



Climate protection report 2022

Since 2020, the SDK has been preparing a climate balance sheet based on the international GHG (Greenhouse Gas Protocol) standard identifying and quantifying as far as possible the direct and indirect greenhouse gas emissions.

The balance sheet refers to the emissions caused by the operator of the SuperDrecksKëscht® on site (scope 1 and 2), as well as the emissions caused by upstream and downstream processes (scope 3).

The positive effects / greenhouse gas reductions resulting from the tasks and activities themselves – prevention concepts, education for sustainable development, innovation projects, collection of problematic products, reverse production processes - are partially taken into account.

Scope 1 - direct emissions

Direct emissions were:



→ Transport: **49.37 tons of CO₂ equivalents** from vehicles (trucks, vans, cars). A high percentage of these vehicles run on biodiesel and increasingly on electricity. This figure only includes the use of fossil fuels. In 2019, this value was still 194.4 tons of CO₂ equivalents (a decrease of almost 75%). In 2022, despite normalization (less frequent home offices and online conferences and meetings than in 2020 and 2021), the value also decreased. This was due to a further increase in the proportion of biodiesel and, above all, the purchase of more electric vehicles.



Prevention/targets: Further increase the proportion of electric vehicles and the use of biodiesel. The “e-drive before combustion engine” strategy will be consistently pursued.



→ Heating: The direct use of collected yellow grease and biodiesel in the central heating system avoided a total of **119.9 tons of CO₂ equivalents** that would have been produced by the use of fossil fuel oil.

As part of the energy audit conducted on July 21, 2022, measures were proposed to optimize heating and hot water management and further energy savings. These are:

1. separation of space heating and process heating/rainwater heating;
2. reduction of losses in the local heating system;
3. replacement of ceiling fans with ceiling heaters;
4. use of occupancy sensors to control interior lighting;
5. photovoltaic system with optional energy storage;
6. insulation of the building facade of the guard house and the info center.

The first 3 measures were calculated to be economical. At this time, the implementation of the proposed projects is still under study.



→ Machines: Various measures (replacement of fossil diesel with biodiesel, new used gas sweeper), have reduced emissions to **12.76 tons of CO₂ equivalents**.

The roller packer is partially powered by biodiesel. It is planned to purchase a hybrid model that can be partially powered by electricity (battery).

The purchase of a new electric sweeper is not economical at this time, nor does it make sense in terms of climate protection and sustainability due to the consumption of resources for the production of a new sweeper. A used, efficient, as good as new sweeper has been purchased. The old one is used as a spare parts store.

In 2021, the existing gas forklift was replaced by an electric forklift, which significantly reduced gas consumption. Only electric forklifts are thus used at the site.

Prevention/targets: Replace all machines with e-drives or renewable fuels.

Scope 2 - indirect emissions (electricity)

Indirect emissions were:



→ Electricity: Total electricity consumption increased by 3.5% to 300,308 kWh in 2022. The increasing share of electric vehicles in electricity consumption must be taken into account. If the consumption related to the charging of the e-vehicles is excluded, the energy consumption decreased by 9%. The electricity is purchased as nova naturstrom from enovos and is composed of 69.3% hydro-power, 21.5% biogas plants and similar, 7.8% wind energy and 1.4% photovoltaics (values from 2021 - see next but one page). The electricity label for this product, according to the Grand-Ducal regulation of 21/06/2010, indicates 0 kg CO₂ - equivalent. Compared to the national electricity mix, the use of nova naturstrom saves 194 g/kWh corresponding to **58.26 tons of CO₂ equivalents**.



Prevention/targets: The photovoltaic system on Hall 1 went online on Nov. 30, 2022, and produced 9.536 MWh by Dec. 31, 2022, which corresponds to CO₂ savings of **5.74 tons of CO₂ equivalents**.



→ Electric vehicles: The goal of equipping the entire car fleet with fuel-efficient vehicles is gradually being realized. Following the purchase of 29 new e-vehicles, there were 52 e-vehicles in the fleet at the end of 2022. As part of SDK's climate protection strategy, all employees with more than 2 years of service have been offered an e-vehicle (small car) since fall 2022. If the use of e-vehicles is not yet possible due to insufficient range (trucks, vans), vehicles with the latest emission control technology (Euro 6d-temp) will be used.

The vehicles are mainly charged at the Colmar-Berg site (67.7% of the estimated consumption). Since the installation of the photovoltaic system, the SDK's own electricity is used to charge the vehicles.

Electricity for externally charged vehicles (2022 - 32.4%)

a) comes from Enovos (enodrive). In general, a value of 0 kg CO₂ equivalent is also reported here for the use of e-vehicles (when using the national Chargy system)

b) may be partially conventional when charged at home or abroad.

The SDK has joined the national initiative "Strom beweegt – elektresch an d'Zukunft" <https://strombeweegt.lu/sengager/>.

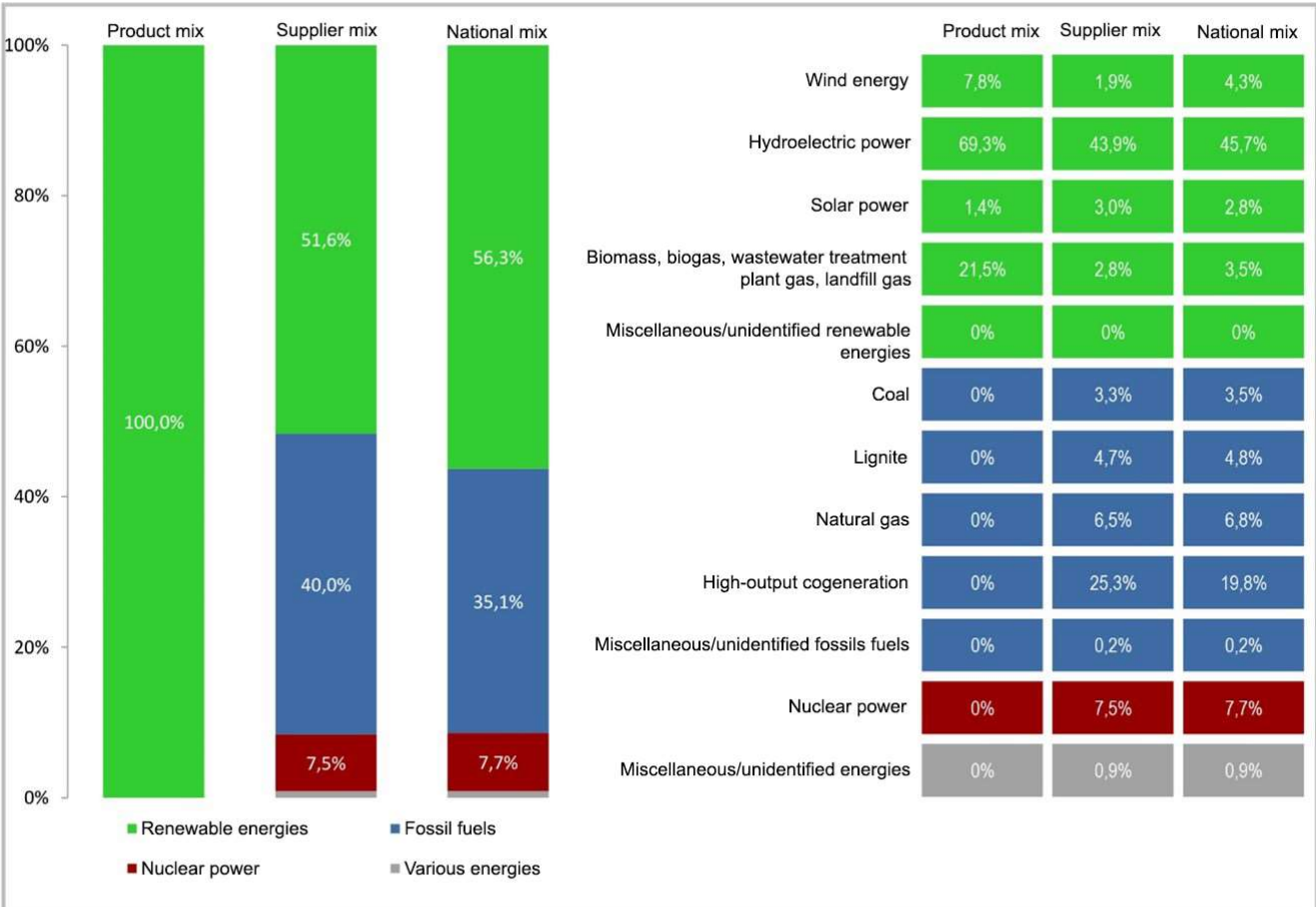
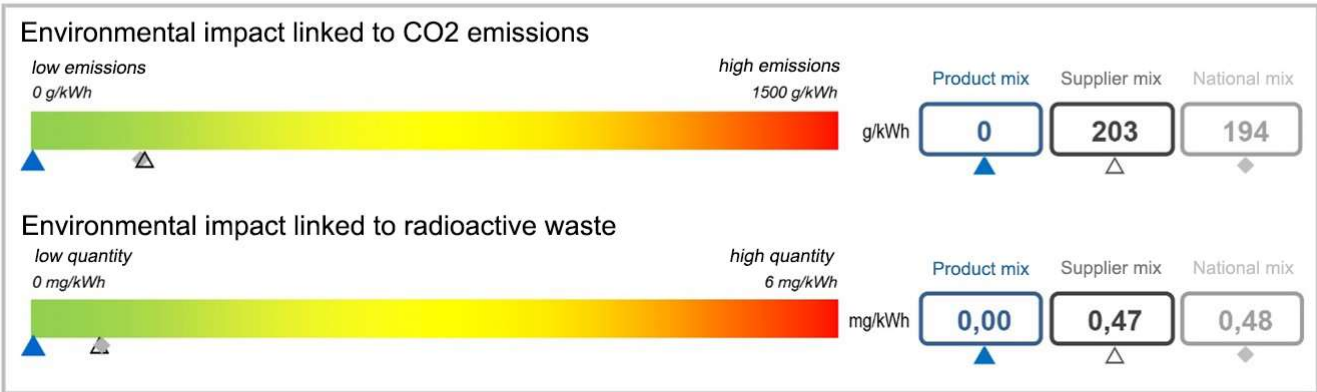
The aim of the initiative is to actively support electromobility in order to reduce emissions that are harmful to health and the climate as quickly as possible.



Electricity labelling

In accordance with the Grand Ducal Regulation of 21 June 2010 on the electricity labelling system. Memorial A No. 98, p. 1802

Supplier	Enovos Luxembourg S.A. www.enovos.lu	Product	nova naturstrom
		Year	2021



Product mix	Composition by energy source of product "nova naturstrom".
Supplier mix	Composition by energy source of all electricity provided by the supplier Enovos S.A., which corresponds to the average composition of all products of the electricity supplier.
National mix	The composition of the total electricity provided by all suppliers on the national territory.

Scope 3 - indirect emissions from upstream activities



[Significant emissions according to the materiality analysis]



→ Purchased goods and services (3.1)

A. Production and processing

Production or extraction, processing and transportation of purchased goods and services such as operating supplies, logistics containers, office/consumables, etc.

Purchasing is carried out in accordance with the guidelines for suppliers and products. Logistics containers and other supplies are purchased according to circular economy / sustainability / repairability / local-regional production criteria. A detailed catalogue of criteria applies.

Logistics containers are classified in scope 3.1. or scope 3.2., depending on their use (single-use/short-term use or multiple use/reusable).

The significance/relevance of consumables in purchasing was determined based on the order/purchase quantity and in consultation with the coordinators. For consumables that are not classified as significant due to low volume, a 10% surcharge was applied to the determined value of CO₂ equivalents [see table in 3.1 C].

Currently classified as significant (production, processing and transport to Colmar-Berg):

- Logistics: collection boxes, barrels (PE/metal), foil bags, cooking fat buckets, other containers and logistics material.
- Tags and paper

→ → Cardboard: Data for production and supply costs is available: Information provided by supplier. The data show that the delivered quantity per year results in **24.41 tons of CO₂ equivalents**.

→ → Barrels: Data for the production and supply costs of metal and PE barrels were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **86.54 tons of CO₂ equivalents**.

→ → Foil bags: Data for the production and supply costs of PE film were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **6.28 tons of CO₂ equivalents**.

→ → Cooking fat buckets: Data for the production and supply costs of PE containers were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **17.24 tons of CO₂ equivalents**.

→ → Other logistics materials: Data for production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **1.06 tons of CO₂ equivalents**.

→ → Paper: Consumption of 195,500 sheets of A4 or equivalent, corresponding to 977.5 kg. Since only certified recycled paper was used, the **CO₂ equivalent is 0.55 tons**.

Printed materials (brochures, etc.): Since mid-2021, CO₂ emissions have begun to be directly or indirectly offset. Examples:

- Ossa (calendars): Ossa offsets all of its products. The SDK calendar 2022 was printed climate neutral.
- Imprimerie Centrale – Certificates 2021: Climate neutrality on the invoice

The amount of printed material is constantly decreasing, also as a result of digitalization.

→ → Tags: Tags are a significant consumable (product tags, ADR tags, other logistics tags). Data for production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **0.23 tons of CO₂ equivalents**.

B. Transportation of goods and services

Purchased services. The above-mentioned sustainability criteria also apply here. CO₂ equivalents for production or extraction, processing of materials and products used, as well as energy consumption within the scope of the service are classified as non-significant and taken into account by adding 10% to the total value of scope 3.1 emissions.

→ → Transportation of goods: transportation/delivery of purchased goods classified as significant. The data were calculated based on the number of deliveries, the distance of the supplier from the site and a standard fuel consumption value. The data result in **15.63 tons of CO₂ equivalents**.

→ → Transportation performance of service providers: transportation/delivery of purchased services classified as significant. The data were calculated based on the number of deliveries, the distance of the service provider from the site, and a standard fuel consumption value. The data result in **1.85 tons of CO₂ equivalents**.

Again, significance was determined in consultation with the coordinators.

→ → Server capacities: websites, the SDK cloud, mail server (= purchased services).

Although not considered significant, the SDK website was still analyzed for energy efficiency/balance of server usage. The SDK scores 80.7% out of 100% in terms of energy efficiency and climate relevance (2021 survey).

Together with the 10% surcharge, this results in a total of 169.17 tons of CO₂ equivalents for purchased goods and services.



→ Capital goods (3.2)

A. Production and processing

Production or extraction, processing and transportation of purchased capital goods, real estate, machinery, vehicles

Purchases are made in accordance with supplier and product guidelines. Logistics containers and other supplies are purchased according to circular economy / sustainability / reparability / local-regional production criteria. A detailed catalogue of criteria applies.

Logistics containers are classified in scope 3.1. or scope 3.2. depending on their use (single-use/short-term use or multiple use/reusable). All durable and reusable logistics containers are considered capital goods.

Significance was determined in consultation with the coordinators. For capital goods that are classified as non-significant due to their small quantity, a surcharge of 10% was applied to the determined value of CO₂ equivalents **[see table in 3.2 C]**.

Currently classified as significant (manufacturing, processing and transport to Colmar-Berg):

- Photovoltaic system
- Vehicles
- SAP collection containers
- Pallet boxes
- ECOBOXes
- IT as well as fuel terminal and charging stations

Capital goods are only considered in the year of acquisition.

In 2022, the following major capital goods were acquired:

→ → Photovoltaic system – installation in June 2022: Due to the lack of available data from the supplier, the footprint for production and installation is based on a literature value of 810 kg CO₂ equivalents per kWPeak. Thus, the value of 719.14 kWp can be estimated to be **582.50 tons of CO₂ equivalents**. The energy payback time based on the projected output of 676,711 kWh per year is therefore 17.2 months from grid operation.



→ → new vehicles

Delivery of a total of 31 vehicles in 2022, including 29 Renault Zoe: Based on the data from the Paul Scherrer Institute's "calculator", this results in a CO₂ equivalent of 25.1 tons per Renault Zoe for production, operation and disposal. For simplicity's sake, the same value was assumed for the two Renault Méganes. This corresponds to a CO₂ equivalent of **767.9 tons** for 31 vehicles.

→ → SAP collection containers: Data for the production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **36.30 tons of CO₂ equivalents**.

→ → Pallet boxes: Data for the production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **3.96 tons of CO₂ equivalents**.

→ → ECOBOXes: Data for the production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **11.63 tons of CO₂ equivalents**.

→ → IT / fuel terminal incl. charging stations and juice booster: Data for the production and supply costs were estimated from literature data (UK-DEFRA). It can be assumed that the delivered quantity per year results in **13.06 tons of CO₂ equivalents**.

→ → Tank trailer

The tanker trailer purchased in 2022 (year of construction: 2016) is depreciated in terms of climate considerations.

B. Transportation of goods

→ → Transportation of goods: transportation/delivery of purchased capital goods classified as significant. The data were calculated based on the number of deliveries, the distance of the supplier from the site, and a standard fuel consumption value. The data result in **2.81 tons of CO₂ equivalents**.

Together with the 10% surcharge, this results in a total of 1,559.68 tons of CO₂ equivalents for purchased capital goods.



→ Fuel and energy-related emissions not included in scope 1 and 2 (3.3)

Production or extraction, processing and transportation of used energy sources, including the non-fossil energy sources biodiesel and used cooking oils.

According to the “DSLVL Guideline Calculation of GHG Emissions”, the following additional emissions occur during the production of fuels:

Mineral diesel: Tank to Wheel 2.67 kg CO₂ equivalents per liter / Well to Wheel 3.24 kg CO₂ equivalents per liter - results in 0.67 kg CO₂ equivalents per liter for production.

Biodiesel: Well to Wheel 1.92 kg CO₂ equivalents per liter - results in 0.67 kg CO₂ equivalents per liter. However, this value is likely to be significantly lower for biodiesel from used cooking oils and is provisionally assumed here to be 0.5 kg CO₂ equivalents per liter for production.

With the available data, a value of **83.97 tons of CO₂ equivalents** can thus be calculated.



→ Transportation and distribution of goods and services (3.4)

→ → Fuels Collection of waste products by partners

This is done directly on behalf of the SDK as part of **SDK fir Bierger** and **SDK fir Betriber**. The well-to-wheel value is used to calculate the CO₂ equivalents, i.e. the effort required to produce the fuels (upstream chain) is also taken into account.

Avista-Oil (disposal of used oils): In 2022, the Avista-Oil collection vehicle drove 416 km for the SDK. According to Avista-Oil, 111.3 liters of diesel were consumed. This results in a value of **0.30 tons of CO₂ equivalents** (basis for calculation: DSLV guidelines to calculate GHG emissions as of 03-2013).

ENTEK (disposal of coolant and brake fluid): In 2022, ENTEK’s collection vehicle covered 8,640 km for SDK. According to ENTEK, 2233.8 liters of diesel were consumed. This results in a value of **5.96 tons of CO₂ equivalents**. (Basis for calculation: DSLV guidelines to calculate GHG emissions as of 03-2013).

Schirra (disposal of used oils): In 2022, Schirra calculated a consumption of 2,365 liters diesel. This results in a value of **6.31 tons of CO₂ equivalents** (basis for calculation: DSLV guidelines to calculate GHG emissions as of 03-2013).

→ → Fuels Transports to product receivers

Transport of waste products to the product receiver: National/regional partners are commissioned in accordance with the criteria mentioned in point B.6. Reusable containers are used whenever possible.

In 2022, the following transport service was provided by Transports Hein: Total mileage of 194,030 km and total diesel consumption of 72,679 liters. Of these, 59,280 liters of mineral diesel and 13,399 liters of biodiesel were used.

These figures include:

- Transport to product receivers (i.e., no paper collection in LU)
- Type of truck (container, semi-trailer)
- Outbound journey only or outbound and return journey (Aller Retour)
- Departure from Hein site (for outbound journeys) and departure/arrival from/to Hein site (for outbound and return journeys)

This results in a value of **158.28 tons of CO₂ equivalents** (taking into account the upstream chain - Well to Wheel; basis of calculation: DSLV guidelines to calculate GHG emissions as of 03-2013).

Transports Arthur Welter consumed 1,249.50 liters of diesel for the transportation to SDK product receivers. This results in a value of **3.34 tons of CO₂ equivalents** (basis for calculation: DSLV guidelines to calculate GHG emissions as of 03-2013).

Prevention: The proportion of biodiesel used to transport waste products to the product receiver is to be further increased. The target is 100 %.

Scope 3 - indirect site-related emissions



→ Waste (3.5)

→ → Internal waste / end-of-life products (A)

In 2022, the amount of internal waste was 41.2 tons, of which 14.5 tons were oil-water emulsions from separators/cleaning and 12.8 tons were waste products from reverse production.

Based on Zero Waste Scotland and UK-DEFRA figures, a value of **82.91 tons of CO₂ equivalents** was calculated.

Prevention: The management of self-produced waste is carried out in accordance with the SDK fir Betriber concept and is focused on prevention.

Prevention activities carried out in the past (examples):

- Elimination of single-use plastic packaging (self-commitment statement of 2018)
- Treatment of drinking water from the water supply
- Coffee in large reusable packaging (PE barrels)

→ → collected and treated waste/end-of-life products from private households and businesses (B)

CO₂ equivalents were calculated using 2022 stock levels and figures from Zero Waste Scotland and UK-DEFRA. The positive effects of recycling, production of substitute fuel or thermal recovery (net energy gain) have been offset against those products that are incinerated in high-temperature incinerators and therefore require additional energy input. Details of the calculation are available upon request.

The balance is **1,026.05 tons of CO₂ equivalents**.

The goal is to further reduce this value using the Resource Potential tool and to achieve net CO₂ savings through recognized certified credits.



→ Business travel (3.6)

Status: Business trips abroad that are not made in company cars are rare. In total, business travel (air, rail, rental car) by 3 employees in 2022 resulted in emissions of **0.34 tons of CO₂ equivalents**.

Current and future prevention measures:

- Distance-based use of transportation (no short-haul flights)
- Use of video conferencing for meetings, conferences and training



→ Employee commuting (3.7)

The CO₂ equivalents were calculated based on the employees' distance from home to work in Colmar-Berg. Data from the UK Government's GHG Conversion Factors for Company Reporting were used to calculate the CO₂ equivalents. The estimated proportion of home offices was taken into account, as well as the use of transport as identified in the 2021 employee survey (mainly private cars).

During 2022, all employees with more than 2 years of service will be offered an e-vehicle. The use of the e-vehicles is included in the scope 2 consideration.

After evaluating the available data and taking into account the above-mentioned criteria, the emission value is **78.85 tons of CO₂ equivalents**.

Prevention: In 2018, a mobility concept was created by the mobility center. Since 2020, there have been expanded opportunities for home office and flexible working hours.

→ Rented or leased assets (3.8)

Status: not applicable /not significant

Scope 3 - indirect emissions from downstream activities

→ Transportation and distribution (3.9)



Classified as significant are:

Visitors for training and visits, as well as the commuting of Ligue HMC employees to their workplace in Colmar-Berg.

To calculate the CO₂ equivalents of the visitors, an average distance of 40 km from the place of residence to the SDK center in Colmar-Berg and visitor registration statistics were used. It was taken into account that visitors also come to the SDK Center by bus and carpool.

After evaluating the available data and considering the above criteria, the emission value is **20.00 tons of CO₂ equivalents**.

An average distance of 25 km from home to the SDK center in Colmar-Berg was used to calculate the CO₂ equivalents of Ligue HMC employees. The number of working days and the use of public transport and carpools were taken into account.

After evaluating the available data and taking the above criteria into account, the emission value is **8.33 tons of CO₂ equivalents**.

→ Processing of end-of-life products / Processing of sold products (3.10)

→ → Waste products from the collection of problematic products from households and from the collection of waste products from businesses.

The CO₂ equivalents are included in scope 3.5 (B).

→ Use of sold products (3.11)

→ → concerns SDK products: OEKO-Pur, LECOBOX, Ecobelle, ECOBOX, as well as sales products for waste collection and logistics

OEKO-Pur does not cause significant direct CO₂ emissions during use, nor do LECOBOX and Ecobelle. ECOBOX causes CO₂ emissions during the cleaning process (dishwasher). This is also not considered significant. The logistics materials sold are also not considered significant.

→ End-of-life treatment of sold products (3.12)

→ → waste collection and logistics

OEKO-Pur: use by fire brigades, garages, etc. - This is included in 3.5. as the disposal of used OEKO-Pur is handled by the SDK.

LECOBOX, Ecobelle, ECOBOX – not significant, all products are durable and not yet waste products. Damaged ECOBOXes or lids have so far only occurred in small quantities.

Sales products related to waste collection and logistics (collection containers, collection infrastructure): not significant. The products are partly taken back and then fall under 3.5.

→ Leased or rented assets (3.13)

Category not applicable

→ Franchise (3.14)

In general, all concepts include climate-friendly and sustainable behavior in line with the slogan "climate protection in practice".

This also applies to consulting/coaching/know-how transfer through innovation projects.

→ Investments (3.15)

Status: does not apply /not significant

Summary

not significant: n.s., not applicable n.a.

Area	GHG (t CO ₂ e)	Share in scope	Total share	Savings
Scope 1: direct emissions	62,13			
1.1 Cat. 1: Heating (stationary combustion)	0,00	0,00%	0,00%	-119,90
1.2 Cat. 2: Transport (mobile combustion)	49,37	79,46%	1,51%	
1.3 Cat. 3: Machines	12,76	20,54%	0,39%	
Scope 2: Energy-related indirect emissions	0			
2.1 Cat.1: Electricity	0	0,00%	0,00%	-58,26
Production of electricity				-5,74
Scope 3: Other indirect emissions and removals	3.203,48			
Scope 3a				
3.1 Cat. 1: Purchased goods and services	169,17			
A: Production and processing of goods				
→ Collection boxes made of cardboard	24,41	0,76%	0,75%	
→ Barrels (PE/Metal)	86,54	2,70%	2,65%	
→ Foil bags	6,28	0,20%	0,19%	
→ Cooking fat bucket 5 l and 30 l	17,24	0,54%	0,53%	
→ Various containers and materials	1,06	0,03%	0,03%	
→ Paper	0,55	0,02%	0,02%	
→ Tags	0,23	0,01%	0,01%	
B: Transportation of goods and services				
→ Goods	15,63	0,49%	0,48%	
→ Services	1,85	0,06%	0,06%	
C: 10 % surcharge for all other items of 3.1	15,38	0,48%	0,47%	
3.2 Cat. 2: Capital goods	1.559,68			
A: Production and processing of goods				
→ Photovoltaic system	582,50	18,18%	17,84%	
→ Vehicles (cars)	767,90	23,97%	23,51%	
→ SAP collection container	36,30	1,13%	1,11%	
→ Pallet boxes	3,69	0,12%	0,11%	
→ ECOBOXes	11,63	0,36%	0,36%	
→ IT/fuel terminal and charging stations	13,06	0,41%	0,40%	
B: Transportation of goods				
→ Goods	2,81	0,09%	0,09%	
C: 10 % surcharge for all other items of 3.2	141,79	4,43%	4,34%	
3.3 Cat. 3: Fuel and energy-related emissions not included in scope 1 and 2	83,97	2,62%	2,57%	
3.4 Cat. 4: Transportation and distribution (upstream)	174,19			
→ Hein	158,28	4,94%	4,85%	
→ Arthur Welter	3,34	0,10%	0,10%	
→ Avista-Oil	0,30	0,01%	0,01%	
→ ENTEK	5,96	0,19%	0,18%	
→ Schirra	6,31	0,20%	0,19%	
Scope 3b				
3.5 Cat. 5: Waste	1.108,96			
→ A: Internal waste	82,91	2,59%	2,54%	
→ B: Collected and treated waste	1.026,05	32,03%	31,42%	
3.6 Cat. 6: Business travel	0,34	0,01%	0,01%	
3.7 Cat. 7: Employee commuting	78,85	2,46%	2,41%	
3.8 Cat. 8: Rented or leased assets	n.a.	n.a.	n.a.	
Scope 3c				
3.9 Cat. 9: Transportation and distribution (downstream)	28,33			
→ Participants of trainings and meetings	20,00	0,62%	0,61%	
→ Employees of Ligue HMC	8,33	0,26%	0,25%	
3.10 Cat. 10: Processing of end-of-life products / Processing of sold products	in 3.5 B	in 3.5 B	in 3.5 B	
3.11 Cat. 11: Use of products	n.s.	n.s.	n.s.	
3.12 Cat. 12: End-of-life treatment of products	n.s./in 3.5	n.s./in 3.5	n.s./in 3.5	
3.13 Cat. 13: Leased or rented assets	n.a.	n.a.	n.a.	
3.14 Cat. 14: Franchises	n.a.	n.a.	n.a.	
3.15 Cat. 15: Investments	n.a.	n.a.	n.a.	
Total scope 1, scope 2 and scope 3	3.265,61			
Savings from heating with used cooking oils and biodiesel	-119,89			
Savings through use of natural electricity	-58,26			
Savings through production of electricity	-5,74			
Total scope 1, scope 2 and scope 3 incl. savings	3.081,72			