2022 Polisan Holding Green House Gas Corporate Summary Report

Since 2012, Polisan Holding has been calculating and publicly publishing Scope 1 and 2 emissions of Group companies, Polisan Kansai Boya, Polisan Kimya, Polisan Yapıkim and Poliport Kimya, which constitute 97% of Holding's turnover. Scope 3 emissions, which is affected processes that are not directly under its management and control, are included to the emission inventory in 2020 with the ''Unitiy fort he Future" vision of Holding's sustainability strategy.

According to the study based on category boundaries in comliance with ISO 14064 Standards, Polisan Holding's total corporate carbon footprint for the year 2022 was calculated as **284,090 tCO2e.**

Normalized carbon footprint are monitored in order to ensure the effective management of emissions and to determine the carbon footprint that is free from production and capacity fluctuations. While the carbon footprint is normalized to production at Polisan Kansai Boya and Polisan Kimya companies, at Poliport Kimya it is normalized to products handled.

Table 1: Total and Normalized Carbon Footprint of Polisan Holding Group Companies

Group Companies	Scope 1	Scope 2	Scope 3	Total Carbon Footprint	Normalized Carbon Footprint
	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e
Polisan HOME COSMETICS	2,121	1,317	113,346	**116,784**	**0.0351**
Polisan KİMYA	7,909	2,083	146,508	**156,500**	**0.0447**
Poliport	629	973	9,205	**10,807**	**0.0006**

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Greenhouse Gas Emissions Data

Table 2:Scopes, Categories and Percentages of Emissions (ISO 14064-1)

Scope and Category	tCO_2e	Percentage of Emissions
Direct and indirect Emissions (Scope 1- 2)		
Category 1: Direct emissions from ownded/controlled operations	10,659	3.8%
Category 2: Indirect emissions from the use of purchased electricity, steam, heating and cooling	4,373	1.5%
Other Emissions (Scope 3)		
Category 3: Indirect emissions from transportation sources	20,995	7.4%
Category 4: Indirect emissions from the production/provision of goods and services used	246,216	86.7%
Category 5: Indirect emissions associated with the use of products/services produced/provided by the organization	489	0.2%
Category 6: Other indirect emissions from sources	1,359	0.5%

Activities and Reasons Not Accounted for in the aforementioned indirect emissions:

Category 3:
Due to the lack of a data collection infrastructure in accordance with ISO 14064-1 guidelines, personal vehicles used at the discretion of employees, and public transportation such as buses and metros are currently excluded.
Also, vehicle air conditioning gases and vehicle rental services are excluded.

Category 4:
Due to the company covering the fuel expenses of leased vehicles, their inclusion in Category 1 emissions, and the absence of other leased assets,

Category 5:
Due to the products sold at Polisan Kimya being directly sold as ready for use, the processes of the products,
Due to the absence of rentals post-production,

It has been exempted for the relevant reporting year.

Table 3:Scopes, Categories and Percentages of Emissions (GHG Protocol)

Scope and Category	tCO_2e	Percentage of Emissions
Direct and indirect Emissions (Scope 1- 2)		
Category 1: Direct emissions from ownded/controlled operations	10,659	3.8%
Category 2: Indirect emissions from the use of purchased electricity, steam, heating and cooling	4,373	1.5%
Other Emissions (Scope 3)		
Category 1: Purchased goods and services	235,606	87.6%
Category 2: Capital goods	10,165	3.8%
Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	1,359	0.5%
Category 4: Upstream transportation and distribution	9,780	3.6%
Category 5: Waste generated in operations	445	0.2%
Category 6: Business travel	213	0.1%
Category 7: Employee commuting	1,468	0.5%
Category 9: Downstream transportation and distribution	9,344	3.5%
Category 11: Use of sold products	401	0.1%
Category 12: End-of-life treatment of sold products	88	0.03%
*Other (Upstream)	189	0.1%

*Emissions Resulting from Customer Visits

Activities and Reasons Not Accounted for in the aforementioned indirect emissions:

Category 8: Upstream leased assets, such as rental vehicles, are included in our Scope 1 emissions. Therefore, emissions from leased assets are kept at Scope 1, leaving zero emissions associated with our Scope 3 calculations.
Category 10: Processing of sold products, the chemical and paint products we produce can be used directly by our customers. No additional processes are required.
Category 13: Downstream leased assets, there are no downstream leased assets.
Category 14: Franchies, there are no franchises activity in company business model.
Category 15: Investments, we do not have any investments related to this category defined in the Greenhouse Gas Protocol.

Greenhouse Gas emissions Data (Continued)

Table 4: Scope 1,2 and 3 GHG Emissions

GHG Emissions	CO_2		CH_4		N_2O		HFCs	
	tCO_2	tCO_2e	tCH_4	tCO_2e	tN_2O	tCO_2e	tHFCs	tCO_2e
Category 1	10,659	10,659	0.261	7.32	0.306	81.07	0.085	111.03
Category 2	4,373	4,373	-	-	-	-	-	-
Category 3	20,995	20,995	-	-	-	-	-	-
Category 4	246,216	246,216	-	-	-	-	-	-
Category 5	489	489	-	-	-	-	-	-
Category 6	1,359	1,359	-	-	-	-	-	-

There are no PFCs and SF6* emissions within the specified categories.

*Environmentally friendly air-insulated switchgear is used in our fields.

As a result of the calculations performed, the overall uncertainty has been determined to be ±9,60%. According to the Greenhouse Gas Protocol, this accuracy level can be expressed as "Good" accuracy class.

Description of Methodologies and Data Used

Table 3: Methodologies Used to Calculate or Measure Emissions

Scope	Methodologies Used to Calculate or Measure Emissions, Providing a Reference or Link to Any Calculation Tools Used
Category 1	Natural resource consumptions associated with Scope 1 are recorded with invoices, system data, meter data. Emission calculations are carried out with IPCC AR5 coefficients.
Category 2	Externally obtained electricity data associated with Scope 2 are recorded with invoices, system data, meter data. Emission calculations are carried out with IPCC AR5 coefficients. There is no loss or leakage in the electricity supplied from the organized industrial zone to our facility. Within our facility, there is a loss ranging from 3% to 7% due to internal distribution through transformers. On average, an annual electricity loss of 5% occurs.
Category 3	Raw material transportation data: Supplied from purchasing department. Calculations are carried out by taking into consideration distance from the production location to the delivery to final location, transfer method and tonnage of the relevant raw material.

	Product transportation: The distance travelled and the tonnage of shipped products are provided from the logistics unit for every shipment throughout the year. Calculations are carried out with DEFRA emission factor. Electricity losses: Calculated by the coefficient of the country's production mix. Emissions caused by the losses through reduction of the electricity to the medium voltage for the industrial use are included in the Fuel and Energy Related Emissions. Employee service: Fuel data consumed by the subcontractor is provided from the administrative affairs unit. Calculations are carried out with DEFRA emission factor. Customer/Visitor Transportation: Customer/visitor transportation data coming to our facilities during the year were taken from the visitor registry. In the light of these data, the facility visited was accepted as the midpoint and the average km data between Istanbul and Kocaeli was calculated and calculated over the DEFRA emission factor. Business trips: Data of business trips are supplied from Polisan ERS system. Emission calculations are carried out with DEFRA emission factor based for all business trips throughout the year. Hotel Accommodation: Emission calculations for greenhouse gases are conducted using data extracted from the Polisan ERP system for all hotel accommodations throughout the year, utilizing DEFRA emission factor.
Category 4	Raw material data: Supplied from purchasing department. Emission calculations are carried out by using the databases within SimaPro. Wastes: Data of production related wastes are obtained from the relevant units of the companies. Emission calculations are carried out through DEFRA emission factor for waste categories. Mains Water Consumption: The amount of water taken from the mains for domestic use (m3) is calculated by multiplying the DEFRA emission factor. Drinking Water Consumption: The supplied water data are compiled on the basis of liters and calculations are made over the DEFRA emission factor. In-Office Paper Consumption: In-office paper consumption is separated as A4 and A5 and calculations are made over the DEFRA emission factor over the total consumption amounts. Fixed Assets: Calculations are performed using relevant coefficients based on CapEx data. Rental Services: Calculations are conducted using relevant coefficients based on security, cleaning, and catering service data.
Category 5	Disposal of the products sold: Calculations are made with the relevant DEFRA emission factor by taking into consideration of packages that will be disposed after the use of the product.

Category 6	Other indirect emissions from sources

Additional Informations

Risks and Opportunities Related to Climate Change

Cost Increase (Capital) / Impact Intensity: High

The areas where our operations are located are facing a high risk of heatwaves due to their geographical positions. Our Dilovası facility is in close proximity to the Marmara Sea and the region where we conduct port activities is adjacent to the sea. The proximity of these areas to the coast further increases vulnerability to extreme weather events. According to NASA satellite data and various scientific climate scenarios, due to the deviation from the 1.5-degree scenario parallel and the increasing temperature differences, sea levels are projected to rise. In this situation, our raw material/product shipments and production could be jeopardized. Flooding could lead to production and operations halts, potential damage to our machinery and equipment, and depending on the scale, an operational interruption of 2 to 4 weeks could occur.

We have taken precautionary measures to mitigate water management and flood-related risks, investing a total of 113,7 Million ₺, including security expenditures against floods. These measures aim to proactively address potential risks and ensure the safety and continuity of our operations. Operational expenses for these projects are included in our overall cost strategy.

Income Decrease (Downstream) / Impact Intensity: Moderate

Increasing customer demands for environmentally friendly products pose a commercial risk for Polisan. Failing to respond to this demand for more sustainable products could lead to a reduction in market share and profitability for Polisan. Additionally, regulatory authorities and evolving environmental standards could bring about legal and operational challenges. For a chemical company, these climate-related issues should be proactively addressed, and sustainable practices and business strategies should be incorporated to mitigate these risks and maintain competitive edge in the market.

This year, we increased the share of our low-emission resin products, compliant with volatile organic compound (VOC) content and formaldehyde emission limits developed by the California Air Resources Board (CARB), to 3.91% of the total production quantity and 5.04% of the revenue. The share of our E1 Class and lower low-emission resins in the total resin production volume is 34.4%, while their share in the total resin sales revenue is 35%. At Polisan Kansai Paint, at least 50% of our water-based paint product portfolio and approximately 35% of our solvent-based product portfolio are below the VOC limits set by the European Commission (EC). The share of our water-based products in the total revenue is 73%. We continue to increase these ratios every year.

Increased capital expenditures / Magnitude of Impact: High

By the increasing effects of global warming, extreme weather events such as storms, cyclones, twisters are observed more than ever in Turkey, where we operate.

As a response to risk, we improved our fire management systems both for as preventing and for mitigate the effect of fire. Additionally, we insured our premises. Our real assets may be exposed to extreme weather events or fire events. In case of such events, we may assume that 20% of our real assets may be damaged. In 2022, we made an additional investment of 7.3 million TL in fire safety, bringing the total fire safety investment over the past 8 years to 21 million TL

Increased Costs (Indirect Operations) / Magnitude of Impact: Low

In Paris COP21, Turkey signed the Paris Agreement and submit its NDC plan to the UN Secretariat. According to the INDC, Turkey's target is to reduce 21% of its emissions according to business-as-usual scenario by

2030. The method of GHG reduction has not been identified yet. Although it is under progress, it is anticipated that there will be Carbon Border Adjustment Mechanisms (CBAM). In this context, it is deduced that taxes will be introduced related to Scope 1 + 2 emissions of the organizations.

In case the Border CBAM is activated, approximately 34% of the production at Polisan Kimya is exported according to the export figures of 2022. It is assumed that Polisan Kimya's Scope 1 + 2 Emissions will be 9,992 t CO2e/year and 3,397 t CO2e/year with an export rate of 34%. At Polisan Kansai Boya, approximately 5% of the production is exported according to the export figures for 2022. It is assumed that Polisan Kansai Boya's Scope 1 + 2 Emissions will be 3,438 t CO2e/year and 172 t CO2e/year with an export rate of 5%. As a response to this risk, our sustainability team is continuously working on strategy development and action planning to mitigate our impacts on climate change. Additionally, we are periodically reporting in line with MRV regulations on time.

Increased Costs (Indirect Operations) / Magnitude of Impact: Medium - High

Being in the chemical industry and storing liquid chemical materials in tanks, we face the potential risk of leakage in case of damage to the tanks. Significant damages that could result from tank punctures are evaluated as high risks.

We continue to enhance the measurement precision in each of our tanks by consistently updating the tank measurement equipment according to the need. This approach enables us to conduct inventory management more effectively and ensure the reliability of our operations. We have installed a total of 54 gas detectors across our facilities. As a result, we have increased the total number of gas detectors on our premises to 124, thereby reinforcing our passive operational safety.

We manage our inventory in tank farms using a tank gauging system. Our tank gauging systems measure data such as tank level, temperature, pressure, density, and volume in real-time, allowing us to monitor it. We have tank gauging systems installed in all of our tanks (178 in total).

Furthermore, we are preparing for the implementation of acoustic sensors to monitor movements in Pressure/Vacuum (PV) valves and facilitate effective internal tank pressure control. This application is planned to be integrated into our automation system to provide the capability for urgent intervention in case of valve failures, enhance nitrogen cushioning to preserve product quality, and ensure emission control.

Decreased Market Value / Magnitude of Impact: Medium – High

Any negative environmental and/or social negative impact may bring reputational risks to Polisan Holding and it may lead a decrease in the market value of Polisan Holding. It may be a split, accident, fire, etc.

If a reputational risk is realized, then a negative financial impact will occur. Minimum Impact Scenario: If we assume that there will be a case with small and/or local impact, then the negative financial impact may be 1% of the equity capital. If we assume that there will be a case with big and/or global impact, then the negative financial impact may be 3% of the equity capital.

Emission Reduction Targets

Emission targets have been determined in order to minimize the risks identified related to climate change and to move the opportunities forward. A total of 10 emission targets have been determined, including absolute emission, emission intensity and other targets.

Absolute Emission Targets

1. Compared to base year 2019, %15 reduction of Scope 1 and 2 emissions are targeted until 2025.
2. Compared to base year 2019, 100% reduction of Scope 2 emissions are targeted until 2025.
3. Compared to base year 2021, %10 reduction of Scope 1, 2 and 3 emissions are targeted until 2025.

Emission Intensity Targets

1. Compared to base year 2021, %5 reduction of Scope 1 and 2 emissions are targeted for 2022.
2. Compared to base year 2019, %25 reduction of Scope 1 and 2 emissions are targeted for 2025.
3. Compared to base year 2021, %10 reduction Scope 1, 2 and 3 emissions are targeted for 2025.

Other

1. Reduce electricity use %30 in new production facility, which is currently under construction and built in line with LEED standards, compared to conventional facilities.
2. Investment criteria supporting Polisan Holding's ESG Score and in all investments; constructing facilities that are environmentally friendly throughout their life cycles and where all energy resources from material selection to indoor air quality, from electricity to water are used efficiently.
3. In 2023, 25% biobased raw materials will be used instead of petroleum-derived raw materials.
4. By 2025, 10% of our portfolio will be made up of products with internationally recognized environmental labels.

In line with the targets of combating climate change and transition to a low carbon economy;
The Management Systems and Sustainability Department is responsible for all management systems, including the Environmental Management System. Coordination, monitoring, and reporting of sustainability efforts are carried out within the MSS department. The MMS Department, consisting of a team of 4 individuals and reports to the CEO.

Each subsidiary company has its own HSE (Health, Safety, and Environment) Department. HSE Departments are responsible for managing health, safety, and environmental processes. Polisan Kansai Boya has an 8-member HSE team, Polisan Kimya has an 18-member HSE team, and Poliport Kimya has a 17-member HSE team.

In 2022, within our group of companies, we provided a total of 849.5 person-hours of environmental training. In addition to this, we conducted comprehensive sustainability training covering environmental topics, Climate Change Awareness and Awareness Training, ESG, ISO 14001, ISO 50001, and practical training, totaling 727 person-hours.

In our 5-year sustainability strategy and goals, combating climate change holds a significant position. We are undertaking projects such as Lean 6 Sigma and Kaizen initiatives to improve our production and handling processes and enhance energy efficiency. Simultaneously, we persist in reducing the carbon footprint of our operations by investing in low-carbon technologies and renewable energy sources. Since 2012, we have reduced our emission intensity by 46%. Additionally, starting from 2020, we have begun measuring and developing reduction strategies for Scope 3 emissions to manage external processes beyond our direct control.

We conduct life cycle analyses to measure the environmental impacts on a product basis and openly declare them to the public. Within Polisan Kansai Paint, 4 of our products and within Polisan Yapıkimya, 27 of our products hold Environmental Product Declaration (EPD) certification. In the short term, we aim to increase the number of products with EPD certification in our product portfolios. In the medium term, we plan to expand life cycle analyses across our entire portfolio using internal resources and integrate the life cycle approach into the planning and decision-making stages of new product development, thus anticipating the effects in the value chain.

Resources are provided to R&D units in order to improve the environmental performance of products. At Polisan Kansai Paint, we have completed formulation improvements in compliance with EU eco-label criteria (APOE Free) for 40% of our products. Within Polisan Kimya, we have increased the share of our low-emission resin products, aligned with the volatile organic compound (VOC) content and formaldehyde emission limits developed by the California Air Resources Board (CARB), to 3.91% of total production quantity and 5.04% of revenue.

In light of Green Chemistry principles, Polisan R&D teams continuously improve its processes with safe chemical design, energy- and water-efficient process planning, and pollution prevention and control efforts. Polisan is expanding its eco-friendly product portfolio with low-emission resins used in the production of interior and exterior construction materials.

Polisan Kansai Boya realized water-based paste production instead of solvent-based paste production with the "Development of Sustainable Eco-Friendly High Concentration Water Based Mix System Pigment Paste" project realized in step with company's commitment to responsible production. In consequence, company prevented multiple environmental impacts by using water instead of solvents in boiler cleaning, and by reducing company's transportation carbon footprint. Since the day Polisan commenced operations, they have been able to reduce solvent-based paint ratio from 70% to 10-15% on the strength of company's R&D activities undertaken to reduce the adverse effects of products on human health and the environment. In 2022, PKB R&D Costs: 22,5 Million TRY

In 2022, within the scope of Operational Excellence and Continuous Improvement studies, 6 Lean 6 Sigma projects and 34 Kazien projects were realized within the R&D Center, resulting in a cost advantage of approximately 2,997,360 TRY

Polisan Kansai Boya, the ratio of our Type III environmentally labeled products with EPD international certification to the total turnover increased to 24%.

Polisan Kimya is expanding their eco-friendly product portfolio with low-emission resins used in the production of interior and exterior construction materials. In line with customer demand, they are formulating resins that are compatible with the VOC content and formaldehyde emission limits developed by the California Air Resources Board (CARB). 20% of company's existing products meet the standards for low emission class E1 and below. In 2022, PK R&D Costs: 21,2 Million TRY

Polisan Yapıkim products, which are covered by EPDs, currently hold 30% share of the revenue. By offering environmentally conscious products, we are able to understand and fulfill our customers' desires. In 2022, PY R&D Costs: 8,0 Million TRY. To develop and produce them, we have R&D costs and to have them certified we have EPD costs. In 2022, EPD costs: 630,000 TRY.

Considering all these costs, the total R&D expenditures of our 3 companies was 55,327,360 TRY. Approximately 15 Million TRY of these expenditures were spent on the development of environmental products and services.

Continuous improvement activities are carried out and followed up on processes to increase productivity. With our continuous improvement philosophy, the Kaizen initiatives carried out in the last 3 years have resulted in an energy saving of 2,770,061 kWh. Additionally, at our Dilovası facility, a remote energy monitoring system has been established, equipped with various meters capable of measuring electricity, water, wastewater, natural gas, nitrogen, steam, seawater, air, and well water. These measurements are monitored through a cloud-based central system.

In order to spread the sustainability goals to the value chain; performance evaluations are carried out in the fields of quality, environment, health and safety, energy and information security. In line with the principles of corporate transparency, Polisan Holding sustainability strategies and objectives are shared with all stakeholders, and it is planned to increase the performance of stakeholders through communication and training.

In the investment plans, plans and budgets for improvement projects are prepared. In line with this approach, our Polisan Kimya New Resin Facility was constructed in compliance with Green Building standards and was commissioned in the last quarter of 2022. Furthermore, our Head Office Building offices have obtained the LEED Gold Green Building certification, our Polisan Kansai Paint Gebkim Facility has achieved the USGBC LEED Gold certification, and Poliport Kimya holds the Green Port certification.

In order to contribute to the green transformation and achieve our carbon targets, we covered 50% of our electricity consumption across all our sites and the head office building with I-REC certified renewable energy sources last year, and we have increased this coverage to 60% this year. By 2025, the aim is to source all purchased electricity from I-REC certified renewable energy sources. Additionally, on-site energy generation projects are also being considered.

We evaluate our climate change-related risks under two categories: physical and transitional risks, considering their short, medium, and long-term financial impacts. These assessments are presented on the CDP Platform (Carbon Disclosure Project), taking into account the financial implications.

Response to extreme weather events, such as floods, incurs significant costs for prevention. The frequency of floods is increasing due to the impact of climate change. Specifically, the coastline of Turkey, where our production is located, has experienced a substantial rise in rainfall. To mitigate potential risks related to water management and flooding, we have taken precautionary measures and invested in safety expenditures. These measures aim to proactively address any possible risks and ensure the safety and continuity of our operations.The operational spendings on these projects are included in the overall cost of our response strategy. In 2022, 113,700,000 TRY

Establishing physical barriers and making an emergency evacuation plan according to the level of water elevation and the elevation of the facility. It is necessary to determine the roads that will not be damaged in the event of an emergency evacuation and to determine the roads and locations for the transition to a new area. In order to prevent flooding, mobile pump system, rain channel drainage and 3 new pump systems will be installed for sea water overflow. Wall reinforcement works will be carried out. In 2022, R&D studies, pumps, material cost and research costs are estimated as approximately 1,500,000 ₺ according to purchasing researches.

HSE experts, relevant technical teams, experts in the relevant occupational group on subjects requiring expertise, workplace physicians, employee representatives, and people who do the work participate in the risk analyzes carried out for each hazard specific to operational issues, human, environment, financial impacts, company brand value and stakeholder relations, considering the work steps, maintenance, and repair activities of the processes and emergency situations. TRY 27.25 Million HSE Operational Expenditure in 2022 TRY 53.6 Million HSE Investment in the Last 8 Years.

We make investment plans every year to reduce future environmental risks caused by climate change and increase environmental opportunities, and we added 30.6 Million ₺ to our budget plans in 2023. We also allocated a budget of 47.5 Million TRY for activities and personnel expenses related to Health, Safety and Environment activities.

The total environmental expenditure in 2022, including Environmental Protection Expenditures, Waste Management Expenditures, Permit License Expenses, Environmental Investments, Environmental Consultancy Service Expenditures, Wastewater Analysis Expenditures, is 7,826,069 TRY

Setting emission reduction targets in accordance with Science-Based Targets (SBT) is targeted in the short term.