CO_2 Report 2025

Gaplast GmbH

GAPLAST

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BASIC DATA

Overview

For the year 2025, Planted conducted a CO_2 inventory on behalf of Gaplast GmbH to determine the company's carbon footprint. This inventory was prepared in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (2004) (hereinafter the "GHG Protocol").

Calculating the Corporate Carbon Footprint (a company-level CO_2 footprint) is critical for developing a comprehensive climate strategy. Analysing the CCF makes it possible to identify emission hotspots and potential reduction opportunities, design suitable measures, and set clear climate targets.

This report presents the results of the CO_2 inventory and refers to the business activities of Gaplast GmbH during the financial and calendar year 2025. The base year for greenhouse gas accounting is 2022. This report presents the results of the GHG emissions for 2025.

The choice of this base year was based on the availability of reliable and verifiable emission data for that year and its representativeness for typical business operations.
The base year will be recalculated in the event of material structural changes such as mergers or acquisitions, significant improvements in emission calculation methods, or the discovery of substantial errors or omissions in the original base year data.

About Planted

Planted's mission is to support companies holistically in achieving their individual sustainability goals. To preserve our planet for future generations and living beings, Planted offers a technological software solution for measuring and reducing CO_2 emissions. The processes Planted uses to calculate the CCF are independently certified to the GHG Protocol by TÜV Rheinland Energy & Environment GmbH.

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About Gaplast GmbH

Gaplast GmbH is a family-owned business headquartered in Saulgrub-Altenau and Peiting that provides innovative packaging solutions to customers in the pharmaceutical, medical, and cosmetics sectors. The company focuses on the development and production of packaging using state-of-the-art equipment, including co-extrusion blow moulding, injection blow moulding, and injection moulding. Gaplast complements its offering with custom development, toolmaking, and maintenance services. As a partner to the pharmaceutical industry, Gaplast places great importance on quality management and is committed to a more sustainable future.

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INVENTORY

Consolidation Approach

For the CO_2 inventory in 2025, the “Operational Control” consolidation approach was selected.

Under the Operational Control approach of the GHG Protocol, a company accounts for 100 percent of the greenhouse gas emissions from operations over which it or one of its subsidiaries has operational control. A company has operational control over an operation if it or one of its subsidiaries has the full authority to introduce and implement its operating policies at that operation. (Corporate Accounting and Reporting Standard 2004, p.18)

System Boundaries

The GHG (Greenhouse Gas) Protocol provides companies and organisations with a clear framework for collecting, calculating, and reporting greenhouse gas emissions. This framework enables companies to understand their emissions profile, assess their impact on climate change, and develop targeted measures to reduce emissions.

Broadly, the GHG Protocol divides the relevant emissions into different categories known as "scopes". These scopes represent direct, indirect, and further indirect emissions that can originate from various sources inside and outside an organisation.

The precise implementation and measurement of emissions depend on the nature of a company’s business activities, and exceptions or adjustments can be made depending on individual circumstances. Compliance with the GHG Protocol is an important step in addressing climate change while at the same time promoting a company’s competitiveness and sustainability. It enables companies to understand and manage their emissions and to contribute to global climate protection efforts.

For the GHG emissions inventory in 2025, Gaplast GmbH included the Altenau and Peiting sites.

The company calculated the relevant categories within Scope 1 and Scope 2. In Scope 3, the focus was on collecting production- and end-of-life-related data, such as chemical raw

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materials and products, plastics, and end-of-life treatment of sold products. This decision was based on both relevance and data availability.

System Boundaries Table

The following table illustrates the system boundaries chosen by Gaplast GmbH.

Scope	Excluded Category	Rationale for Exclusion
1	1.2.2 Other Fuels Used	A: No activity in this category
1	1.3.2 Other Fugitive Gases	A: No activity in this category
1	1.4 Physical and Chemical Processing	A: No activity in this category
2	2.2 Purchased Heating and Cooling	A: No activity in this category
2	2.3 Externally Generated Steam / Pressure	A: No activity in this category
3	3.1.4 Metals	A: No activity in this category
3	3.1.5 Minerals and Construction Materials	A: No activity in this category
3	3.1.10 Textiles	A: No activity in this category
3	3.1.12 Digital Services and Servers	A: No activity in this category
3	3.8 Rented or Leased Assets	A: No activity in this category
3	3.9 Third-Party Funded Logistics and Goods Transport	A: No activity in this category
3	3.10 Processing of Sold Products	A: No activity in this category
3	3.11 Use of Sold Products	A: No activity in this category
3	3.13 Rented or Leased Assets (Downstream)	A: No activity in this category
3	3.14 Franchises	A: No activity in this category
3	3.15 Investments	E: Data basis offers no reduction potential

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Methodology

For the CO_2 inventory 2025, clients were first introduced to Planted's software tool. After an onboarding session and an explanation of the scopes, the system boundaries were defined and data collection began. The focus is on obtaining primary data in order to produce as accurate an inventory as possible. Where primary data is not available, both Planted's proxy emission factors and additional assumption-based calculations can be used as secondary data.

The relevant activity data in Scope 1, 2, and 3 was collected from various sources. These include internal company data (ERP system, financial accounting data, travel management tool, HR and IT reports) as well as external data sources (heating, electricity, and utility bills, supplier information). Where data gaps existed, they were closed using proxy emission factors or assumption-based calculations. For detailed information on data sources, emission factors, and the use of secondary data or assumptions, please refer to the following chapter "Data Quality and Sources".

Data Quality and Sources

The following table provides information on the data quality and origin of the identified emission sources and emission factors used in this GHG study.

Category	Emission Source Classification	Emission Source Origin	Emission Factor Sources	Data Quality
Scope 1				
1.1 Heating	Primary data	Heating bill, reported in kWh	Planted database	high
1.2.1 Vehicle Fleet (Combustion)	Secondary data	Average value based on distance driven, reported in km	Planted database	medium
1.3.1 Air	Secondary data	Percentage loss /	Planted database	medium

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Category	Emission Source Classification	Emission Source Origin	Emission Factor Sources	Data Quality
Conditioning / Refrigerants		production experience values, reported in kg		
1.5 Self-Generated Electricity	Primary data	Electricity bill, reported in kWh	Planted database	high
Scope 2				
2.1 Purchased Electricity	Primary data	Electricity bill, reported in kWh	Planted database	high
2.4 Vehicle Fleet, Electric	Primary data	Electricity bill, reported in kWh	Planted database	high
Scope 3				
3.1.1 Chemical Raw Materials and Products	Primary data	ERP report, reported in kg	Planted database	high
3.1.2 Wood, Paper, and Cardboard	Primary data	ERP report, reported in t and kg	Planted database	high
3.1.3 Plastics	Primary data	ERP report, reported in kg	Planted database	high
3.1.6 Food and Agricultural Commodities	Primary data	ERP report, reported in kg	Planted database	high

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Category	Emission Source Classification	Emission Source Origin	Emission Factor Sources	Data Quality
3.1.7 Fresh Water	Primary data	Utility bill, reported in m^3	Planted database	high
3.1.8 Electronics	Primary data	ERP report, reported in units and GB	Planted database	high
3.1.9 Furniture	Primary data	ERP report, reported in units	Planted database	high
3.1.11 Canteen / Catering	Primary data	ERP report, reported in units	Planted database	high
3.1.13 Events	Secondary data	ERP report, reported in persons	Planted database	low
3.1.14 Other Products and Services	Primary data	ERP report, reported in m^2	Planted database	high
3.2 Capital Goods	Secondary data	Accounting data, reported in €	Planted database	low
3.4 Purchased Transport and Logistics	Primary data	Supplier data, reported in tkm and tCO_2e	Planted database	high
3.5 Waste	Primary data	Utility bill, reported in m^3; ERP report, reported in t and kg	Planted database	high
3.6.1 Business Travel	Primary data	Travel management tool, reported in	Planted database	high

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Category	Emission Source Classification	Emission Source Origin	Emission Factor Sources	Data Quality
		pkm		
3.6.2 Hotel Stays	Primary data	Travel management tool, reported in units	Planted database	high
3.7.1 Commuting	Secondary data	HR and IT reports, reported in persons	Planted database	low
3.7.2 Home Office	Secondary data	HR and IT reports, reported in persons	Planted database	low
3.12 End-of-Life Treatment of Sold Products	Primary data	ERP report, reported in kg	Planted database	high

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Result

The total result of the market-based calculation is 20,537.80 tonnes of CO_2e. The total location-based result is 24,150.69 tonnes of CO_2e. These emissions are distributed as follows: 104.99 tonnes of CO_2e are direct emissions (Scope 1). Scope 2 accounts for 0.00 tonnes of CO_2e on a market-based basis and 3,191.25 tonnes of CO_2e on a location-based basis. 20,432.80 tonnes of CO_2e are attributable to other indirect emissions (Scope 3) on a market-based basis. On a location-based basis, 20,854.45 tonnes of CO_2e are attributable to Scope 3.

Overview

Below is an overview of the company's Corporate Carbon Footprint.

Item	Emissions[1]	Share of Total Emissions Market-based[2]	Share of Total Emissions Location-based[2]
Scope 1		**0.51%**	**0.43%**
1.1 Heating	44.56 t CO_2e	0.22%	0.18%
1.2.1 Vehicle Fleet (Combustion)	54.99 t CO_2e	0.27%	0.23%
1.3.1 Air Conditioning / Refrigerants	5.44 t CO_2e	0.03%	0.02%
1.5 Self-Generated Electricity	0.00 t CO_2e	0.00%	0.00%
Scope 2 (Market-based)		**0.00%**	**-**
2.1 Purchased Electricity	0.00 t CO_2e	0.00%	-
2.4 Vehicle Fleet, Electric	0.00 t CO_2e	0.00%	-
Scope 2 (Location-based)		**-**	**13.21%**
2.1 Purchased Electricity	3,163.53 t CO_2e	-	13.10%

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Item	Emissions[1]	Share of Total Emissions Market-based[2]	Share of Total Emissions Location-based[2]
2.4 Vehicle Fleet, Electric	27.72 t CO_2e	-	0.11%
Scope 3		**99.49%**	**86.35%**
3.1.1 Chemical Raw Materials and Products	895.17 t CO_2e	4.36%	3.71%
3.1.2 Wood, Paper, and Cardboard	767.74 t CO_2e	3.74%	3.18%
3.1.3 Plastics	12,176.36 t CO_2e	59.29%	50.42%
3.1.6 Food and Agricultural Commodities	1.41 t CO_2e	<0.01%	<0.01%
3.1.7 Fresh Water	0.98 t CO_2e	<0.01%	<0.01%
3.1.8 Electronics	40.01 t CO_2e	0.19%	0.17%
3.1.9 Furniture	3.03 t CO_2e	0.01%	0.01%
3.1.11 Canteen / Catering	59.24 t CO_2e	0.29%	0.25%
3.1.13 Events	1.92 t CO_2e	<0.01%	<0.01%
3.1.14 Other Products and Services	<0.01 t CO_2e	<0.01%	<0.01%
3.2 Capital Goods	645.51 t CO_2e	3.14%	2.67%
3.3 Fuel- and Energy-Related Emissions (mb)	63.49 t CO_2e	0.31%	-
3.3 Fuel- and Energy-Related Emissions (lb)	485.14 t CO_2e	-	2.01%
3.4 Purchased Transport and Logistics	246.47 t CO_2e	1.20%	1.02%
3.5 Waste	714.67 t CO_2e	3.48%	2.96%

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Item	Emissions[1]	Share of Total Emissions Market-based[2]	Share of Total Emissions Location-based[2]
3.6.1 Business Travel	11.68 t CO_2e	0.06%	0.05%
3.6.2 Hotel Stays	0.42 t CO_2e	<0.01%	<0.01%
3.7.1 Commuting	356.00 t CO_2e	1.73%	1.47%
3.7.2 Home Office	2.30 t CO_2e	0.01%	<0.01%
3.12 End-of-Life Treatment of Sold Products	4,446.39 t CO_2e	21.65%	18.41%
Total Emissions (Market-based)	**20,537.80 t CO_2e**	**100%**	**-**
Total Emissions (Location-based)	**24,150.69 t CO_2e**	**-**	**100%**

1 Values are rounded.
2 In this CO_2 inventory, all conventional greenhouse gases are included as CO_2 equivalents (CO_2e). This includes gases such as methane (CH4), nitrous oxide (N2O), and fluorinated gases (HFCs, PFCs, SF6, NF3). The CO_2e values account for the different Global Warming Potentials (GWP) of these gases to enable a consistent representation of climate impact, and refer to the IPCC report from 2021 (AR6) using the Global Warming Potential over 100 years (GWP100).

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Biogenic Emissions (Market-based)

Item	Emissions[1]
Scope 1	
Biogenic Emissions	0.00 t CO_2e
Scope 2	
Biogenic Emissions	0.00 t CO_2e
Scope 3	
Biogenic Emissions	1,593.87 t CO_2e

1 Values are rounded.

The calculation method for determining the CO_2 inventory was verified by TÜV Rheinland Energy & Environment GmbH.

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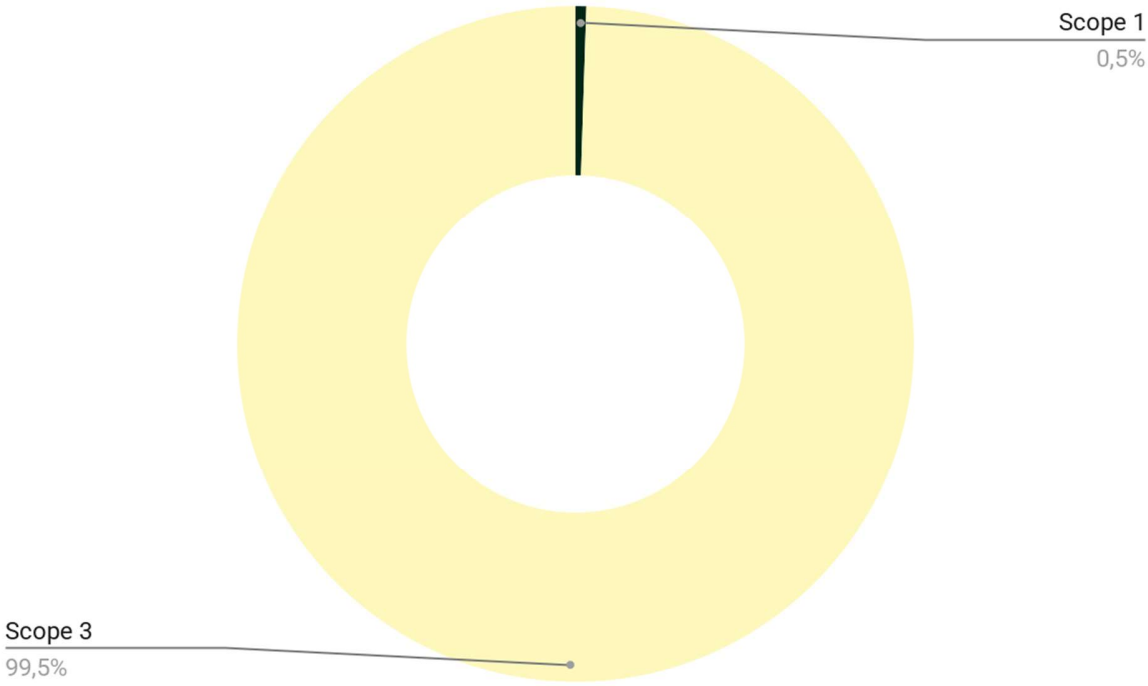
Graphical Representation (Market-based)

Emissions by Scope 1, 2 and 3



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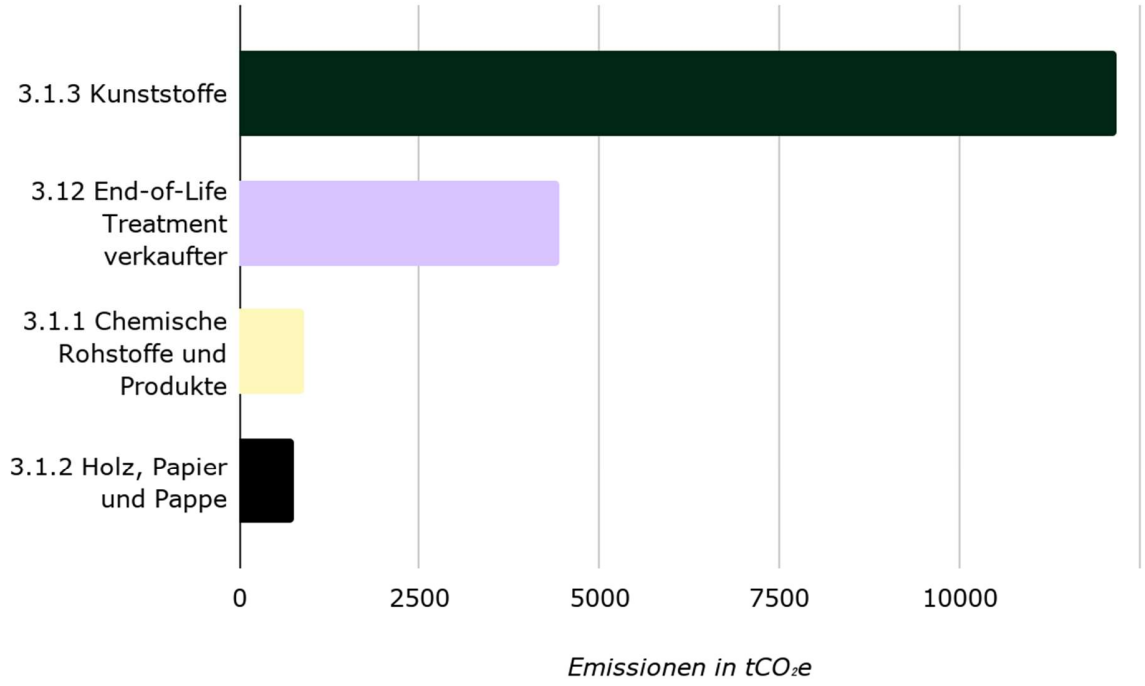
Emission Hotspots in t CO_2e



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BACKGROUND

Brief Climate Policy Context

The CO_2 inventory is the entry point to a sustainability strategy. To take meaningful sustainability action, it is essential first to obtain an overview of one's own emissions. This is the purpose of the CO_2 inventory, a method for quantifying a company's greenhouse gas emissions. The Corporate Carbon Footprint, as the CO_2 inventory is also known, is a stocktake of all activities that cause greenhouse gas emissions and helps a company understand the impact of its activities on climate change. The CO_2 inventory is therefore the first step in building a holistic sustainability strategy and the foundation for all subsequent reduction measures. In this CO_2 inventory, all conventional greenhouse gases are included as CO_2 equivalents (CO2e). This includes gases such as methane (CH4), nitrous oxide (N2O), and fluorinated gases (HFCs, PFCs, SF6, NF3). The CO_2e values account for the different Global Warming Potentials (GWP) of these gases to enable a consistent representation of climate impact, and refer to the IPCC report from 2021 (AR6) using the Global Warming Potential over 100 years (GWP100).

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METHOD

Accounting Standard

A CO_2 inventory covers three areas of emissions, the so-called scopes. This categorisation allows the different sources of a company's greenhouse gas emissions to be distinguished and assessed separately.

Scope 1

Scope 1 emissions are direct emissions caused by the combustion of fossil fuels in production or by processes within the company itself. Examples include emissions from on-site energy sources, the combustion of fuels in vehicles (own fleet), or the operation of furnaces, boilers, or machinery. Because control over these emissions lies within the company, they can be measured and controlled relatively easily.

Scope 2

Scope 2 emissions are indirect emissions caused by the purchase of energy or electricity. An example of Scope 2 emissions are those produced by the combustion of coal or gas in power plants that the company uses to generate electricity. Emissions can be reduced through the purchase of renewable energy. If a company operates its own electricity generation facilities, the associated emissions fall under Scope 1.

Excursus: Explanation of Location-based and Market-based Emissions

The difference between location-based and market-based emissions lies in how CO_2 emissions from purchased electricity (Scope 2) are calculated. The location-based method calculates emissions based on the average emission factor of the regional electricity grid, regardless of the specific energy sources a company uses. The market-based method, by contrast, reflects the company's actual energy procurement decisions, such as the purchase of Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs), and can therefore show lower emissions when renewable energy is used. Both methods provide complementary insights into a company's CO_2 footprint.

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Scope 3

Scope 3 emissions are indirect emissions that arise from processes outside the company but are connected to the company's production and operations. Compared to Scope 1 and 2, these emissions are often more difficult to measure and control. Examples include emissions from the manufacturing of materials or the use of products or services that the company purchases.

Scope 3 is divided into upstream and downstream emissions:

Upstream emissions cover all emissions within the value chain associated with services and purchased goods.
Downstream emissions are indirect emissions within the value chain that occur with goods or services sold by the company once they have left the company.

Biogenic Emissions

Biogenic emissions are CO_2 emissions that result from the combustion or decomposition of organic material such as plants, trees, and agricultural residues. These emissions occur when biogenic material reaches the end of its life cycle and releases CO_2 through natural decomposition or human activities such as combustion in biomass power plants. During their growth, plants absorb CO_2 from the atmosphere through photosynthesis and store it in their structures. When decomposed or burned, this stored CO_2 is released again, which is referred to as biogenic emissions.

Emission Factor Sources

Source	Description
DEFRA (2023)	Department for Environment Food & Rural Affairs report "UK Government GHG Conversion Factors for Company Reporting"
DEFRA "Table 13" (2011)	Indirect emissions of a value chain, specifically for Scope 3.
Umweltbundesamt (2023)	"Development of specific carbon dioxide emissions of the German electricity mix in the years 1990 – 2023".
Ökobaudat (2023-I)	Online database for the life cycle assessment of construction materials, used for Scope 3.

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Source	Description
Mobitool (v3.0 (2023))	Emission factors for passenger and freight transport, based on ecoinvent data and emission factors for passenger and freight transport.
Ademe/Agribalyse (2023)	French database for agricultural and food products, used for Scope 3.
EPA	Emission factors for services and capital goods, used for Scope 3.
Ökoinstitut e.V.	Data from "Digital CO_2 Footprint" for Scope 3 Electronics.
Researchpaper	LCA studies and product carbon footprints.
ecoinvent 3.10	Emission factor database with LCIA IPCC 2021 (AR6).

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DATA QUALITY AND LIMITATIONS

The relevant activity data in Scope 1, 2, and 3 was collected from various sources (see Methodology for further details). The data quality of the activity data collection was medium in Scope 1, as a mixture of primary and secondary data was available, and predominantly high in Scope 2, as primarily primary data could be used. In Scope 3, specific consumption data was missing for the categories Events, Capital Goods, Commuting, and Home Office. In 1.3.1 Air Conditioning / Refrigerants, production experience values were also applied. For further category-specific details, please refer to the chapter “Data Quality and Sources”.

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DISCLAIMER

Planted provides the software for calculating greenhouse gas (GHG) emissions. Planted accepts no responsibility for incomplete or incorrect data entries. The responsibility for the accuracy and completeness of the data entered, and for the GHG inventory results calculated from it, lies entirely with the user of the software.

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APPENDIX

Appendix 1

Characterisation Factors Table per AR6 - GWP100

Gas	AR6 – GWP100	Lifetime
CO2	1	N/A
CH4 (biogenic)	27.0	11.8
CH4 (fossil – combustion)	27.0	11.8
CH4 (fossil – fugitive and process)	29.8	11.8
N2O	273	109
HFC-32	770	5.4
HFC-143a	5807	51
CF4	7379	50,000
C2F6	12,410	10,000
C3F8	9289	2600
C4F10	10,022	2600
C5F12	9218	4100
C6F14	8617	3100
C7F16	8409	3000
c-C4F8	13,902	3000
HFC-125	3744	30
HFC-134a	1526	14
HFC-152a	164	1.6
HFC-227ea	3602	36

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Gas	AR6 – GWP100	Lifetime
HFC-23	14,590	228
HFC-236fa	8689	213
HFC-245fa	962	7.9
HFC-365mfc	913	8.9
HFC-43-10-mee	1599	17
SF6	25,184	3200
NF3	17,423	569

Appendix 2

Conversion Factors and Abbreviations

Prefixes	Symbol	Number	Standard Form
Kilo	k	1,000	10^3
Mega	M	1,000,000	10^6
Giga	G	1,000,000,000	10^9
Tera	T	1,000,000,000,000	10^{12}
Peta	P	1,000,000,000,000,000	10^{15}

Energy	GJ	kWh	therm	toe	kcal
Gigajoule, GJ		277.78	9.47817	0.02388	238,903
Kilowatt-hour, kWh	0.0036		0.03412	0.00009	860.05
Therm	0.10551	29.307		0.00252	25,206
Tonne oil equivalent, toe	41.868	11,630	396.83		10,002,389

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Energy	GJ	kWh	therm	toe	kcal
Kilocalorie, kcal	0.000004186	0.0011627	0.000039674	0.0000001	

Volume	L	m^3	cu ft	Imp. gallon	US gallon	Bbl (US,P)
Litre, L		0.001	0.03531	0.21997	0.26417	0.0062898
Cubic metre, m3	1000		35.315	219.97	264.17	6.2898
Cubic feet, cu ft	28.317	0.02832		6.2288	7.48052	0.17811
Imperial gallon	4.5461	0.00455	0.16054		1.20095	0.028594
US gallon	3.7854	0.0037854	0.13368	0.83267		0.02381

Weight / Mass	kg	tonne	ton (UK)	ton (US)	lb
Kilogram, kg		0.001	0.00098	0.0011	2.20462
Tonne, t (metric ton)	1000		0.98421	1.10231	2204.62368
Ton (UK, long ton)	1016.04642	1.01605		1.12	2240
Ton (US, short ton)	907.18	0.90718	0.89286		2000
Pound, lb	0.45359	0.00045359	0.00044643	0.0005	

Length / Distance	m	ft	mi	km	nmi
Metre, m		3.2808	0.00062137	0.001	0.00053996
Foot, ft	0.3048		0	0.0003048	0.00016458
Mile, mi	1609.34	5280		1.60934	0.86898
Kilometre, km	1000	3280.8	0.62137		0.53996
Nautical mile, nmi or NM	1852	6076.1	1.15078	1.852	

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Length / Distance	m	ft	in	cm	yd
Metre, m		3.28084	39.37008	100	1.09361
Foot, ft	0.3048		12	30.48	0.33333
Inch, in	0.0254	0.08333		2.54	0.02778
Centimetre, cm	0.01	0.03281	0.3937		0.01094