PROGOLD®

Where Passions Melt

CORPORATE GHG INVENTORY REPORT 2024

Quantification and Reporting of Greenhouse Gas Emissions in accordance with UNI EN ISO 14064-1:2019

Progold S.p.A.

Rev.1 – 15/12/2025

Summary

1 Description of the reporting organization

Progold S.p.A. – Innovation and Tradition in Jewelry

Founded in 1997, Progold is a leader in the precious metals sector and advanced technologies for their production. It provides innovative and science-based solutions to address the challenges of the global jewellery industry.

Progold offers cutting-edge products, including alloys, master alloys, electroplating products, and soldering solutions, as well as additive manufacturing services. Across its portfolio, Progold combines technical excellence and sustainability, through the use of RJC-CoC certified recycled precious metals.

With a network of official distributors in 16 countries and exports to over 50 nations, Progold sets a benchmark in the precious metals sector for quality, reliability, and international growth.

Alloys and Master Alloys

Progold offers a range of over 300 alloys and master alloys for gold, silver, and platinum, to meet the diverse needs of jewelry manufacturers.

Progold products are suitable for the most common production processes, such as lost-wax casting, plastic deformation, and machining.

The portfolio comprises certified alloys at all fineness levels, in a wide variety of colors, all made exclusively from 100% recycled gold and silver. Alloys and master alloys are certified according to RJC-CoC ethical standards.

To facilitate product selection, Progold classifies its alloys and master alloys in the following families:

- **GENIA®**: Universal alloys with fine grain structure and high mechanical strength.
- **FLEXIA®**: Alloys most suitable for plastic deformation processes, with exceptional strength and malleability.
- **LUX®**: Deoxidized alloys for lost-wax casting, designed to ensure clean and flawless castings, ideal for stone-set jewelry.
- **BLANK®**: Universal 18k white gold alloys without nickel or palladium.
- **PLATINA®**: Platinum alloys with high strength and hardness, suitable for high-quality jewelry.
- **UNIBRAX®**: Master alloys for gold and silver soldering, with a wide range of melting points.

Soldering products

Progold develops advanced soldering pastes, designed to improve precision and efficiency in jewelry assembly and repair processes:

- **LAP-X®**: Innovative laser soldering product, to improve precision and safety. Refill rods are made of 18k gold and platinum alloys.
- **BRAXA®**: Rods and sheets for versatile soldering applications.
- **XBRAX®**: Ready-to-use soldering pastes for gold, silver, and platinum, ensuring excellent results at low temperatures with reduced filler alloy usage.

PROGOL3D®

PROGOL3D® revolutionizes jewelry design by leverage additive manufacturing technology in precious metals.

Through SLM™ technology, Progold offers a specialized service for creating semi-finished jewellery in gold, platinum, and titanium.

All products are made exclusively with recycled metals and comply with ethical and sustainable standards.

Through file preparation to final product shipment, PROGOL3D® oversees every stage of the production process, providing technical expertise and unlimited creative possibilities.

Progold *continuously invests in research to provide innovative solutions to jeweller manufacturers. By combining advanced technology and artisanal tradition, Progold is committed to delivering unmatched products and services in the global market.*

2 Objective

This report describes the principles, concepts and methods concerning the quantification and reporting of greenhouse gas (GHG) emissions generated from Progold's operations, at its registered and operational headquarters in Trissino (VI).

The quantification and reporting of GHG emissions enable the company to understand its contribution to climate change, identify areas for improvement, set concrete targets, and reduce emissions.

The GHG inventory is also a useful tool for monitoring environmental performance over time, with a focus on GHG emissions.

This study is subject to third-party verification with a reasonable assurance level and a materiality threshold of 0% in relation to the declared information.

3 Regulatory references

The calculation of GHG emissions comply with the principles and requirements of the relevant international standards for the preparation of greenhouse gas inventories.

Specifically, the standard UNI EN ISO 14064-1:2019 – "Greenhouse gases – Part 1: Specification with guidance at the organizational level for the quantification and reporting of greenhouse gas emissions and removals" has been adopted.

Accordingly, the principles for the preparation of the GHG inventory are:

- **Relevance** – Select the GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the intended user
- **Completeness** – Include all relevant emissions and removals
- **Consistency** – Enable meaningful comparisons in GHG-related information
- **Accuracy** – Minimize errors and uncertainties
- **Transparency** – Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence

4 Organizational and reporting boundaries

The organizational boundaries definition consists in the identification of the installations to be included.

For this purpose, the **"operational control"** approach was used. Accordingly, all GHG emissions, both direct and indirect, arising from activities over which the organization has control have been accounted for.

Progold's organizational boundaries comprises its registered and operational site, located at **Via Postale Vecchia, 26, 36070 Trissino (VI)**.

5 Methodological choices

The methodology adopted for the quantification and preparation of the GHG inventory is based on the requirements set out in UNI EN ISO 14064-1:2019 standard.

Primary data are used where available: primary data are site-specific data collected directly at the company's facilities or derived from documents, objective evidence, or direct measurements.

The emission factors come from accredited and updated databases and, where not available, from bibliographic sources.

The Ecoinvent v3.11 database, with **"Allocation, cut-off by classification"** option**,** is primarily used for the preparation of the study.

According to this approach, the impacts of the primary production of materials are always assigned to the main (first) user.

When a material is intended to be recycled, at the end of its first life cycle, the producer does not receive credits for supplying recyclable materials; nor it is accountable for the final disposal of the material at the end of its (multiple) life cycle(s). For this reason, recyclable materials do not carry any recycling burdens to the first producer. At the same time, recycled materials entering a new production process bear only the impacts attributable to the recycling process they undergo.

The recycled material, therefore, does not carry any burden from the activities and processes for its primary production.

With regard to indirect GHG emissions, a cut-off of 1% is applied to the significant inventory categories shown in Chapter 7, based on the annual input data.

The GHG inventory is calculated using the software **SimaPro v. 10.2**.

The method used is **IPCC 2021 (GWP 100)**, which provides greenhouse gas emissions expressed in terms of kg CO_2eq, through specific GWPs. The main greenhouse gases considered by the method are CO_2, CH_4, N_2O, SF_6, chloro- and hydrochloro-fluorocarbons. The complete list of all greenhouse gases taken into consideration is reported in the IPCC AR6 report.

With regard to Category 2 emissions, associated with the consumption of imported electricity, a **location-based approach** is adopted, consistently with UNI EN ISO 14064–1:2019 standard requirements. However, for completeness, Chapter 10 presents the inventory calculated using both market-based and location-based approaches.

As for Category 1 emissions, a methane lower heating value of **36 MJ/m³** is assumed, consistently with the value reported for the Ecoinvent process used (Annex 1).

6 Reference year and base year

The reporting year for the corporate GHG inventory calculated in this study is calendar year 2024.

Due to some different methodological choices compared to previous reporting years, 2024 has been assumed as the new base year. Previously, 2022, the first corporate carbon footprint reporting year, was chosen as the base year.

For this reason, no comparison is presented between the emissions calculated for the two aforementioned years.

7 Significance analysis

Once the organizational boundaries have been defined, a significance analysis allows for the determination of "significant" indirect emissions sources, which are then considered in the following parts of the study.

The standard allows the selection of criteria to assess significance, which may include the magnitude of the emission, the level of influence on the source, access to information, and the level of accuracy associated with input data.

For the present study, the following criteria are selected:

- **M - Magnitude**: measures the importance in quantitative terms of the emission associated with the specific source, compared to other emission sources.
- **IN - Influence:** parameter which defines the organization's ability to monitor and define plans for the reduction of the considered indirect emission source.
- **IM - Importance:** reflects the growing interest of the organization in analyzing the emission impact of the specific source.
- **D - Availability:** parameter that accounts for the availability and ease of retrieval of data related to the indirect emission source.

The calculation of the overall significance, for each indirect emission source, is determined by the sum of the significance attributed to each individual criterion and equal to 0 (not significant) or 1 (significant).

An emission source is considered significant when the sum of the values associated with the parameters described above gives a result greater than or equal to 3.

$$S = M + IN + IM + D$$

In the following table the values assigned to the aforementioned criteria for all the indirect GHG emission sources are listed.

CAT	EMISSION SOURCE	M	IN	IM	D	S
2	Electricity consumption	1	1	1	1	**4**
3	Packaging, chemicals and raw materials transport	0	1	1	1	**3**

3	Employee commuting	1	0	1	1	**3**
3	Business travel	1	0	1	1	**3**
3	Waste transport	0	1	1	1	**3**
4	Raw materials use	1	1	1	1	**4**
4	Packaging use	0	1	1	1	**3**
4	Chemicals use	0	1	1	1	**3**
4	Technical gases use	0	1	1	1	**3**
4	Graphite products use	0	1	1	1	**3**
4	Fules and electricity production and transport	0	1	1	1	**3**
4	Water consumption	0	1	1	1	**3**
4	Capital goods	0	1	0	0	**1**
4	Waste disposal	0	1	1	1	**3**
5	Products downstream distribution	1	0	0	0	**1**
5	Products use and end-of-life	1	0	0	0	**1**

Capital goods, machinery, and equipment are excluded from the inventory. The distribution, use, and end-of-life phases of products are excluded, as well, mainly because of limited data availability and reliability. Anyway, the long service life of jewellery made with Progold products results in a reduced and therefore negligible contribution of the use and end-of-life phases to the total emissions associated with the organization.

Flows falling within the cut-off threshold, equal to 1%, as stated in Chapter 2, are excluded as well.

8 Inventory

For the calculation of the inventory data, primary, site-specific data collected from official internal company documents are used. Where not available, data are obtained from accredited literature or derived from estimates as closely as possible to reality, based on available information.

Category 1

- Natural gas consumption – 8.082 Smc
- Fuel consumption in fleet vehicles:
    - Van (diesel) – 36.011,2 km
    - Petrol and hybrid cars – 223.084,8 km
    - Diesel cars – 37.204 km

Category 2

- Grid electricity consumption – 638.472 kWh

Category 3

- Gases transport – 70 km
- Packaging transport:
    - Labels – 23 km
    - Boxes – 38 km
    - Pallets - 12,7 km
    - Adhesive labels on ribbon – 21,7 km
    - Plastic film – 44 km
    - ADR boxes - 206 km
    - Cardboard boxes and cases – 22 km for 1594,5 kg and 45 km for 7752,11 kg
    - Shockwatch labels – 348 km
    - Irreversible temperature indicator labels – 161 km
- Metals transport:
    - Gold – 350 km for 14,5 kg and 30 km for 9,5 kg
    - Silver – 350 km for 13,7 t and 30 km for 22,8 t
    - Copper – 327 km
    - Zinc – 327 km for 5.000 kg, 233 km by lorry and 16.863 km by ship per 10.000 kg
    - Nickel – 139 km
    - Silicon – 1.925 km
    - Tin – 327 km
    - Gallium – 1.063 km
    - Indium – 1.063 km
    - Iridium - 896 km
    - Ruthenium – 896 km
    - Palladium – 30 km
    - Platinum – 30 km
    - Lithium - 896 km
- Chemicals transport:
    - Solvent (AL74, 90% 2-propanol, 10% ethyl acetate) – 113 km
    - Liquid polishing product (L77, 25% phosphoric acid) – 13,5 km
    - Boric acid – 30,6 km
- Transport of graphite products - 52,4 km
- Waste transport – 50 km (estimated value)
- Business travel:
    - Aircraft – 382.419 km
    - Train – 11.561,4 km
- Employee commuting:
    - Petrol and hybrid cars – 169.235 km
    - Natural gas cars – 26.290 km
    - Diesel cars – 136.418 km
    - LPG cars – 22.116 km
    - Coach – 4.260 km

Category 4

- Tap water consumption – 757 m^3
- Fuel consumption in fleet vehicles:
    - Van (diesel) – 36.011,2 km
    - Petrol and hybrid cars – 223.084,8 km
    - Diesel cars – 37.204 km
- Grid electricity consumption (downstream) – 638.472 kWh
- Gases:
    - Hydrogen - 42 m^3
    - Helium – 60 m^3
    - Argon (gaseous) – 4.640 m^3
    - Argon (liquid) – 25.762 m^3
    - Nitrogen – 7.040 m^3
    - Noxal 3 – 65 m^3
    - Acetylene – 4 kg
- Packaging:
    - Paper boxes and cases – 9.366,61 kg
    - Labels – 2.110,75 kg
    - Plastic bags and film – 1.834,91 kg
    - Pallets – n. 610
    - Cardboard boxes – 4.495,65 kg
    - Printer ribbon – 12 kg
- Metals:
    - Gold (recycled) – 24 kg
    - Silver (recycled) – 36.572 kg
    - Copper (recycled) – 188.000 kg
    - Zinc (partially recycled) – 15.000 kg (10.000 kg recycled)
    - Silicon (recycled) – 4.500 kg
    - Tin (recycled) – 405 kg
    - Indium (recycled) – 380 kg
    - Gallium (recycled) – 370 kg
    - Nickel – 3.500 kg
    - Copper powder – 650 kg
    - Palladium – 40,61 kg
    - Lithium – 30 kg
    - Iridium (recycled) – 16,85 kg
    - Platinum (partially recycled) – 16,7 kg (12,37 kg recycled)
    - Ruthenium (recycled) – 10,87 kg
- Natural gas production and transport – 4.887 Smc
- Chemicals:
    - Solvent (AL74, 90% 2-propanol, 10% ethyl acetate) – 3.800 l
    - Liquid polishing product (L77, 25% phosphoric acid) – 4750 l
    - Boric acid – 200 kg
- Graphite products:
    - Crucibles – 4.964,96 kg

- Stoppers – 148.37 kg
- Dies – 89.27 kg

- Waste disposal – 233.474,7 kg

9 Results

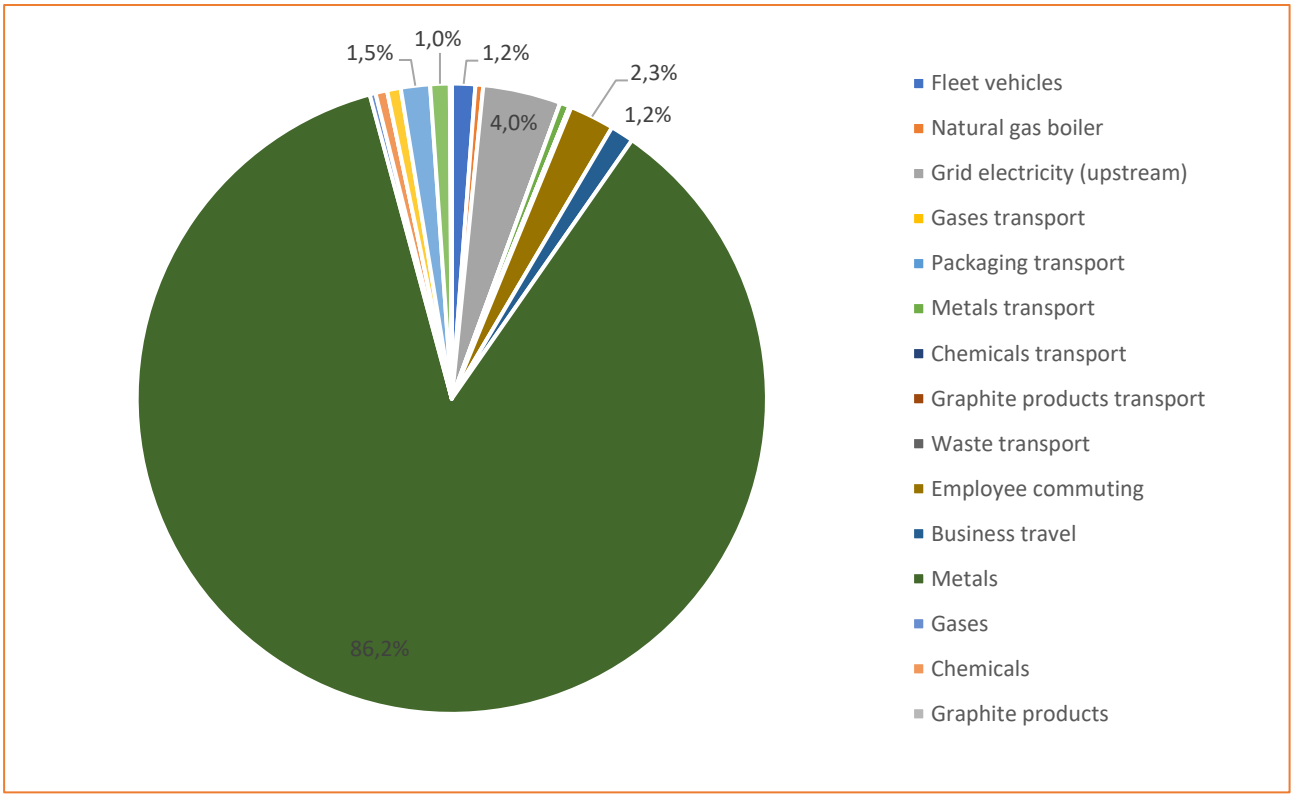
Type of emissions	Amount (ton CO_2eq)	Contribution
Category 1 – Direct emissions	***70,11***	***1,6%***
Fleet vehicles	52,29	1,2%
Natural gas boiler	17,82	0,4%
Category 2 – Indirect GHG emissions from imported energy	***172,78***	***4,0%***
Grid electricity (upstream)	172,78	4,0%
Category 3 – Indirect emissions from transport	***174,87***	***4,0%***
Gases transport	0,29	0,0%
Packaging transport	0,29	0,0%
Metals transport	20,18	0,5%
Chemicals transport	0,07	0,0%
Graphite products transport	0,07	0,0%
Waste transport	2,76	0,1%
Employee commuting	98,55	2,3%
Business travel	52,66	1,2%
Category 4 – Indirect GHG emissions from products used	***3.949,79***	***90,4%***
Metals	3.766,05	86,2%
Gases	12,06	0,3%
Chemicals	25,18	0,6%
Graphite products	0,11	0,0%
Packaging	32,08	0,7%
Grid electricity (downstream)	63,90	1,5%
Fuel consumption in fleet vehicles	42,96	1,0%
Natural gas production	5,94	0,1%
Waste disposal	1,29	0,0%
Tap water	0,23	0,0%
Total	***4.367,55***	

Type of emissions	Amount (ton CO_2eq)	CO_2	CH_4	N_20	Altro
Category 1 – Direct emissions	***70,11***	***69,50***	***0,11***	***0,50***	**-**

Anthropogenic biogenic emissions are 14,49 ton di CO_2eq, accounting for less than 1% of total emissions.

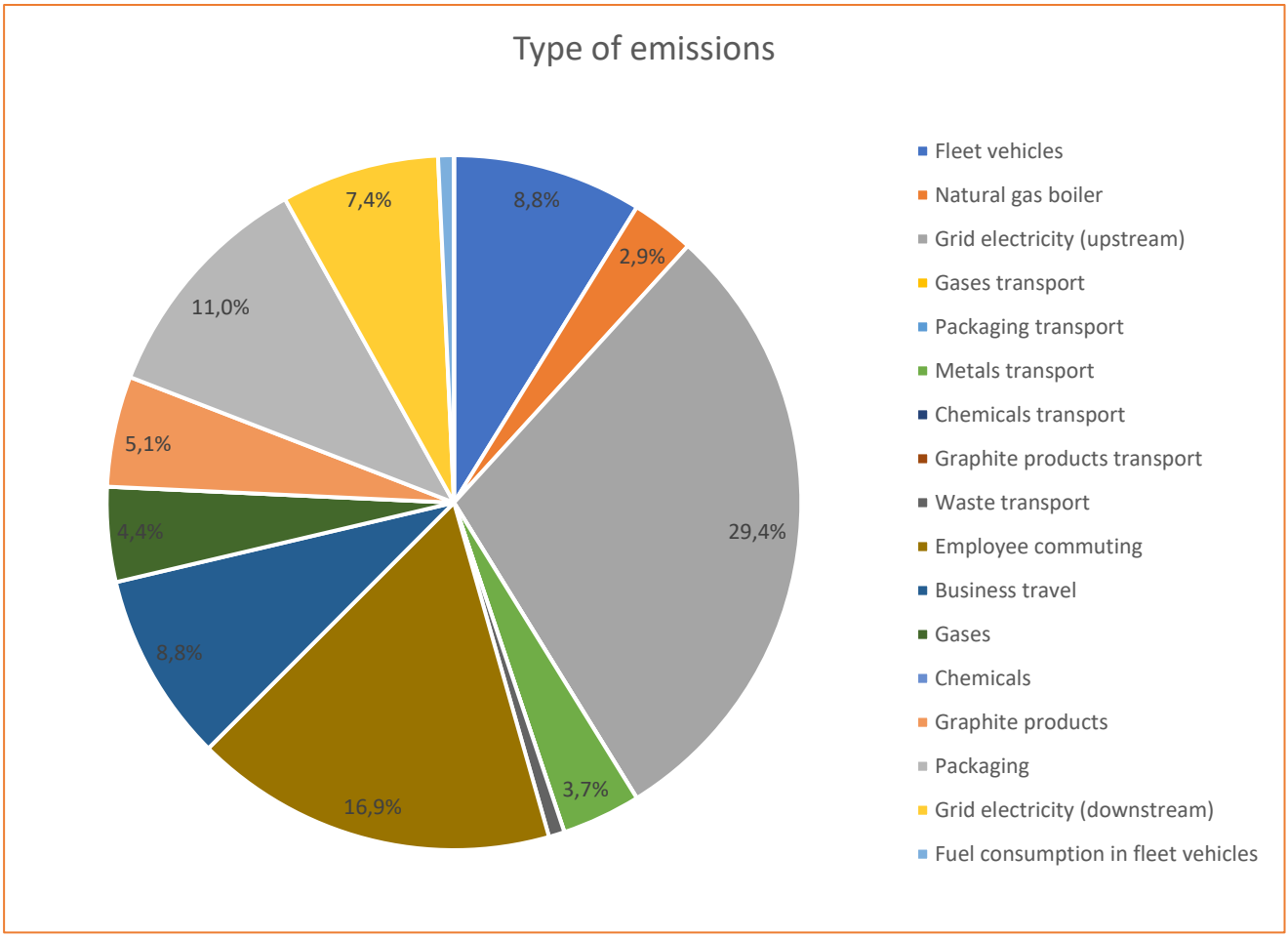
Anthropogenic biogenic emissions per category are reported in the following table:

Type of emissions	Amount (t CO_2eq)
Category 1 – Direct emissions	***0,00***
Fleet vehicles	0,00
Natural gas boiler	0,00
Category 2 – Indirect GHG emissions from imported energy	***0,44***
Grid electricity (upstream)	0,44
Category 3 – Indirect emissions from transport	***0,05***
Gases transport	0,00
Packaging transport	0,00
Metals transport	0,00
Chemicals transport	0,00
Graphite products transport	0,00
Waste transport	0,00
Employee commuting	0,01
Business travel	0,04
Category 4 – Indirect GHG emissions from products used	***9,22***
Metals	8,67
Gases	0,02
Chemicals	0,01
Graphite products	0,00
Packaging	0,31
Grid electricity (downstream)	0,16
Fuel consumption in fleet vehicles	0,04
Natural gas production	0,00
Waste disposal	0,00
Tap water	0,00
Total	**9,71**



The larger contribution to total emissions (86%) arises from the production of metals which make final products; more than 4% accounts for electricity consumption while about 3,5% of total emissions are linked to business travel and employee commuting. All other emission sources are of low importance.

Taking into consideration less significant sources (by excluding metals production), the most important are electricity consumption, business travel, employee commuting, packaging and the use of fleet vehicles.



Direct emissions represent only 1,6% of total emissions.

10 Treatment of electricity

In 2024, the organization purchased Guarantees of Origin for the electricity consumed. In particular, the sources of purchased energy are:639 MWh of solar energy

- 639 MWh of solar energy
- 1 MWh of wind energy

Therefore, the results calculated with a location-based approach and a market-based approach for imported electricity are as follows:

Type of issue	Amount (ton CO_2eq) – Location Based	Amount (ton CO_2eq) – Market Based
Category 1 – Direct emissions	***70,11***	***70,11***
Fleet vehicles	52,29	52,29
Natural gas boiler	17,82	17,82
Category 2 – Indirect GHG emissions from imported energy	***172,78***	***34,81***

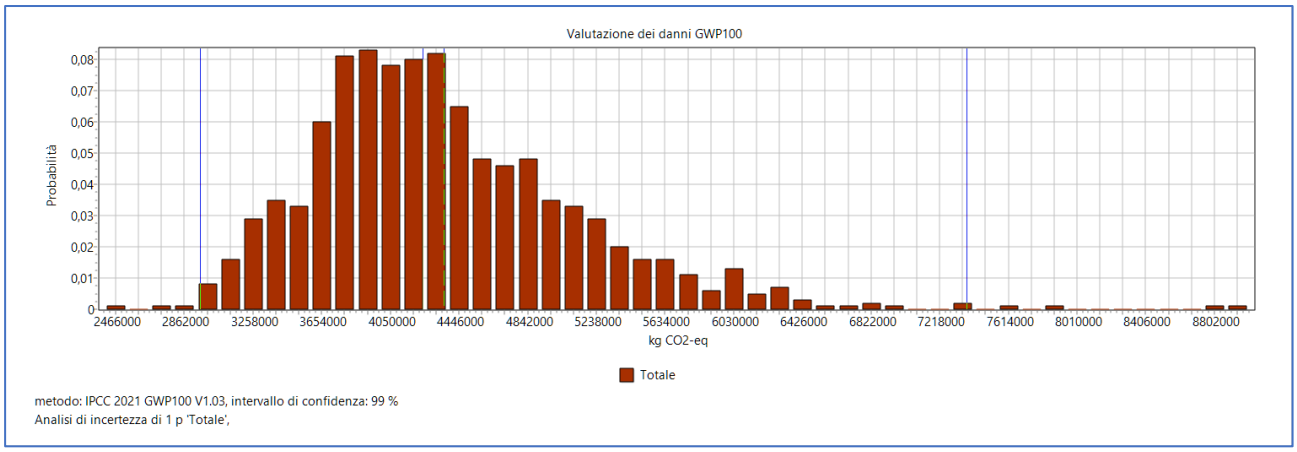
Grid electricity (upstream)	172,78	34,81
Category 3 – Indirect emissions from transport	***174,87***	***174,87***
Gases transport	0,29	0,29
Packaging transport	0,29	0,29
Metals transport	20,18	20,18
Chemicals transport	0,07	0,07
Graphite products transport	0,07	0,07
Waste transport	2,76	2,76
Employee commuting	98,55	98,55
Business travel	52,66	52,66
Category 4 – Indirect GHG emissions from products used	***3.949,79***	***3.949,79***
Metals	3.766,05	3.766,05
Gases	12,06	12,06
Chemicals	25,18	25,18
Graphite products	0,11	0,11
Packaging	32,08	32,08
Grid electricity (downstream)	63,90	63,90
Fuel consumption in fleet vehicles	42,96	42,96
Natural gas production	5,94	5,94
Waste disposal	1,29	1,29
Tap water	0,23	0,23
Total	**4.367,55**	**4.089,52**

11 Uncertainty analysis

The uncertainty analysis of the impacts is carried out using the Monte Carlo method, a qualitative-quantitative technique.

Through this method, the coefficient of variation is calculated and the criteria reported in the table below are applied to qualitatively assess the level of uncertainty of the individual impacts. The lower the value of the coefficient of variation, the higher the precision and representativeness of the calculated impact.

The results of the uncertainty analysis are reported below.



The uncertainty analysis output is summarized in the following table.

Uncertainty analysis results – Confidence interval 95%	CV	Rating
	17,76%	Good

12 Annex 1 – Sima Pro processes

Voce Inventario	Processo Utilizzato
Production and combustion of fuel in fleet vehicles	Transport, passenger, car, petrol, medium size, EURO 5 {RER}| transport, passenger, car, petrol, medium size, EURO 5 | Cut-off, U[1] Transport, passenger, car, diesel, medium size, EURO 5 {RER}| transport, passenger, car, diesel, medium size, EURO 5 | Cut-off, U
Production and combustion of natural gas	Heat, central or small-scale, natural gas {Europe without Switzerland}| heat production, natural gas, at boiler atmospheric non-modulating <100kW | Cut-off, U
Electricity	Electricity, medium voltage {IT}| market for electricity, medium voltage | Cut-off, U[2]
Transport of raw materials and auxiliaries	Transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 5 {RER}| transport, freight, lorry, 7.5-16 metric ton, diesel, EURO 5 | Cut-off, U
Train transport	Transport, passenger, train, fleet average {IT}| transport, passenger, train, electric high-speed | Cut-off, U
Aircraft transport	Transport, passenger, aircraft, long haul {GLO}| transport, passenger, aircraft, long haul | Cut-off, U
Ship transport	Sea transport {GLO}
Other car transport	Transport, passenger, car, diesel, small size, EURO 5 {RER}| transport, passenger, car, diesel, small size, EURO 5 | Cut-off, U Transport, passenger, car, liquefied petroleum gas, medium size, EURO 5 {GLO}| transport, passenger, car, liquefied petroleum gas, medium size, EURO 5 | Cut-off, U Transport, passenger, car, natural gas, small size, EURO 5 {RER}| transport, passenger, car, natural gas, small size, EURO 5 | Cut-off, U
Coach transport	Transport, passenger, bus, diesel, regular {RoW}| transport, passenger, bus, diesel, regular | Cut-off, U
Tap water consumption	Tap water {Europe without Switzerland}| market for tap water | Cut-off, U
Gases consumption	Hydrogen, gaseous, low pressure {RER}| market for hydrogen, gaseous, low pressure | Cut-off, U Helium {GLO}| market for helium | Cut-off, U Argon, liquid {RER}| market for argon, liquid | Cut-off, U Nitrogen, liquid {RER}| market for nitrogen, liquid | Cut-off, U NOXAL 3 (Ar 95%, H_2 5%), simulato sulla base dei processi precedenti Acetylene {RER}| market for acetylene | Cut-off, U
Packaging	Folding boxboard carton {RER}| market for folding boxboard carton | Cut-off, U Paper, woodfree, coated {RER}| market for paper, woodfree, coated | Cut-off, U Packaging film, low density polyethylene {GLO}| market for packaging film, low density polyethylene | Cut-off, U

[1] Total emissions have been split between emissions from combustion (category 1) and from fuels production (category 4)

[2] The upstream phase has been calculated taking into consideration the national energy mix an attributed to category 2 while the downstream phase has been attributed to category 4.

	EUR-flat pallet {RER}| market for EUR-flat pallet | Cut-off, U Corrugated board box {RER}| market for corrugated board box | Cut-off, U
Graphite products	Graphite {RER}| graphite production | Cut-off, U
Chemicals	Modelled after their composition, from safety data sheets Boric acid, anhydrous, powder {GLO}| market for boric acid, anhydrous, powder | Cut-off, U Chemical, inorganic {GLO}| market for chemical, inorganic | Cut-off, U
Thermal transfer ribbon	Toner {RER}
Metals	Recycled gold* Recycled silver* Recycled copper* Recycled zinc* Recycled silicon* Recycled tin* Recycled indium* Recycled gallium* Recycled iridium* Recycled platinum* Recycled ruthenium* Zinc {RoW}| primary zinc production from concentrate | Cut-off, U Nickel, class 1 {GLO}| processing of nickel-rich materials | Cut-off, U Copper, cathode {GLO}| treatment of used cable | Cut-off, U Palladium {RoW}| treatment of precious metal from electronics scrap, in anode slime, precious metal extraction | Cut-off, U Lithium {GLO}| lithium production, lithium chloride electrolysis | Cut-off, U
Waste disposal	Inert waste, for final disposal {CH}| treatment of inert waste, inert material landfill | Cut-off, U

* Processes are modelled taking into consideration only sorting and recycling operations.