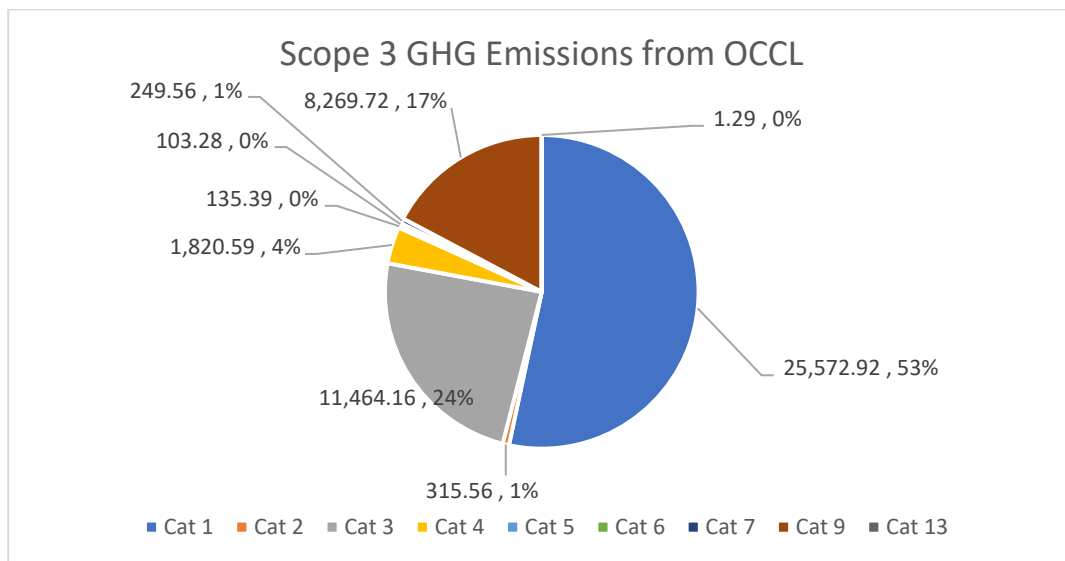


Figure 5 Scope 3 Emission Distribution for FY 2023-24

9 THE HISTORICAL BASE YEAR SELECTED AND THE BASE-YEAR GHG INVENTORY

The financial year 2020-2021 has been chosen as the inaugural base year for Scope 1 & 2 emissions. The emissions of the base year as well as the current year is presented below:

Table 9 Comparison of Scope 1 & 2 Emissions of OCCL in the Base & Current Year

	Scope 1	Scope 2	Total Emissions	Total Production (MT)	Intensity (tCO ₂ e /t)	Revenue (Lakh INR)	Intensity (tCO ₂ e/Lakh INR)
FY 2020-21	23,864	23,955	47,819	64723.62	0.74	34,218	1.40
FY 2021-22	24,641	25,393	50,034	74,155	0.67	38,779	1.29
FY 2022-23	22,087	24,461	46,548	87311.17	0.53	46,486	1.00
FY 2023-24	21,150	21,464	42,614	102493.3	0.42	39,697	1.07
% increase/decrease	-11%	-10%	-11%	58%	-44%	16%	-23%

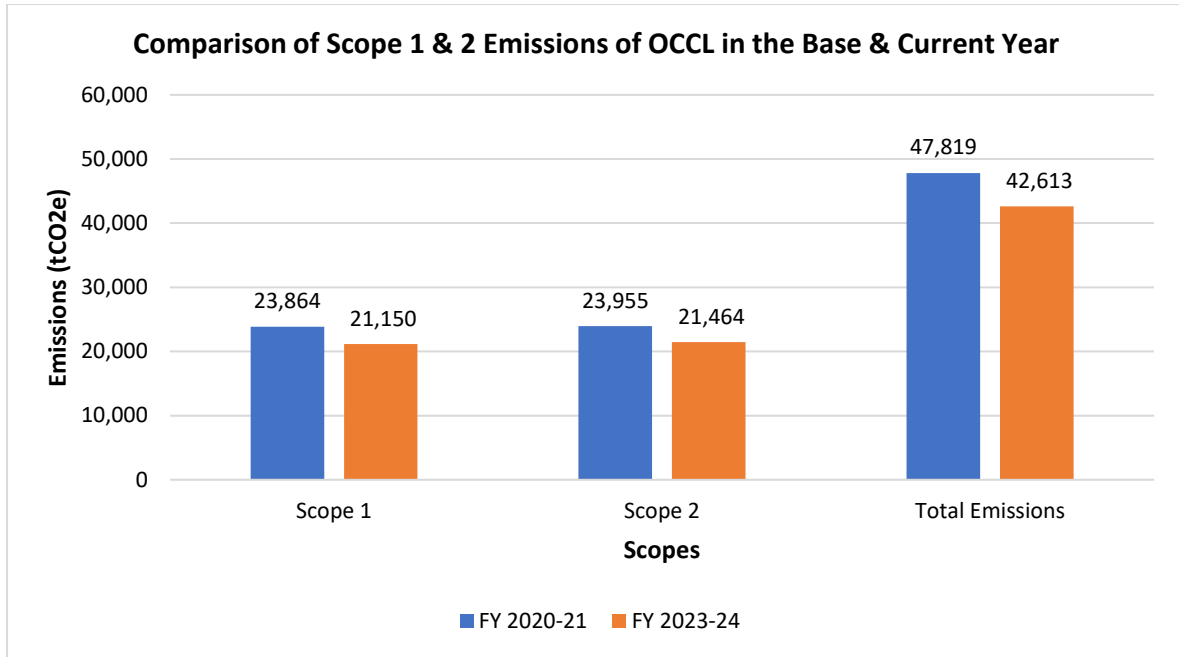


Figure 6 Comparison of Scope 1 & 2 Emissions of OCCL in the Base & Current Year

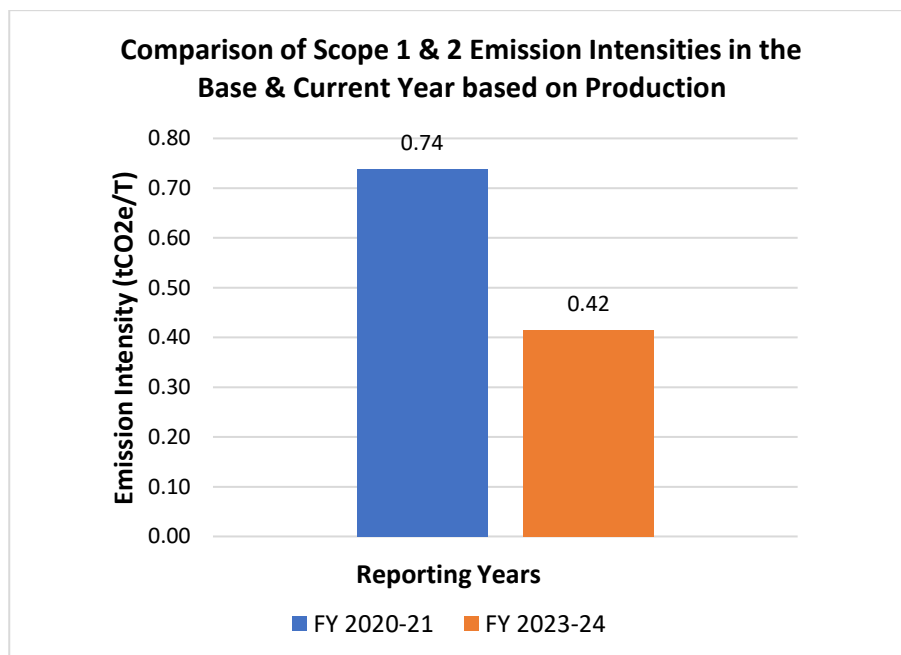


Figure 7 Comparison of Scope 1 & 2 Emission Intensities in the Base & Current Year based on Production

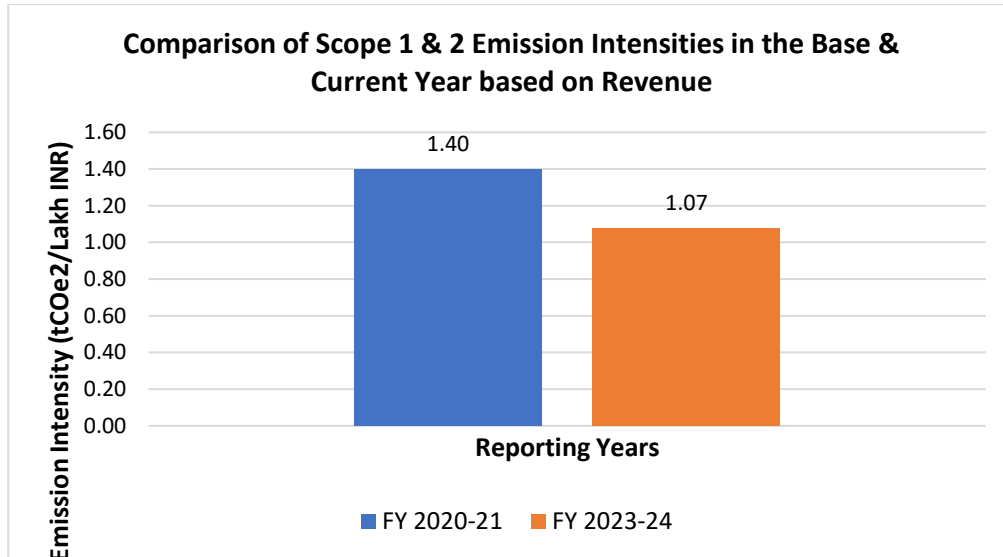


Figure 8 Comparison of Scope 1 & 2 Emission Intensities in the Base & Current Year based on Revenue

As Scope 3 inventory has only started recently, financial year 2020-21 has been chosen as the inaugural base year for Scope 3, setting the benchmark for assessing emissions in future years.

10 QUANTIFICATION PROCESS

The regional team located in the head office is responsible for acquiring activity data from the relevant sources within OCCL's finance, accounts and transport management systems.

Following this data collection phase, OCCL's dedicated team takes charge of meticulously reviewing and consolidating the data. Their responsibility extends to the compilation of the GHG inventory and the preparation of the associated report.

Furthermore, this GHG report meticulously addresses the following key elements:

- A comprehensive identification of both the organizational and reporting boundaries.
- A meticulous process for selecting and scrutinizing GHG sources and sinks.

The emission factor methodology is considered for quantification of direct emissions from fuel combustion and indirect emissions. Here activity data is collected from the site for all calculations and suitable emission factors, taken from reputed and authorized sources, are used to convert the activity data to emission data.

Refill method is used to estimate the refrigerant release from freezers, air conditioners and chillers. Latest GWP values from Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report (AR6), were used for converting the refilled Greenhouse gas to emission data.

The emission factors used in the calculation are taken from Department for Environment, Food and Rural Affairs (DEFRA) 2024 (official site of UK govt.), Central Electricity Authority of India, Version 19.

A thorough exposition of the quantification methodologies employed, with an unwavering commitment to ensuring their consistent application. The emissions summary reflects the utmost effort to consolidate and standardize emissions data while furnishing a comprehensive estimation of the methodologies employed for calculation and estimation, aligning with the ISO 14064-1:2018 standard.

This document has been prepared in conformance with the GHG Protocol Corporate Accounting and Reporting Standard prepared by the World Business Council on Sustainable Development (WBCSD) and the World Resources Institute (WRI). It also suitably refers to the ISO 14064:2018 standard and comply to its requirements.



CARBON FOOTPRINT REPORT 2023-2024

11 UNCERTAINTY ASSESSMENT

Table 10 Emission Sources with their Uncertainty Level

Scopes	Emissions (tCO2e)	Categories	Data at site	Approach	Accuracy
Scope 1	21,149.83	Direct Emission	Company owned vehicles Diesel (L), Petrol (L), Coal (MT), Briquette (MT), LDO (KL), HSD (KL), PNG (Kg), LPG (kg), Propane (Kg), DA (Kg) consumption found in site logs. R22 (Kg) and R32 (Kg) refrigerant also used.	Emission factors are taken from IPCC and DEFRA 2024	Very good
Scope 2	21,463.71	Indirect Emissions - Purchased electricity	Electricity from grid and renewables tracked in KWH with bills and logs.	Emission factors from CEA vs 19	Very good
Scope 3	Cat 1	Purchased Goods and Services	Purchase data Quantity (T) and value INR) with finance team	Emission factors from average industry data- Eco invent and selected reputed research sources	Good
	Cat 2	Capital Goods	Capital expenditure data INR by category of expense with finance team	Emission factors from USEEIO using parity conversion of expense and spend based approach	Satisfactory
	Cat 3	Fuel- and Energy-related Activities	Same as scope 1 and 2 data	DEFRA 2024 WTT factors for fuels and T&D loss factors from CEA of India	Good
	Cat 4	Upstream Transportation	Shipment wise weight (T) and distance (KM) from inward register	DEFRA 2024 Total Km emission factors by size of vehicle	Good
	Cat 5	Waste	Not Material- Waste category wise generation (T) and disposal method from EHS compliances	DEFRA 2024 emission factors by waste category and disposal method	Good

Cat 6	101.08	Business Travel	Not Material- Mode of transport wise Pax-Km data from HR admin records	DEFRA 2024 emission factors by mode of travel	Good
Cat 7	249.56	Employee Commute	Not Material- Mode of transport wise Km data from HR admin records	DEFRA 2024 emission factors by mode of travel	Satisfactory
Cat 8	NA	Upstream Leased Asset	No upstream leased assets	NA	NA
Cat 9	8,269.72	Downstream Transportation	Shipment wise weight (T) and distance (KM) from inward register	DEFRA 2024 Total Km emission factors by size of vehicle	Good
Cat 10	NA	Processing of Sold Products	The product manufactured has a lot of variability in its downstream value chain, hence these categories are not possible to track	NA	NA
Cat 11	NA	Use of Sold Products			
Cat 12	NA	End-of-life Treatment of Sold Products			
Cat 13	1.29	Downstream Leased Assets	Warehouse which only has Electricity consumption associated (KWH)	Emission factors from CEA of India	Very good
Cat 14	NA	Franchises	No franchises	NA	NA
Cat 15	NA	Investments	Subsidiary- Duncan Engg. - These emissions are not included in the GHG inventory of OCCL as this unit will be demerged from OCCL this year.	IPCC AR6 and DEFRA 2024 factors for fuels and T&D loss factors from CEA of India	Excluded

Table 11 Uncertainty Analysis with Accuracy scale

S.No.	Accuracy data	Accuracy
1	Satisfactory	Site survey-based activity data and EF from International source
2	Good	Site based measured activity data and EF from international reputed source
3	Very good	Site based measured activity data and EF sourced from reputed and authorised source, also updated version used

12 PROJECTS & INITIATIVES FOR GHG EMISSION REDUCTION

Below are the future projects & initiatives undertaken to achieve 42% GHG emission reduction by 2030:

1. E-Glass insulation:

- E-Glass insulation in place of rockwool insulation which reduces energy losses from high temperature transfer lines, ultimately reduces the fuel and electricity consumption.
- E-Glass insulation is an imported insulation which is imported from Korea, it reduces the energy losses both from the insulation cladding surfaces that is radiation losses and the losses due to sagging that is due to convection losses.
- It's a pipe section insulation and hence there is no chance of sagging in it.
- The investment required for the above project was nearly 27 lacs against the annual monetary savings of 11.65 lacs with an estimated service life of about 20 years.
- The estimated annual CO₂ savings with E-Glass insulation due to reduction in fuel consumption in Thermic fluid unit and electricity consumption in electric thermic fluid unit is about 87 MT/annum.

2. Condensing Turbine:

- Waste steam (Generated from sulfuric acid plant waste heat boiler) is used in condensing turbine to generate electricity, reducing grid power consumption.
- The power generation capacity of installed condensing turbine is 530 KW.
- Condensing turbine uses steam received from the exhaust of turbo blower which uses high pressure steam. Condensing turbine converts the 6 Kg/cm² (g) steam to water which is again reused as the boiler feed water.
- The investment required for the above project was about INR 5.63 crores with an estimated annual monetary savings of INR 2.69 Crores.
- The estimated annual CO₂ savings with the operation of condensing turbine due to reduction in grid power consumption is about 2700 MT/annum.
- Project Completed in Jan 2024.

3. Replacement of Boiler Feed Water Pump:

- Replaced the existing boiler feed water pump with high efficiency pump to reduce energy consumption.
- The replacement cost of the existing pump was about 13 lacs with an annual monetary savings of 13.5 lacs with service life of about 20 years.
- The estimated annual CO₂ savings with replaced boiler feed water pump is approx. 136 MT.
- It is being implemented in 2024-25.

4. Replacement of Hot Water Circulation pump:

- To use high efficiency pump for hot water circulation to reduce energy consumption.
- The investment required for the above project was 2.78 lacs against an estimated savings of about 1.45 lacs per annum with an estimated service life of 20 years.
- The estimated annual CO₂ savings with high efficiency pump due to reduction in power consumption is about 16 MT.
- It is being implemented in 2024-25.

5. Captive Solar Plant:

- Installation of Captive solar power plant at Dharuhera of 3.2 MWh capacity by Dec 2024.
- The estimated annual CO₂ savings approx. 3400 MT
- Expected Completion Date-Jan 2025

6. Steam Line Insulation with Increased Thickness:

- To increase the existing insulation thickness of steam transfer line from acid plant to IS plant resulting in reduction of heat losses from the pipe surface.
- Total investment cost required for the project is INR 11.15 lacs against an estimated annual savings of INR 4.27 lacs.
- The estimated annual CO₂ savings with replaced increased thickness insulation is approx. 42 tCO₂/annum
- The project is to be implemented in 2024-25.

13 CONCLUSION

OCCL Limited's environmental action plan covers all its direct and indirect emissions for the year FY 2023-24, and it is considered as a current year for OCCL Limited. The base year considered for OCCL Limited's Scope 1 & 2 emissions is FY 2020-2021 and for Scope 3 it is FY 2023-24.

OCCL Limited's organizational carbon footprint is **90,543.80 MTCO₂e** for the year FY 2023-24 and are determined to help industry-wide transition to a low-carbon economy; that is why OCCL Limited plans to reduce their carbon footprint in the future.

14 REFERENCES

For the purpose of calculating and reporting GHG emissions, the following standards and protocols are applicable:

1. Greenhouse Gas Protocol on Corporate Accounting and Reporting by World Resource Institute (WRI) / World Business Council for Sustainable Development (WBCSD)
2. ISO 14064-1:2018 Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
3. India GHG Protocol for Business travel of employees, local travel, emissions from bus commuting
4. UNFCCC methodologies, AMS I.C Thermal energy production with or without electricity --- Version 20.0
5. UNFCCC methodologies AMS I.F Renewable electricity generation for captive use and mini-grid - -- Version 3.0
6. UNFCCC methodologies AMS-III.B, Switching fossil fuels --- Version 18.0
7. UNFCCC methodologies AMS I.D, version 18.0: Grid connected renewable electricity generation - -- Version 18.0
8. Defra Greenhouse Gas Protocol <https://ghgprotocol.org/Third-Party-Databases/Defra>
9. Central Electricity Authority, Version 19
<https://cea.nic.in/cdm-co2-baseline-database/?lang=en>
10. IPCC AR6
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter_07_Supplementary_Material.pdf



CARBON FOOTPRINT REPORT 2023-2024

15 ANNEXURE

15.1 Scope 1 - Direct Emissions – Emission Factors

Fuel/ Gas Used	CO ₂ Emissions (tCO ₂ e)	CH ₄ emissions (tCO ₂ e)	N ₂ O emissions (tCO ₂ e)	Total Emissions (tCO ₂ e)	Source of Emission factor
Diesel	11.91	0.00	0.15	12.06	DEFRA 2024
Petrol	0.25	0.00	0.00	0.25	DEFRA 2024
CNG	0.17	0.000	0.00	0.17	
LDO	367.64	0.04	4.63	372.31	DEFRA 2024
HSD	199.58	0.02	2.51	202.11	DEFRA 2024
Coal	18413.460	53.650	78.463	18545.57	IPCC, calculated with given Calorific value
PNG	310.93	0.47	0.15	311.54	DEFRA 2024
LPG	435.36	0.38	0.24	435.98	DEFRA 2024
LPG- Canteen	33.74	0.03	0.02	33.79	DEFRA 2024
Propane	569.704	0.492	0.313	570.51	DEFRA 2024
Dissolved Acetylene (DA)	-	-	-	562.52	DEFRA 2024
HSD	-	-	-	78.64	DEFRA 2024
Refrigerant - R22	-	-	-	24.37	IPCC, AR 6

15.2 Scope 2 - Indirect Emissions

S.No	Emission Sources	Unit of Measurement	Activity data	Emission Factor (tCO ₂ /unit)	Source of Emission factor
1	Electricity	KWh	29977254	0.716 kgCO ₂ e/MWh	Central Electricity Authority of India, v.19

13.3 Scope 3 – Other Indirect Emissions

Category	Total emissions (tCO ₂ e)	Data at Site	Calculation Methodology
Category 1 - Purchased Goods and Services	25,572.92	Purchase data (Quantity T) and value INR) with finance team	Emission factors from average industry data- OZLCI 2019 and selected reputed research sources
Category 2 - Capital goods	315.56	Capital expenditure data INR by category of expense with finance team	Emission factors from USEEIO 2.0 using parity conversion of expense and spend based approach



CARBON FOOTPRINT REPORT 2023-2024

Category 3 - Fuel- and energy-related activities	11,464.16	Same as scope 1 and 2 data	DEFRA 2024 WTT factors for fuels and T&D loss factors from CEA of India
Category 4 - Upstream transportation and distribution	1,820.59	Shipment wise weight (T) and distance (KM) from inward register	DEFRA 2024 T.Km emission factors by size of vehicle
Category 5 - Waste generated in operations	135.39	Not Material- Waste category wise generation (T) and disposal method from EHS compliances	DEFRA 2024 emission factors by waste category and disposal method
Category 6 - Business Travel	101.08	Not Material- Mode of transport wise Pax-Km data from HR admin records	DEFRA 2024 emission factors by mode of travel
Category 7 - Employee commuting	249.56	Not Material- Mode of transport wise Km data from HR admin records	DEFRA 2024 emission factors by mode of travel
Category 9 - Downstream transportation and distribution	8,269.72	Shipment wise weight (T) and distance (KM) from inward register	DEFRA 2024 T.Km emission factors by size of vehicle
Category 13 - Downstream leased assets	1.29	Warehouse which only has Electricity consumption associated (KWH)	Emission factors from CEA Vrs 19of India
TOTAL	47,930.26		