



Documentation Corporate Carbon Footprint

va-Q-tec AG

Project

Corporate Carbon Footprint
(CCF) – 8 locations, revalidation

Created for:

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1. Introduction and methodology

A CO₂ balance, also called CO₂ footprint or one-dimensional life cycle assessment, can be created by products, companies or individual individuals. This allows the total amount to be expressed in CO₂ equivalents (CO₂e) emitted over the lifetime of a product, by the activity of a company or by the activity of an individual.

The Corporate Carbon Footprint (CCF) is the result of a company-wide CO₂ balance. The present balance sheet has been prepared in accordance with the standard for the quantification and management of greenhouse gas emissions (THGs) published by the Greenhouse **Gas (GHG) Protocol**.

The **corporate standard** of the GHG Protocol requires the inclusion of all Scope 1 and Scope 2 emissions. Scope 3 emissions are calculated in accordance with the **Corporate Value Chain (Scope 3) standard** of the GHG Protocol

Compliance with these globally recognized standards enables possible external verification and qualified compensation of GHG emissions.

The GHG Protocol Scopes and their emission categories:

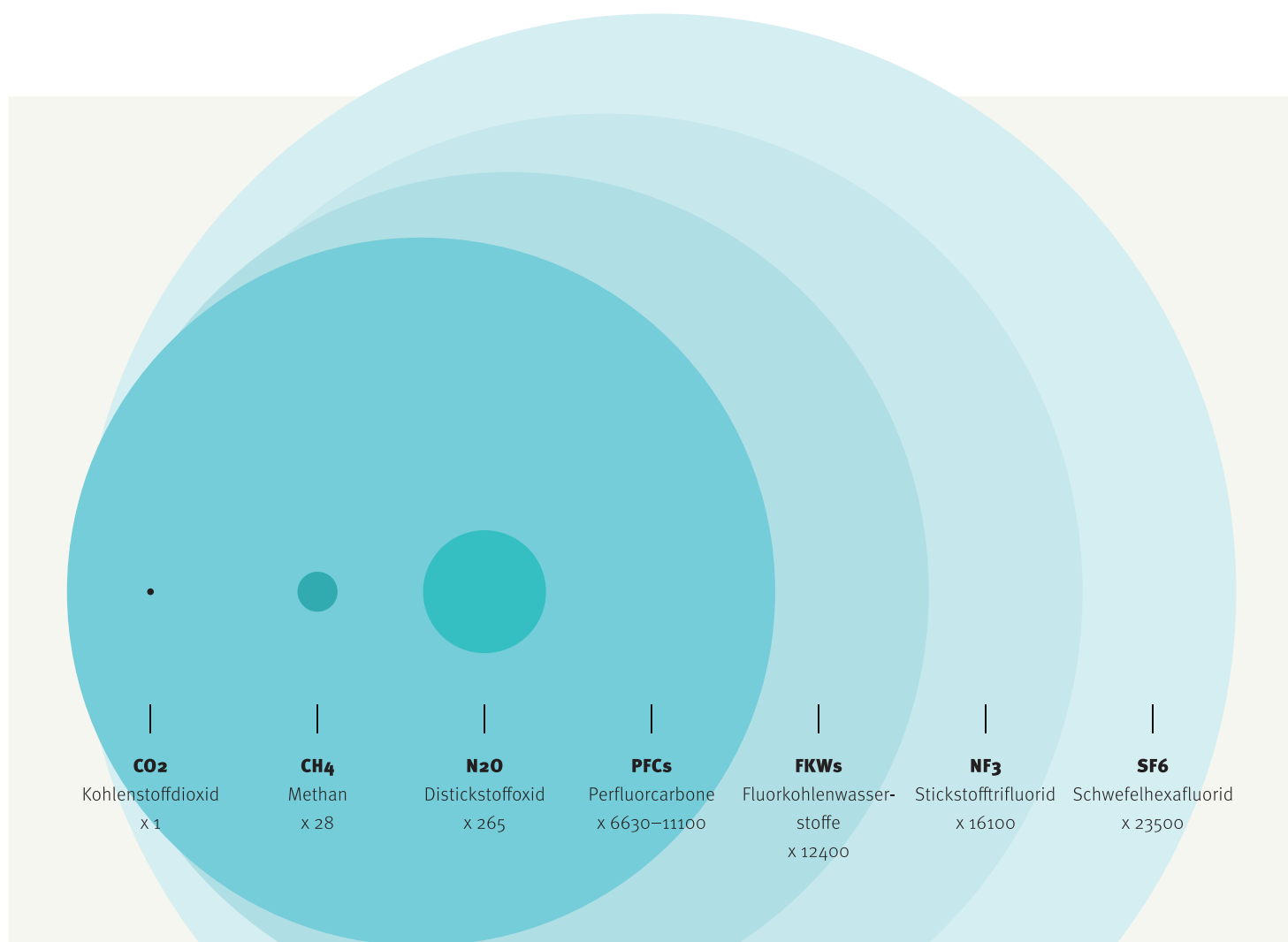
- **Scope 1:** Direct greenhouse gas emissions from sources owned or controlled by the company.
- **Scope 2:** Energy-related indirect greenhouse gas emissions, which originate from the generation of purchased electricity, steam or heat/cold consumed in the company and arise directly from the producer.
- **Scope 3:** Other indirect greenhouse gas emissions that originate from the Company's activities but from sources that are not owned or controlled by the Company.



According to the standard, the THGs regulated under the Kyoto Protocol are considered:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Fluorocarbons and perfluorinated hydrocarbons (HFCs)
- Sulfur hexafluoride (SF₆)
- Nitrogen trifluoride (NF₃)

The calculation of emissions (expressed as CO₂ equivalent (CO₂e)) is carried out by the Global Warming Potential (GWP) over a period of 100 years. In the following, the GWP is always related to this period.



When creating the Corporate Carbon Footprint and the corresponding reporting system, five basic principles must be observed:

- **Relevance:** The principle of relevance stipulates that all significant emission sources must be taken into account when creating a carbon footprint for a company and that the report should be conducive to decision-making inside and outside the company.
- **Completeness:** The principle of completeness states that all relevant emission sources within the system boundaries must be taken into account.
- **Consistency:** In order to enable comparability of the results over time, the accounting policies and system boundaries are to be recorded and maintained in subsequent years. Potential changes in methodology and system boundaries must be identified, justified, documented and taken into account in comparisons.
- **Accuracy:** Distortions, uncertainties, as well as over- and undervaluations should be reduced as much as possible so that the results provide a solid basis for decision-making.
- **Transparency:** The results should be presented transparently and clearly comprehensibly.

2. Company portrait and goal definition

This report provides an overview of the results of the emissions accounting and refers to the company's business activities va-Q-tec AG with the 8 sites.

The data assessed for GHG emissions are from 2021. Unless otherwise stated, the data was provided by the company va-Q-tec AG and evaluated and documented by natureOffice GmbH. The Company declares that the data provided is complete and accurate. There is no verification of the data by natureOffice.

The **Corporate Carbon Footprint** is used to identify the largest sources of emissions within the company and along the upstream and downstream stages of the value chain. It thus forms the basis for the development of a climate protection strategy in which goals, measures and responsibilities for reducing greenhouse gas emissions are defined. In the following years, it serves to check whether set targets have been achieved, in which areas progress has been made and in which areas there is a need for action to reduce CO₂ emissions.

The starting point for the preparation of the company's initial balance sheet va-Q-tec AG was to record the current situation and to evaluate the methodical handling of the data in order to:

- Define the largest emission sources verifiably
- Define reduction targets
- Examine the consideration of compensatory measures

3. System boundaries

Accounting approach:

Operationally control-oriented

Description of all locations
included in the balance sheet:

- Germany
- UK
- USA
- Japan
- Korea
- Singapore
- Uruguay
- Switzerland

Description of all company
activities included in the
balance sheet:

The balance includes all Scope 1 emissions caused by stationary or mobile combustion. Emissions from volatile gases are also taken into account. The balance includes all Scope 2 emissions resulting from the use of electrical energy. Scope 3 upstream emissions are fully reported unless otherwise stated. Downstream Scope 3 emissions are not part of the balance, with the exception of use and recovery emissions for leased products (categories 11 and 12).

Reporting period:

January 1st 2021 to December 31st 2021

List of Scope 3 activities considered:

- Category 1 - Purchased goods and services
- Category 2 - Capital goods
- Category 3 - Fuel- and energy-related activities
- Category 4 - Upstream transportation and distribution
- Category 5 - Waste generated in operations
- Category 6 - Business travel
- Category 7 - Employee commuting
- Category 8 - Upstream leased assets
- Category 11 - Use of sold products
- Category 12 - End-of-life treatment of sold products

List of scope 3 emissions not taken into account with justification for exclusion:

- Category 9 - Downstream transportation and distribution: Downstream transports were not recorded due to negligible relevance.
- Category 10 - Processing of sold products: The further processing of products is not relevant.
- Category 13 - Downstream leased assets: There is no leasing of property, plant and equipment.
- Category 14 - Franchises: There are no franchises.
- Category 15 - Investments: There are no investments or shareholdings.

4. Results overview – all locations

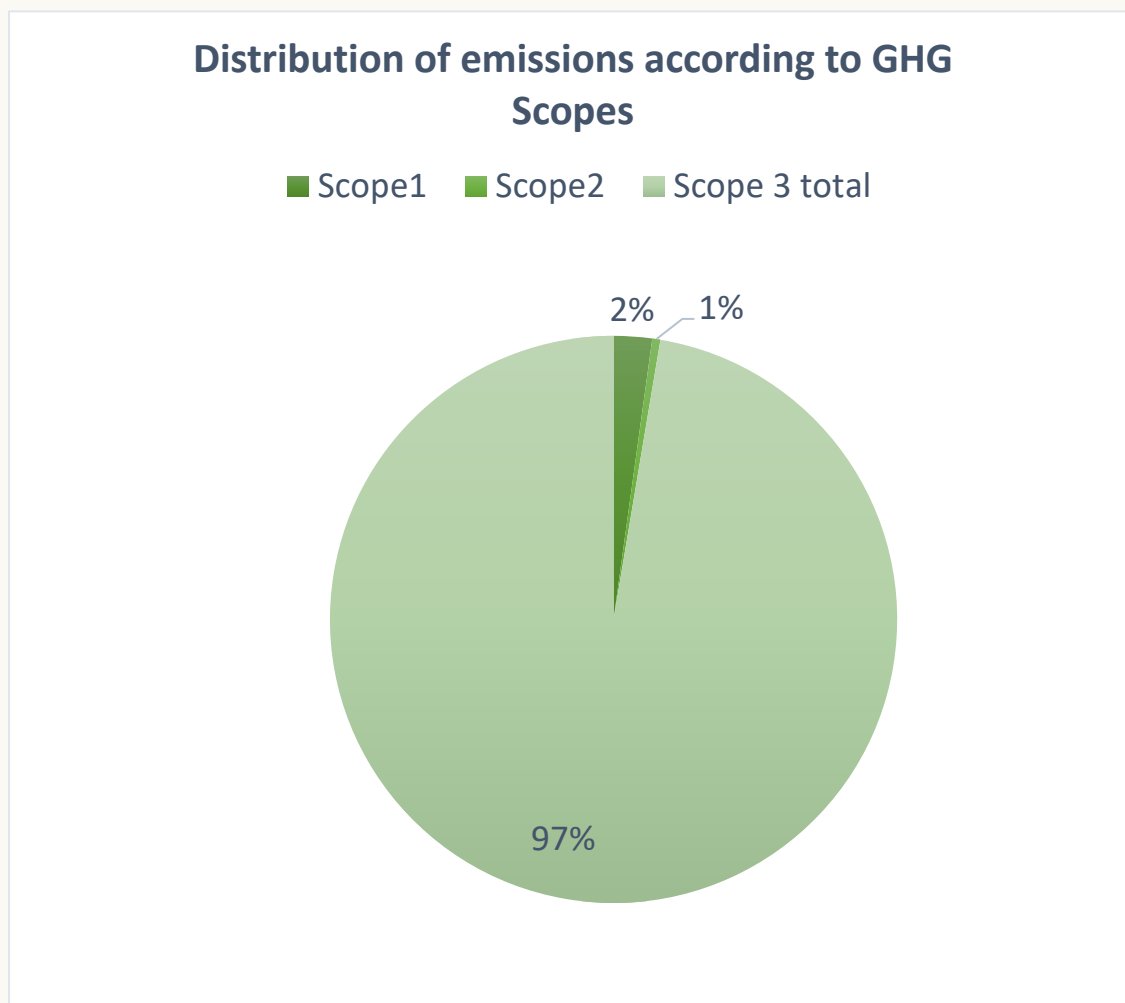
The emissions for the financial year amount to **109.718,44 tonnes of CO₂e** for the entire company across all locations and are distributed across the scopes as follows:

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1	2,18%	2.396,90
Scope 2	0,46%	504,93
Scope 3	97,36%	106.816,61
Emissions	market based	109.718,44

*see section 7

Note: According to the GHG Protocol, this documentation shows both the GHG emissions resulting from the purchase of electricity market-based, as well as location-based. These are listed in Section 5 "Detailed Results CCF".

Distribution of emissions according to GHG Scopes



5. Detailed results CCF

2021: Entire company – all locations

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	2,18%	2.396,90
combustion by stationary sources	1,46%	1.606,91
combustion by mobile sources	0,18%	198,72
by volatile gases	0,54%	591,28
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	0,46%	504,93
purchased electricity market based	0,46%	504,93
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	49,91%	54.755,67
Category 1 Purchased Goods & Services	23,78%	26.089,39
Category 2 Means of production and fixed assets	10,72%	11.765,01
Category 3 upstream energies market-based	0,48%	531,83

Category 3 upstream energies location based		47,52
Category 4 upstream transport	14,31%	15.700,19
Category 5 Waste generation	0,22%	244,14
Category 6 Business trips	0,08%	92,98
Category 7 Arrival of employees	0,30%	332,13
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	47,45%	52.060,93
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	46,54%	51.062,22
Category 12 Disposal of sold products	0,91%	998,72
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	109.718,44
	location based	108.821,17,17

2021 - Germany

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	2,14%	2.342,08
combustion by stationary sources	1,44%	1.574,68
combustion by mobile sources	0,16%	176,12
by volatile gases	0,54%	591,28
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	0,28%	301,96
purchased electricity market based	0,28%	301,96
purchased electricity location based		549,23
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	49,96%	54.607,55
Category 1 Purchased Goods & Services	23,87%	26.089,39
Category 2 Means of production and fixed assets	10,76%	11.765,01
Category 3 upstream energies market-based	0,44%	484,31

Category 3 upstream energies location based		468,12
Category 4 upstream transport	14,36%	15.700,19
Category 5 Waste generation	0,22%	236,66
Category 6 Business trips	0,05%	54,68
Category 7 Arrival of employees	0,25%	277,32
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	47,63%	52.060,93
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	46,71%	51.062,22
Category 12 Disposal of sold products	0,91%	998,72
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	109.312,53
	location based	108.543,62

2021 - UK

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	27,92%	37,85
combustion by stationary sources	20,85%	28,28
combustion by mobile sources	7,06%	9,58
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	19,26%	26,11
purchased electricity market based	19,26%	26,11
purchased electricity location based		26,11
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	52,83%	71,63
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	12,32%	16,71

Category 3 upstream energies location based		16,71
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	3,15%	4,27
Category 6 Business trips	14,28%	19,36
Category 7 Arrival of employees	23,07%	31,28
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	135,59
	location based	135,59

2021 - USA

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	1,54%	3,01
combustion by stationary sources	1,54%	3,01
combustion by mobile sources	0,00%	0,00
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	78,42%	152,91
purchased electricity market based	78,42%	152,91
purchased electricity location based		152,91
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	20,04%	39,07
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	12,94%	25,23

Category 3 upstream energies location based		25,23
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	0,85%	1,66
Category 6 Business trips	0,00%	0,00
Category 7 Arrival of employees	6,25%	12,18
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	194,99
	location based	194,99

2021 - Japan

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	1,71%	0,10
combustion by stationary sources	0,00%	0,00
combustion by mobile sources	1,71%	0,10
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	10,39%	0,59
purchased electricity market based	10,39%	0,59
purchased electricity location based		0,59
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	87,90%	4,98
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	1,51%	0,09

Category 3 upstream energies location based		0,09
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	3,34%	0,19
Category 6 Business trips	58,62%	3,32
Category 7 Arrival of employees	24,44%	1,38
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	5,66
	location based	5,66

2021 - Korea

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	50,04%	6,84
combustion by stationary sources	0,00%	0,00
combustion by mobile sources	50,04%	6,84
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	18,74%	2,56
purchased electricity market based	18,74%	2,56
purchased electricity location based		2,56
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	31,22%	4,26
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	12,79%	1,75

Category 3 upstream energies location based		1,75
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	2,21%	0,30
Category 6 Business trips	0,00%	0,00
Category 7 Arrival of employees	16,21%	2,21
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	13,66
	location based	13,66

2021 - Singapore

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	7,81%	3,42
combustion by stationary sources	0,00%	0,00
combustion by mobile sources	7,81%	3,42
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	40,54%	17,75
purchased electricity market based	40,54%	17,75
purchased electricity location based		17,75
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	51,66%	22,62
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	7,37%	3,23

Category 3 upstream energies location based		3,23
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	1,04%	0,45
Category 6 Business trips	35,66%	15,61
Category 7 Arrival of employees	7,59%	3,32
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	43,78
	location based	43,78

2021 - Uruguay

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	37,87%	2,67
combustion by stationary sources	0,00%	0,00
combustion by mobile sources	37,87%	2,67
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	16,09%	1,13
purchased electricity market based	16,09%	1,13
purchased electricity location based		1,13
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	46,04%	3,25
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	1,41%	0,10

Category 3 upstream energies location based		0,10
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	5,36%	0,38
Category 6 Business trips	0,00%	0,00
Category 7 Arrival of employees	39,27%	2,77
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	7,05
	location based	7,05

2021 - Switzerland

Scope according to GHG Protocol	Share in %	Quantity (in tonnes of CO ₂ e)
Scope 1: Direct emissions from	18,13%	0,94
combustion by stationary sources	18,13%	0,94
combustion by mobile sources	0,00%	0,00
by volatile gases	0,00%	0,00
physical or chemical processes	0,00%	0,00
Scope 2: indirect emissions from	37,15%	1,92
purchased electricity market based	37,15%	1,92
purchased electricity location based		1,92
District heating/cooling	0,00%	0,00
purchased steam	0,00%	0,00
Scope 3: indirect emissions (upstream)	44,73%	2,31
Category 1 Purchased Goods & Services	0,00%	0,00
Category 2 Means of production and fixed assets	0,00%	0,00
Category 3 upstream energies market-based	8,21%	0,42

Category 3 upstream energies location based		0,42
Category 4 upstream transport	0,00%	0,00
Category 5 Waste generation	4,39%	0,23
Category 6 Business trips	0,00%	0,00
Category 7 Arrival of employees	32,13%	1,66
Category 8 Leasing/Rental	0,00%	0,00
Scope 3: indirect emissions (downstream)	0,00%	0,00
Category 9 Downstream transport	0,00%	0,00
Category 10 Processing of sold products	0,00%	0,00
Category 11 Use of sold products	0,00%	0,00
Category 12 Disposal of sold products	0,00%	0,00
Category 13 Lessors	0,00%	0,00
Category 14 Franchisor	0,00%	0,00
Category 15 Investments	0,00%	0,00

Emissions	market based	5,17
	location based	5,17

7. Special features of the balance sheet

The data quality, any assumptions made, as well as the use of key figures to evaluate the company's emissions and the resulting safety premium on the total emissions are defined in the following table.

Quality:

Activity data: Provided by the client. The data quality is rated as good to satisfactory. All data collection methodologies listed in the GHG Protocol were approved.

Emission factors: The evaluation of the activity data with regard to the resulting emissions was carried out by natureOffice GmbH. The emission factors come from scientifically sound databases (probas, ecoinvent) or are determined by data modelling by natureOffice GmbH and can be rated as as good to satisfactory.

Data availability, allocation, and assumptions made:

Germany

Scope3

Category 7

No detailed information on employee mobility →

nO- internal indicator

Category 11

The transported quantities (transport weight * transport distance) and the type of transport were provided by va-Q-tec AG. The types of transport were differentiated into transport by road/truck, by air freight or by sea freight.

Average values were formed.

Category 12

Use of nO indicator and conservative recycling scenario for emissions from product disposal

Site allocation Scope3 Category 1, 11 and 12

All emissions were assigned to sites in Germany. Due to the current data situation, a differentiated allocation to other sites was not possible in the present balance.

Data availability,
allocation, and
assumptions made:

UK

Scope1

No heat specification available -> assumption: natural gas
No market based electricity mix available → Assumption: market = location based

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO internal indicator

Category 7, no detailed data on employee mobility → nO-internal indicator

USA

Scope1

No heat specification available → assumption: natural gas
No market based electricity mix available → Assumption: market = location based

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO internal indicator

Category 7, no detailed data on employee mobility → nO-internal indicator

Japan

Scope2

No market based electricity mix available → assumption: market = location based

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO-internal key figure

Category 7, no detailed data on employee mobility → nO-internal indicator

Korea

Scope2

No market based electricity mix available → assumption: market = location based

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO-internal key figure

Category 7, no detailed data on employee mobility → nO-internal indicator

Data availability,
allocation, and
assumptions made:

Singapore

Scope2

No market based electricity mix available → Assumption: market = location based

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO-internal indicator

Category 7, no detailed data on employee mobility → nO-internal indicator

Uruguay

Scope1

Vehicle fleet -> assumption: data from 2020 data collection

Scope2

No market based electricity mix available → Assumption: market = location based, no kWh Available: Data from 2020 data collection

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO-internal key figure

Category 7, no detailed data on employee mobility → nO-internal indicator

Scope1

No heat specification available → Assumption: natural gas vehicle fleet -> Assumption: data from 2020 data collection

Scope2

No market based electricity mix available → Assumption: market = location based, no kWh Available: Data from 2020 data collection

Scope3

Category 3, see Scope1 and 2

Category 5, no waste data available → nO-internal key figure

Category 7, no detailed data on employee mobility → nO-internal indicator

Use of natureOffice
internal key figures:

Scope1 emissions heat: kWh/employee

Scope2 emissions electricity: kWh/employee, country- electricity mix

Scope3 emissions:

Category 5: kg CO₂e/employee

Category 7: kg CO₂e/employee

Category 12: kg CO₂e/kg recycled material

Resulting safety
surcharge:

o % on total emissions
All nO key figures show internal safety margins.

Imprint

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