

2021

CARBON MANAGEMENT AND STRATEGY DEVELOPMENT REPORT

  
GÜLİPEK



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# CONTENTS

1.	About Report .....	2
2.	Our Corporate Profile .....	4
3.	Introduction .....	6
4.	Goals Of The Project .....	8
5.	Methodology .....	9
6.	Data Collection And Data Quality .....	11
7.	Calculation Methods And Terms .....	12
8.	Previous Calculations .....	13
9.	Total Carbon Footprint .....	19
10.	Dyehouse Factory .....	21
11.	Weaving Factory .....	26
12.	Spinning Factory .....	32
13.	Comparison Of Greenhouse Gas Emissions By Years .....	37
14.	Dyehouse Factory By Years .....	39
15.	Weaving Factory By Years .....	43
16.	Spinning Factory By Years .....	47
17.	Relative Carbon Footprint .....	51
18.	Carbon Management And Strategy Development .....	52
19.	Measures Implemented To Reduce Greenhouse Gas Emissions .....	54
20.	Goals .....	56
21.	Measures Implemented To Reduce Greenhouse Gas Emissions .....	58
22.	Carbon Offsetting .....	60
	Appendix .....	62



# ABOUT REPORT

AS THE GÜLİPEK FAMILY, WE ARE PROUD TO PRESENT TO OUR STAKEHOLDERS OUR CARBON FOOTPRINT REPORT FOR 2021, WHICH WE PUBLISHED FOR THE THIRD TIME THIS YEAR. THIS REPORT PROVIDES THE OPPORTUNITY TO EVALUATE THE STEPS WE HAVE TAKEN TO IMPROVE BY MANAGING THE IMPACTS OF OUR ACTIVITIES.

Our first Carbon Footprint Report, published in 2019, was prepared exclusively for the Dyehouse and presented to our stakeholders. As of 2020, greenhouse gas emissions from Spinning, Weaving, and Dyehouse factories had been calculated and reported, and the measures to be taken for all three factories have been presented.

Our 2021 report has been calculated in line with the ISO 14064:2018 Standard, as in our previous reports. The Accredited Verification Body verified the emission values calculated for the reporting year in accordance with ISO 14064-3:2019 to prove the accuracy of the calculations and the report.

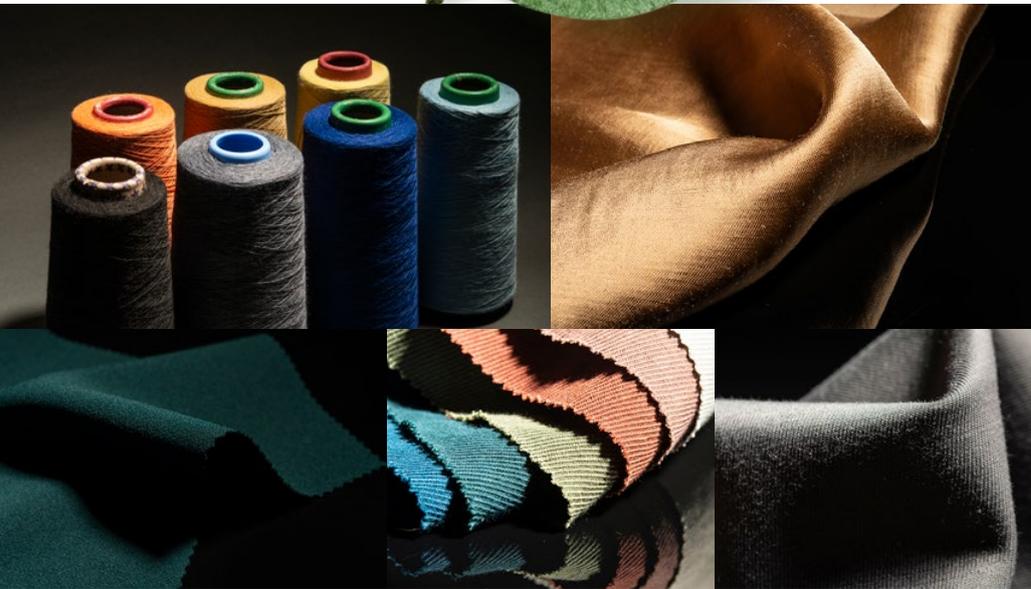
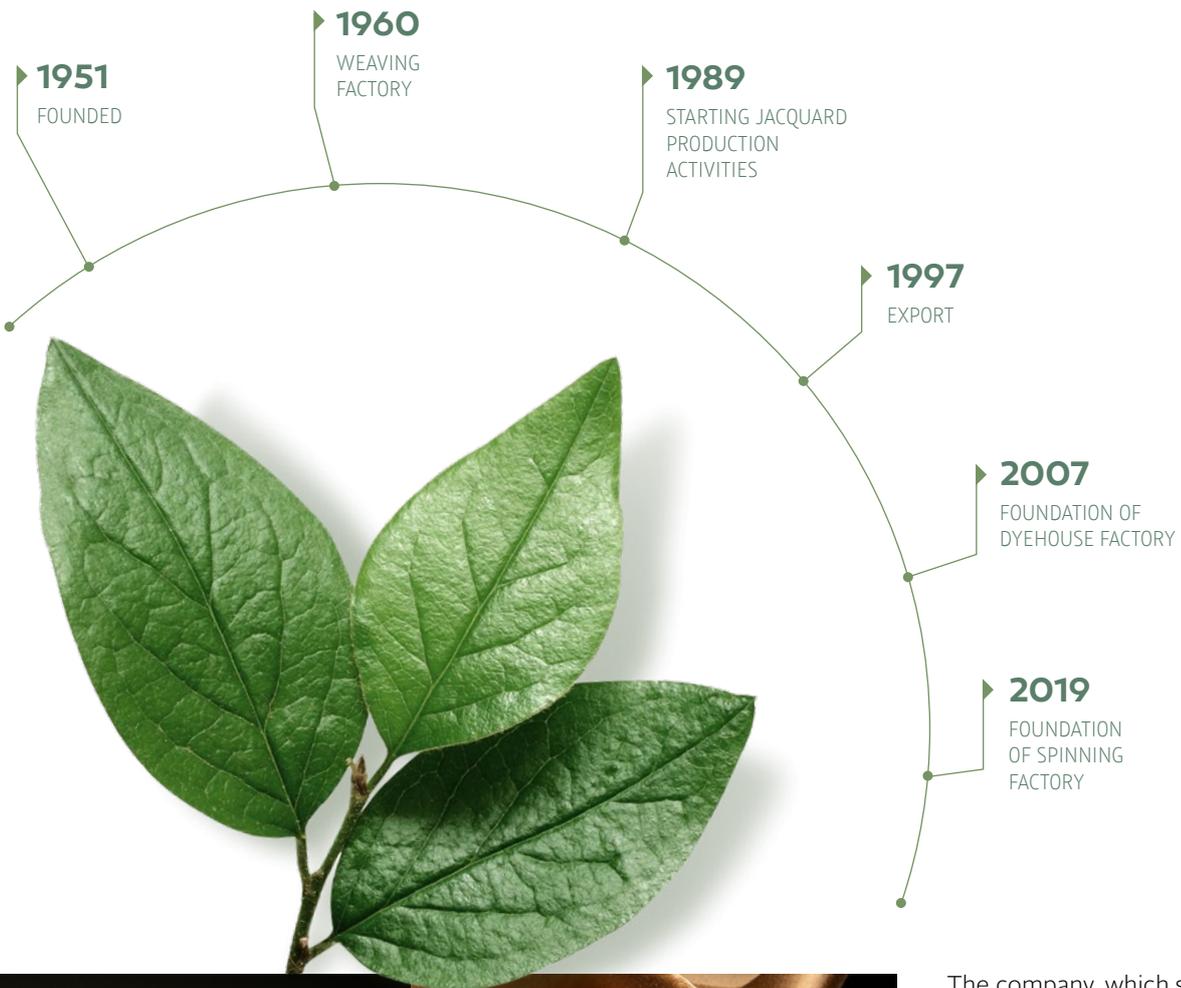
We continue our activities by improving our improvement work for a sustainable future with our 2020 Sustainability Report, the first of which we published last year, and our Carbon Footprint Report, which we publish every year.





# 2. OUR CORPORATE PROFILE

GÜLİPEK TEKSTİL WAS FOUNDED IN 1951 BY KAYA ALİ GÜLGEÇ. IT QUICKLY BECAME KNOWN IN TURKEY AFTER PURCHASING THE FIRST WEAVING MACHINES IN THE EARLY 1960S, PRODUCING HIGH-QUALITY SILK FABRICS FOR LOCAL WHOLESALERS AND APPAREL MANUFACTURERS. IT BEGAN PRODUCING JACQUARD FABRICS IN THE LATE 1980S.



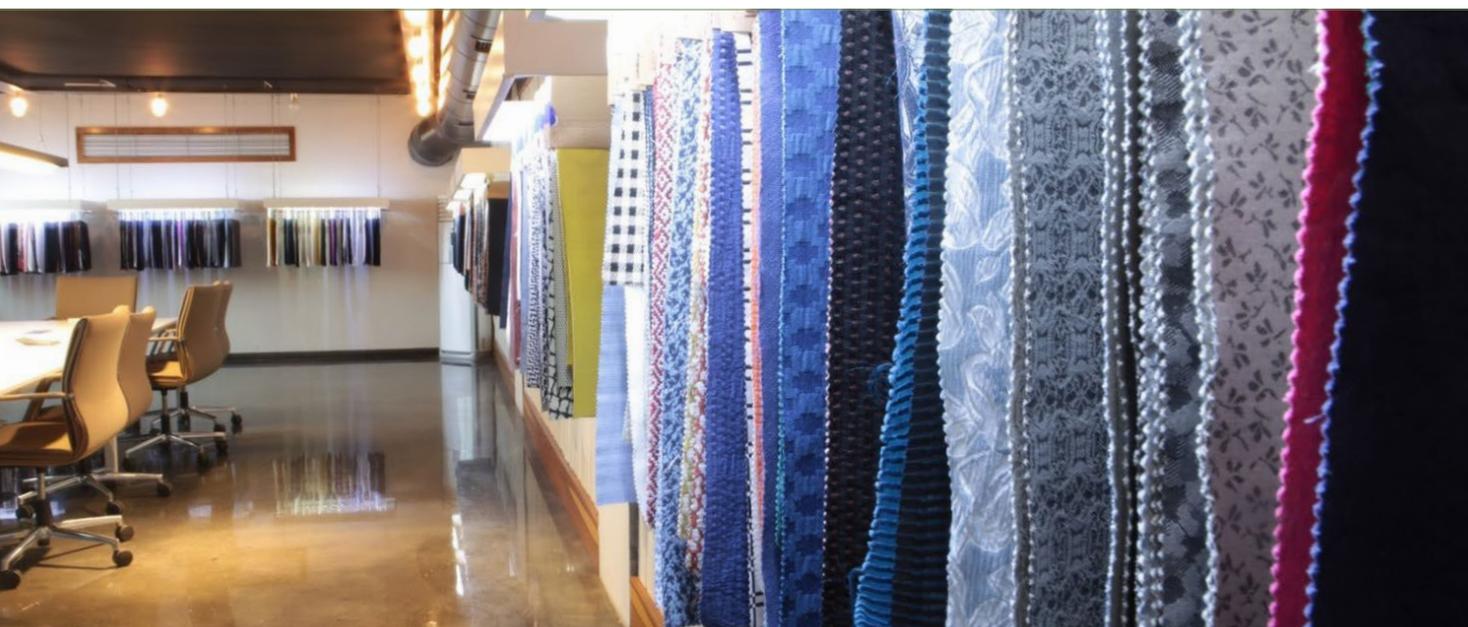
The company, which started to export fabrics in 1997, established its own dye house in 2007 to meet the dyeing and finishing needs and started its technical textile spinning factory in 2019.

Gülipek Tekstil now employs 220 people and produces fabrics for ready made clothing and spinning for global brands on a closed area of 23,482 m<sup>2</sup> on a total land area of 19,748 m<sup>2</sup>.



# 3. INTRODUCTION

GREENHOUSE GAS EMISSIONS AND REMOVALS FOR ALL OPERATIONS CARRIED OUT UNDER THE RESPONSIBILITY OF GÜLİPEK TEKSTİL HAVE BEEN CALCULATED AND PRESENTED IN ACCORDANCE WITH THE REQUIREMENTS OF ISO 14064-1:2018 STANDARD. GÜLİPEK TEKSTİL CREATES A CARBON FOOTPRINT REPORT EACH YEAR, WHICH IS THEN PUBLISHED ON THE COMPANY'S WEBSITE.



The Carbon Footprint Report covers direct and indirect emissions. Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Nitrogen trifluoride (NF<sub>3</sub>), Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulfur Hexafluoride (SF<sub>6</sub>) gases are taken into account in calculations.

The Carbon Footprint Report for the year 2021 has been examined separately for Dyehouse, Weaving, and Spinning factories in five scopes. Calculations were made using data obtained from the most reliable and trustworthy sources.

When calculating;

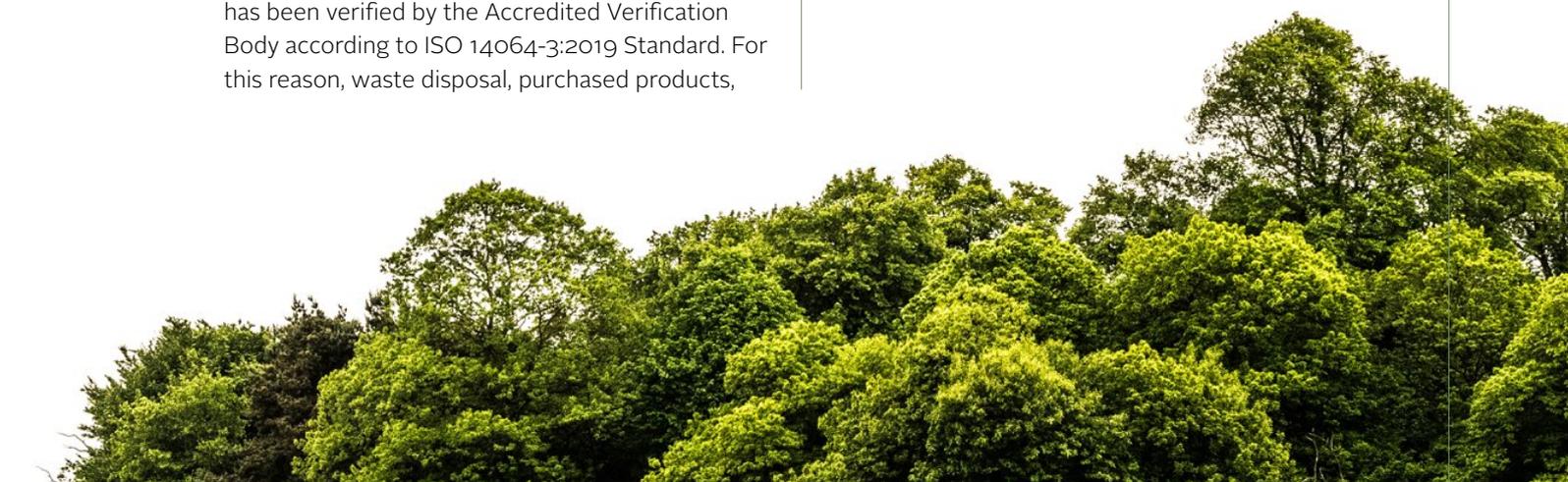
- Five comprehensive calculations have been made as
- Indirect GHG emissions from imported energy;
- Indirect GHG emissions from transportation;
- Indirect GHG emissions from products used by the organization;
- And indirect GHG emissions from other sources.

The Corporate Carbon Footprint Report for 2021 has been verified by the Accredited Verification Body according to ISO 14064-3:2019 Standard. For this reason, waste disposal, purchased products,

refrigerator loss/leakage and chiller gases were added to the calculations. The previous years' calculations and the scope of the 2021 calculation have changed as a result of the standard revision. In order to make comparisons by year, the data from the previous years were re-categorized according to the changes in question and presented in the report.

Using the calendar year or fiscal year as the basis for calculating the Corporate Carbon Footprint for 2021 is critical for producing a more accurate result. For this reason, 2019 has been accepted as the base year for the Dyehouse factory. Carbon calculation in the Spinning Factory and Weaving Factory has been started from 2020. The year 2020 has been accepted as the reference year for the Weaving and Spinning Factory.

The carbon footprint has been calculated in line with the data within the scope of the period from January 1, 2021 to December 31, 2021.



# 4 GOALS OF THE PROJECT

THIS REPORT SUMMARIZES GÜLİPEK TEKSTİL'S GREENHOUSE GAS EMISSION INVENTORIES AND SERVES AS THE FIRST STEP IN IMPLEMENTING MEASURES TO CONTROL GREENHOUSE GASES EMITTED BY PRODUCTION ACTIVITIES. THE INTEGRATION OF PRODUCTION AND ENERGY FLOW PLANNING IS THE MOST IMPORTANT STEP IN THE FIGHT AGAINST CLIMATE CHANGE, AND ONE OF GÜLİPEK TEKSTİL'S MOST IMPORTANT TRUMP CARDS. ONE OF THE BASIC MOTTOS OF GÜLİPEK TEKSTİL IS "...MAKING SUSTAINABLE AND LIVABLE ENVIRONMENTAL PRODUCTION."

Project goals in line with Gülipek Tekstil's Greenhouse Gas Policies;

- Taking corrective measures for air quality values,
- Raising awareness of our employees and stakeholders by contributing to the fight against global warming and climate change,
- Reflecting the amount of greenhouse gas emissions in 2021, the activities that result from these amounts, and the company's reduction performance on the subject, as well as reducing the potential environmental damage,
- Meeting energy demand change,
- Contributing to planting works,
- Reducing waste generation,
- Managing transportation and travel demands correctly,
- Evaluating the improvement steps, we have taken in order to manage our impacts resulting from our activities,
- Ensuring and developing energy management in our activities,
- Identifying opportunities to reduce greenhouse gas emissions while increasing profitability through reduced energy consumption
- Facilitate performance and progress monitoring in terms of reducing greenhouse gas emissions and increasing greenhouse gas removal,
- Facilitate the development and implementation of greenhouse gas management strategies and plans,
- Complying with SDG commitments and utilizing the information obtained from Gülipek Tekstil's sustainability report.

# 5. METHODOLOGY

THE LONG-TERM TEMPERATURE TARGET OF THE PARIS AGREEMENT, TO WHICH OUR COUNTRY IS ALSO A PARTY, IS TO LIMIT THE GLOBAL AVERAGE TEMPERATURE INCREASE TOA 2 °C (3.6 °F) INCREASE FROM PRE-INDUSTRIAL LEVELS, AND EVEN STRIVES FOR AN INCREASE OF 1.5 °C. CONTROLLING GREENHOUSE GASES RELEASED INTO THE ATMOSPHERE IS NECESSARY TO REDUCE THE TEMPERATURE EFFECT.

The carbon footprint refers to the total amount of greenhouse gas emissions caused by human activity. The carbon footprint accounts for all climate-related emissions (GHG).

The report was examined in five contexts, the results were evaluated and targets for potential actions were developed. Calculations are made to include all greenhouse gas emissions used by the factory and according to GHG, all units are calculated as carbon equivalents (CO<sub>2</sub>e) in kilograms/tonnes.



Calculations were performed by taking into account all contributing factors and employing the methods specified in the energy and carbon footprints, ISO 14064-1 series guidelines and specifications, according to the calculation groups specified in the GHG Protocol, and data collection, calculation, reporting, and reference value tables specified in the IPCC guidelines of the Intergovernmental Panel on Climate Change.

Gülipek Tekstil obtains its energy from natural gas, electricity, and diesel. Gülipek Tekstil has conducted studies on the use of renewable energy. In the context of these studies, the Dyehouse factory meets its electricity consumption with the YEK-G Certificate and the Spinning factory with the I-REC Certificate, both of which are generated from renewable resources.

## 5.1. EMISSION SOURCES

Fuel, natural gas, and electricity consumption data, which include all activities within Gülipek Tekstil and are continuous, are used in the calculation process. The scope of calculation and related types of activities are listed below.

The consumption amounts from emission sources listed below are based on data obtained by Gülipek

Tekstil. The emission sources and sub-titles used in the calculation are listed below. Scope 5 has not been calculated because manufactured products are processed before they reach the final consumer. Within the company, there are no carbon emissions from biomass combustion.

**SCOPE 1**

**DIRECTLY**

- 1.1. Steady Combustion**
  - *Natural gas*
  - *Generator*
- 1.2. Moving Combustion**
  - *Usage of company vehicles*
  - *Forklift*
- 1.4. Residual / Leakage**
  - *Residuals / Leakages caused by refrigerators*
  - *Fire Protection*
  - *Air conditioner*
  - *Air-conditioning*

**SCOPE 3**

**DUE TO TRANSPORTATION**

- 3.1. Input Material Fuel Consumption**
  - *Fuel consumption during raw material shipping*
- 3.2. Output Material Fuel Consumption**
  - *Fuel consumption during product shipping*
  - *Fuel Consumption during waste disposal shipping*
- 3.5. Business Trips**

**SCOPE 4**

**INPUT USED**

- 4.1. Purchased Product**
  - *Raw material purchase amount*
- 4.2. Waste Disposal**

**SCOPE 2**

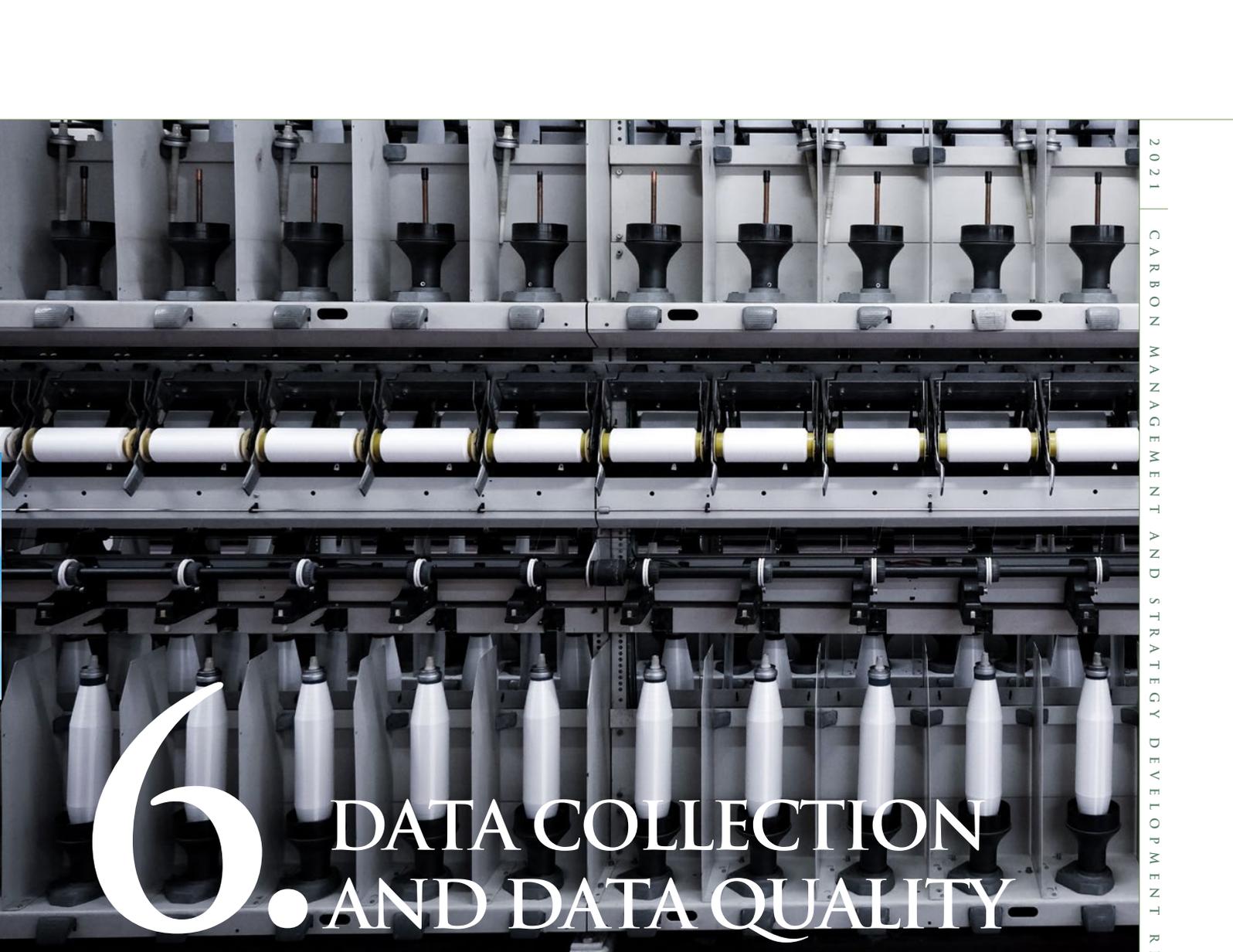
**DUE TO ENERGY**

- 2.1. Electricity**
  - *Electricity leakage*

**SCOPE 5**

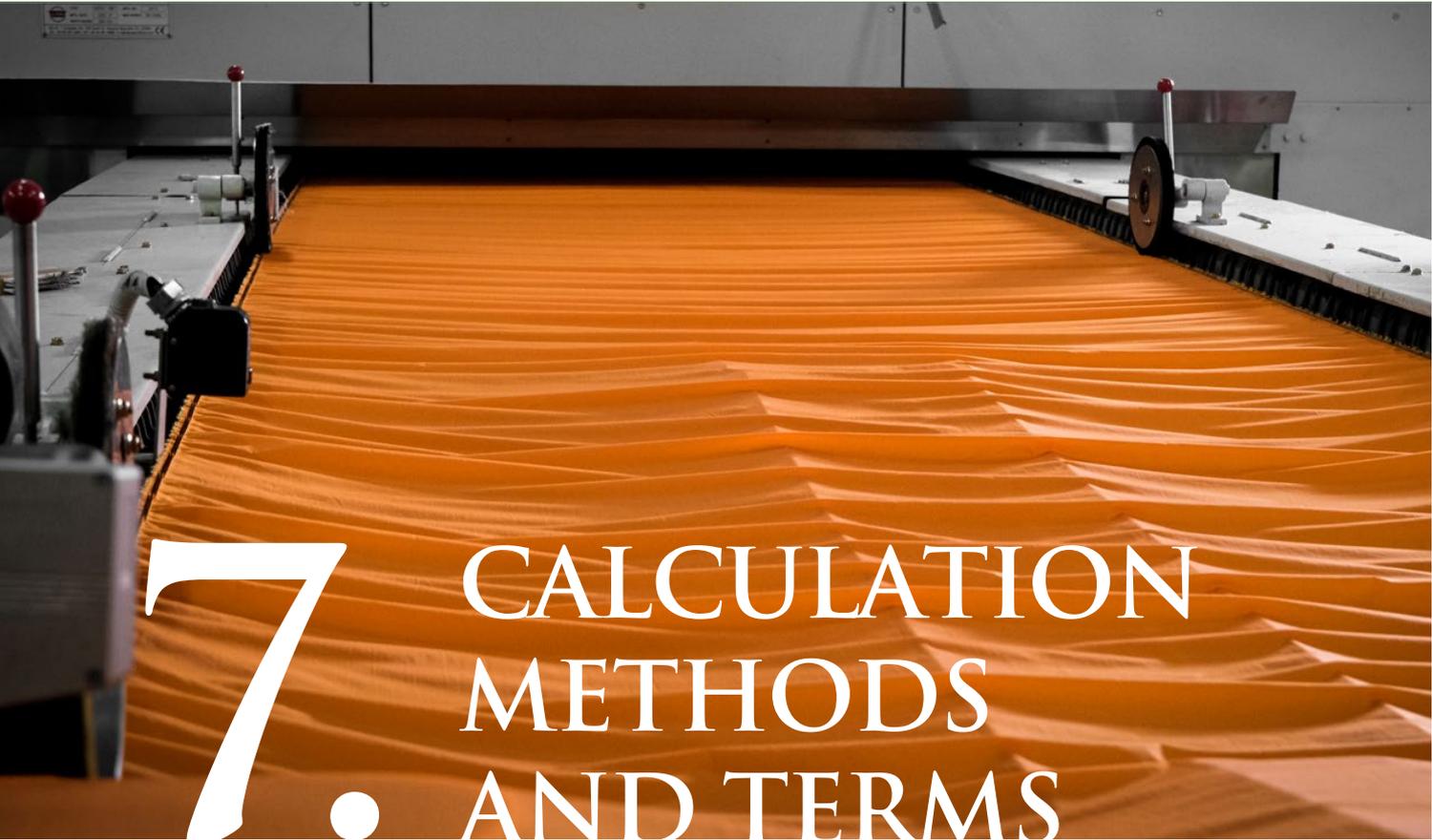
**OTHERS**

**Electrical Loss / Leaks**



# 6 DATA COLLECTION AND DATA QUALITY

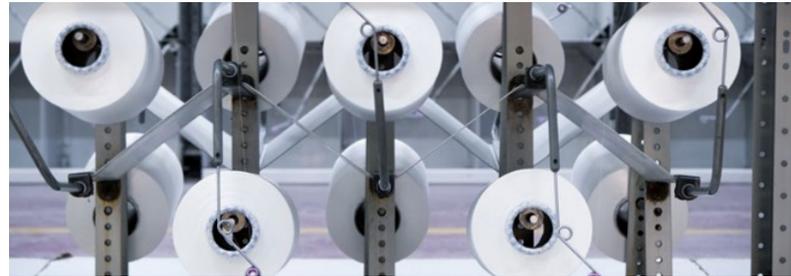
- The sources to be used in the calculations were determined, and it was decided which data were required.
- These data and data proofs were requested in writing from the department managers, technical units and service providers.
- The data covers a period of 12 months.
- The evaluation is based on a one-year period from January 2021 to December 2021 to determine the number of emissions.
- The normalized reference base year is 2019 for the Dyehouse Factory and 2020 for the Weaving and Spinning Factory. The reference year was chosen after considering factors such as data availability and quality, and significant administrative changes.
- Data are subject to official records, data quality is good, consistent and credible.
- Data for corporate-scale carbon inventories were obtained from external institutions (for example, electricity and natural gas distribution companies), and relevant institution managements provided support at all levels.
- It is based on data received from organizations such as flight information, vehicle tracking system, invoices, contracted fuel station, MOTAT (Waste Management Application System), Turkish Airlines, Pegasus, and Simpet when creating data inventories of waste disposal, business trips, and other shipping emissions.
- Calculations were made by supporting the data of distance traveled by the transport vehicles and the amount of fuel used at that distance, the distance covered by the raw materials received, and the delivered products with their own vehicles, for which Gülipek provided Simpet invoices for 20% of the transport companies.



# 7. CALCULATION METHODS AND TERMS

The methodologies used in the calculation were derived from the Greenhouse Gas Protocol (GHG) and the Intergovernmental Panel on Climate Change (2006) documents (IPCC).

The following formulas and variables were used to calculate the Carbon Footprint Report based on the types of greenhouse gas sources.



$$\text{Total CO}_2\text{e} = \text{Activity Data} \times \text{Appropriate Emission Factor}$$

$$\text{Emission Factor} = \text{Emission CO}_2 + \text{Emission CH}_4 + \text{Emission N}_2\text{O} + \dots$$

**GWP (Global Warming Potential):** The mass-based radiant power effect identification factor (GWP) of a given greenhouse gas in terms of carbon dioxide equivalent over a given time period. For GWPs, the IPCC AR<sub>5</sub> is used as a reference,

and the following GWP values are used for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

**Carbon dioxide equivalent (CO<sub>2</sub>e):** The unit for comparing the radiant power of a greenhouse gas to that of carbon dioxide.

Greenhouse Gas	Formula	Retention Time in Atmosphere (Year)	GWP (CO <sub>2</sub> e)
Carbon dioxide	CO <sub>2</sub>	5 – 200	1
Methane	CH <sub>4</sub>	12,000	28
Nitrous oxide	N <sub>2</sub> O	114,000	265
Perfluorocarbons	PFCs	50.000*	6.500 - 9.200
Hydro chlorocarbons	HFCs	226*	140 - 11.700
Sulfur Hexafluoride	SF <sub>6</sub>	3200,000	23.900

\*: The highest values are shown for this group of greenhouse gases. (Source: 3 EPA, <http://epa.gov/climatechange/ghgemissions/gases/fgases.html> 4 Low GWP Alternatives to HFCs and PFCs, J. G. Owens.)

# 8. CALCULATIONS IN PAST

THE DATA IN THE CARBON FOOTPRINT REPORTS CALCULATED IN ACCORDANCE WITH THE ISO 14064-1:2018 STANDARD IS PRESENTED WITHIN THE SCOPES SPECIFIED. WHEN COMPARING THE 2019 AND 2020 CALCULATIONS TO THE 2021 CALCULATIONS, THE DATA IN THE TABLES BELOW ARE TAKEN INTO ACCOUNT.



## 8.1. DATA FOR 2019

The carbon Footprint calculation for 2019 was made only for the Dyehouse factory.

Scope	Factor	Amount (Ton CO <sub>2</sub> e)
1.1	Natural gas	6146,556
1.1	Generator	8,152
1.2	Vehicle Emissions Gasoline	95,356
1.2	Vehicle Emissions Diesel	29,318
1.4	Air-conditioning	0,039
1.4	Air conditioner	0,039
1.4	Fire Protection	0,756
1.4	Refrigerator	0,758
2.1	Electricity	1614,022
3.2	Fuel Consumption during waste disposal shipping	0,089
3.2	Product Shipping	55,798
3.5	Business Trips	82,170
4.3	Raw Material Received	7922,013
4.3	Waste Disposal	1,719
6	Other - Electric Leakage	174,314
<b>Total</b>		<b>16131,099</b>

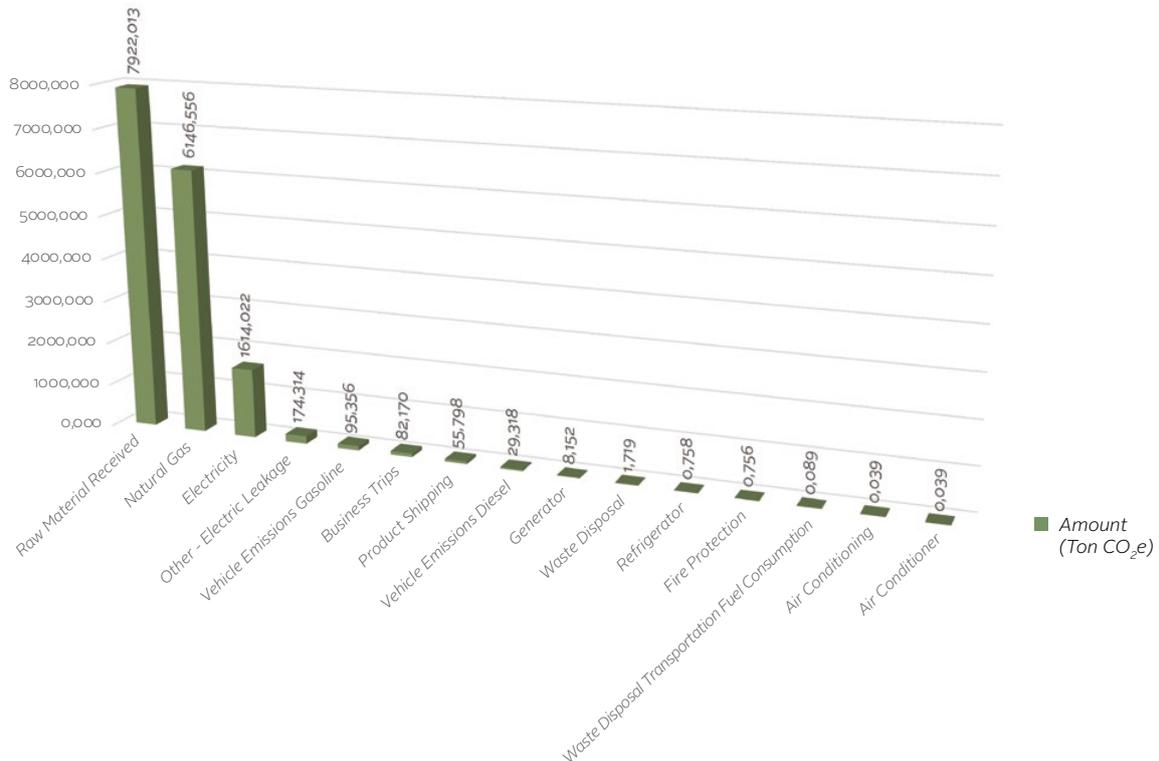


Chart 1. Emissions Chart for 2019

## 8.2. DATA FOR 2020

The data in the table below is the sum of the Dyehouse, Weaving, and Spinning Factories.

Scope	Factor	Amount (Ton CO <sub>2</sub> e)
1.1	Natural gas	3,495,627
1.1	Generator	10,751
1.2	Vehicle Emissions Gasoline	26,485
1.2	Vehicle Emissions Diesel	42,842
1.2	Forklift	2,323
1.4	Air-conditioning	0,190
1.4	Air conditioner	0,086
1.4	Fire Protection	2,646
1.4	Refrigerator	0,758
2.1	Electricity	13,986
3.1	Fuel consumption during raw material shipping	1,625,830
3.2	Fuel Consumption during waste disposal shipping	17,776
3.2	Product Shipping	5,360
3.5	Business Trips	43,704
4.1	Raw Material Received	27,014,465
4.3	Waste Disposal	2,892
6	Other - Electric Leakage	12,680
<b>Total</b>		<b>32,318,401</b>

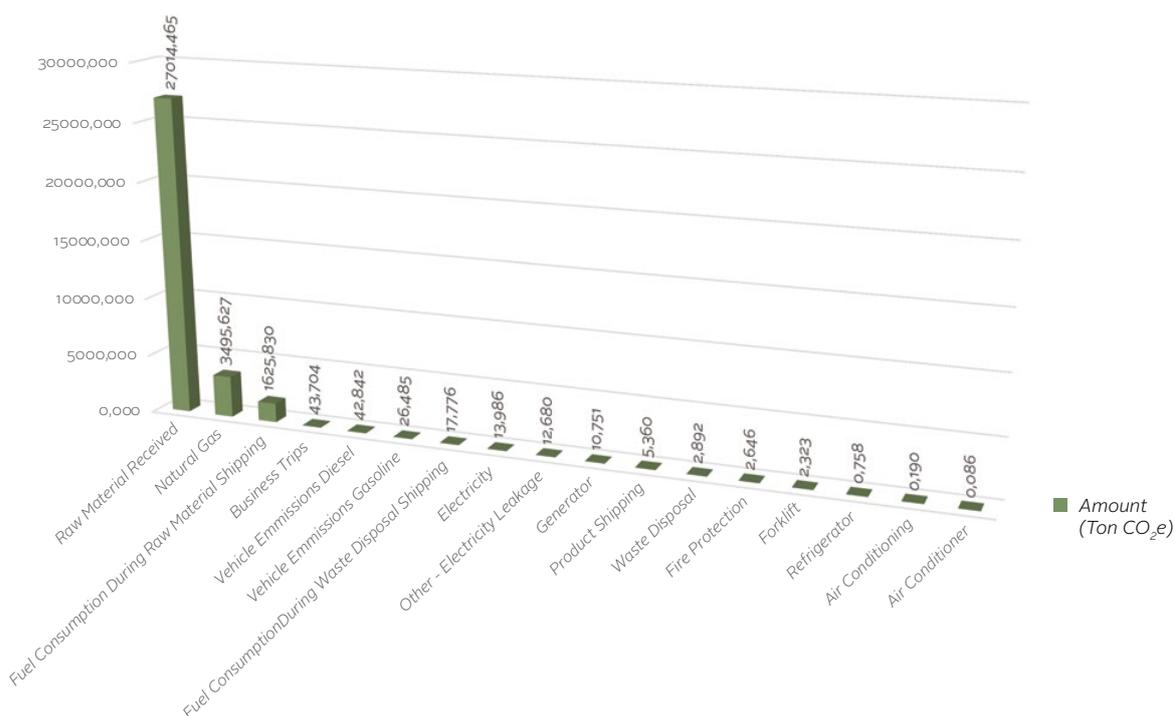


Chart 2. Emissions Chart for 2020

## 8.2.1. DYEHOUSE

Scope	Factor	Amount (Ton CO <sub>2</sub> e)
1.1	Natural gas	3,444,326
1.1	Generator	5,183
1.2	Vehicle Emissions Gasoline	24,822
1.2	Vehicle Emissions Diesel	17,744
1.2	Forklift	2,323
1.4	Air-conditioning	0,190
1.4	Air conditioner	0,035
1.4	Fire Protection	7,056
1.4	Refrigerator	0,270
2.1	Electricity	988,945
3.1	Fuel consumption during raw material shipping	-
3.2	Fuel Consumption during waste disposal shipping	4,198
3.2	Fuel consumption during product shipping	17,736
3.5	Business Trips	12,680
4.1	Raw Material Received	4,562,797
4.3	Waste Disposal	1,231
6	Other - Electric Leakage	105,817
<b>Total</b>		<b>9,195,353</b>

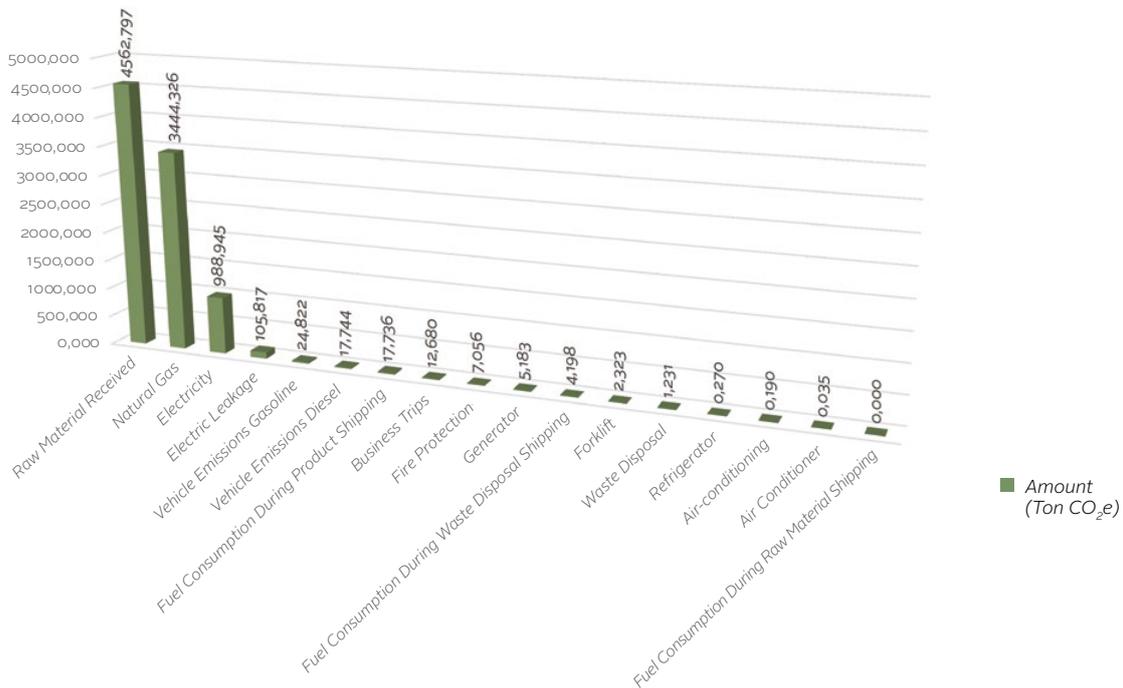


Chart 3. Dyehouse Factory Emissions Chart for 2020



## 8.2.2. WEAVING

Scope	Factor	Amount (Ton CO <sub>2</sub> e)
1.1	Natural gas	-
1.1	Generator	-
1.2	Vehicle Emissions Gasoline	-
1.2	Vehicle Emissions Diesel	8,051
1.2	Forklift	-
1.4	Air-conditioning	-
1.4	Air conditioner	0,017
1.4	Fire Protection	0,378
1.4	Refrigerator	0,145
2.1	Electricity	636,886
3.1	Fuel consumption during raw material shipping	17,776
3.2	Fuel Consumption during waste disposal shipping	1,162
3.2	Fuel consumption during product shipping	-
4.1	Raw Material Received	16,767,014
4.3	Waste Disposal	1,612
6	Other - Electric Leakage	68,147
<b>Total</b>		<b>17,501,042</b>

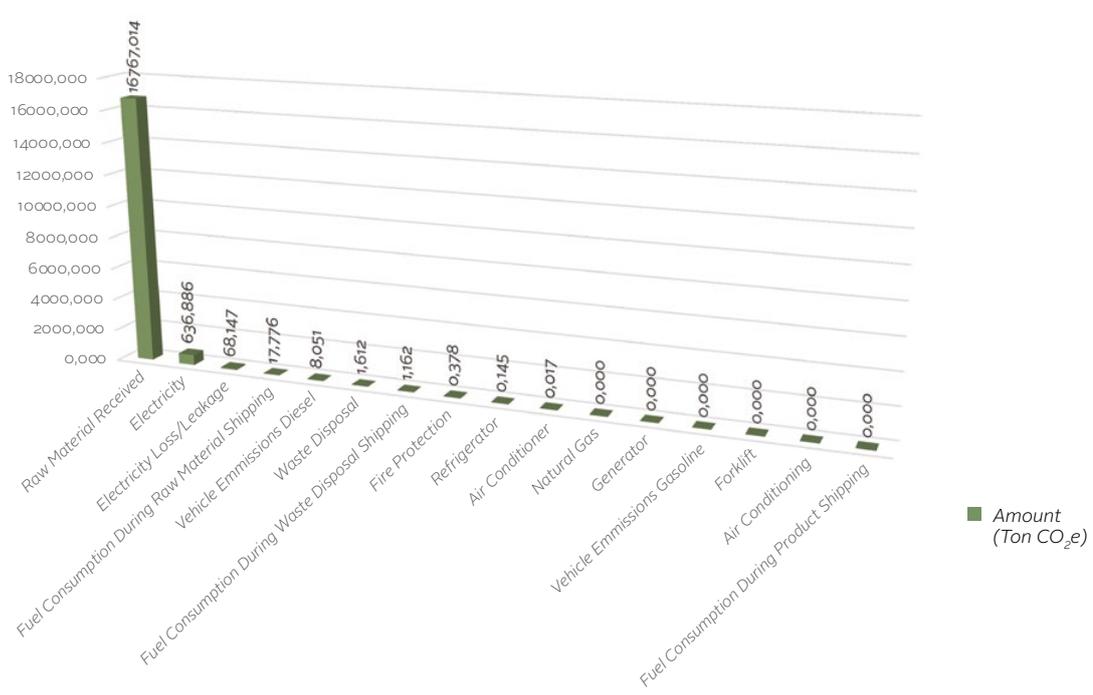


Chart 4. Weaving Factory Emissions Chart for 2020

## 8.2.3. SPINNING

Scope	Factor	Amount (Ton CO <sub>2</sub> e)
1.1	Natural gas	51,300
1.1	Generator	5,570
1.2	Vehicle Emissions Gasoline	1,660
1.2	Vehicle Emissions Diesel	17,050
1.2	Forklift	-
1.4	Air-conditioning	-
1.4	Air conditioner	0,040
1.4	Fire Protection	6,550
1.4	Refrigerator	0,340
2.1	Electricity	-
3.1	Fuel consumption during raw material shipping	-
3.2	Fuel Consumption during waste disposal shipping	-
3.2	Fuel consumption during product shipping	25,970
4.1	Raw Material Received	5,684,650
4.3	Waste Disposal	0,050
6	Other - Electric Leakage	-
<b>Total</b>		<b>5,793,180</b>

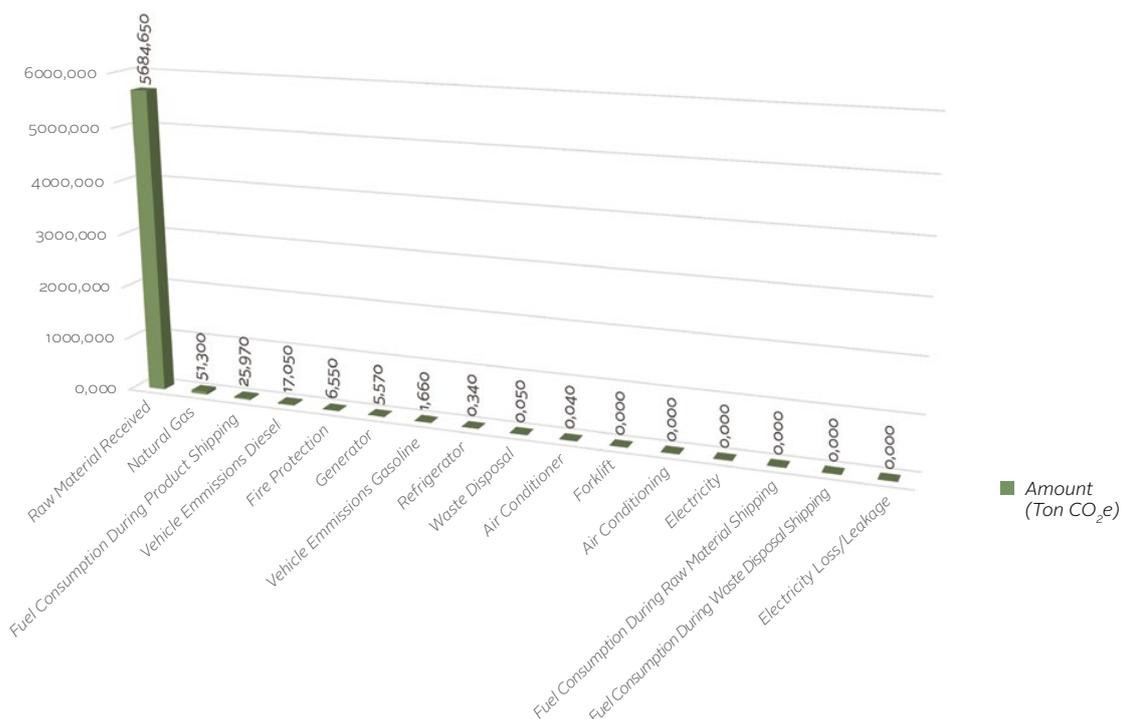


Chart 5. Spinning Factory Emissions Chart for 2020

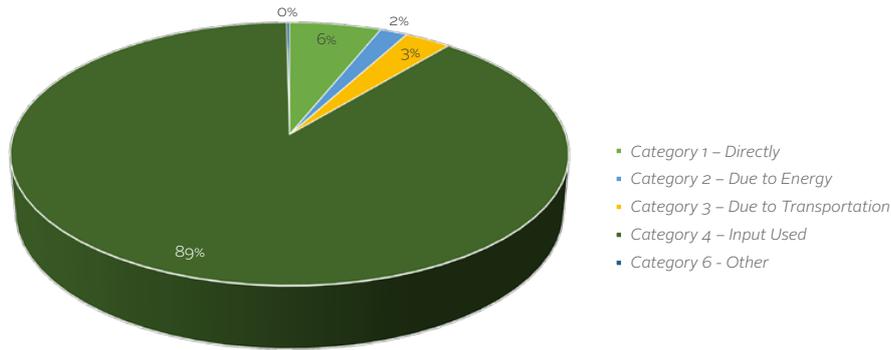
# 9. TOTAL CARBON FOOTPRINT

THE CARBON EMISSION FOR ALL THREE FACTORIES IS 38,752.563 TONS OF CO<sub>2</sub>E, BASED ON THE CALCULATION OF ALL MAIN AND AUXILIARY ACTIVITIES USED DURING PRODUCTION AT GÜLİPEK TEKSTİL. THIS AMOUNT IS EQUAL TO THE ANNUAL CARBON EMISSIONS OF 10,765 TURKISH CITIZENS (3.6 TONS/YEAR). WHEN THE DISTRIBUTIONS ARE EXAMINED, IT IS DISCOVERED THAT SCOPE 4 HAS THE HIGHEST RATE OF GREENHOUSE GAS EMISSIONS AT 88.74%.

Scope 4 emissions from waste and purchased raw materials were included in the calculation for the first time in the reporting year. The raw materials mentioned in this report are raw fabric for the dyehouse factory, spinning for the weaving factory, and fiber for the spinning factory.

No	Scope	t CO <sub>2</sub>	t CH <sub>4</sub>	t N <sub>2</sub> O	tons CO <sub>2</sub> e
1	SCOPE 1 – Directly	2,366,780	0,050	0,009	2,370,520
2	SCOPE 2 - Due to Energy	707,900	0,009	0,008	710,330
3	SCOPE 3 - Due to Transportation	238,419	0,030	3,655	1.207,813
4	SCOPE 4 - Input Used	34.389,441	0,000	0,000	34.389,441
5	SCOPE 6 – Others	74,460	0,000	0,000	74,460
<b>Total</b>		<b>37.777,000</b>	<b>0,088</b>	<b>3,672</b>	<b>38.752,563</b>

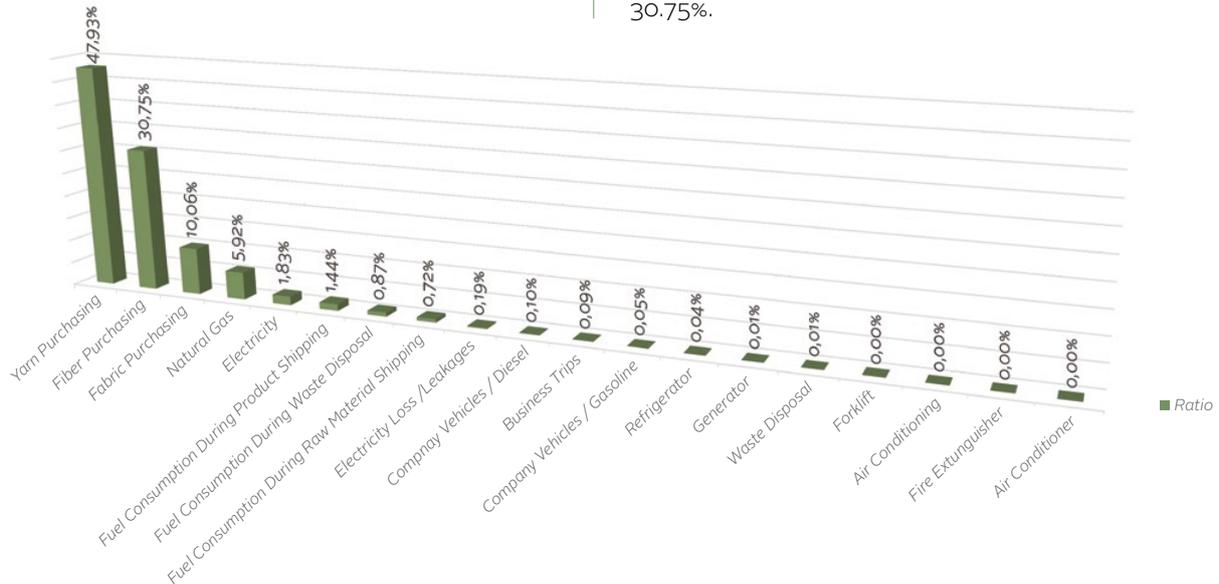
**Table 1.** 2021 Emission Distributions by Scope



**Chart 6.** Emission Rates by Scope for 2021

The carbon emissions of the raw materials purchased by the organization and used by the Dyehouse, Weaving, and Spinning factories to carry out their production activities were calculated in Scope 4. There are no emissions from the transportation of raw materials to the company under this heading; only product-related emissions are calculated.

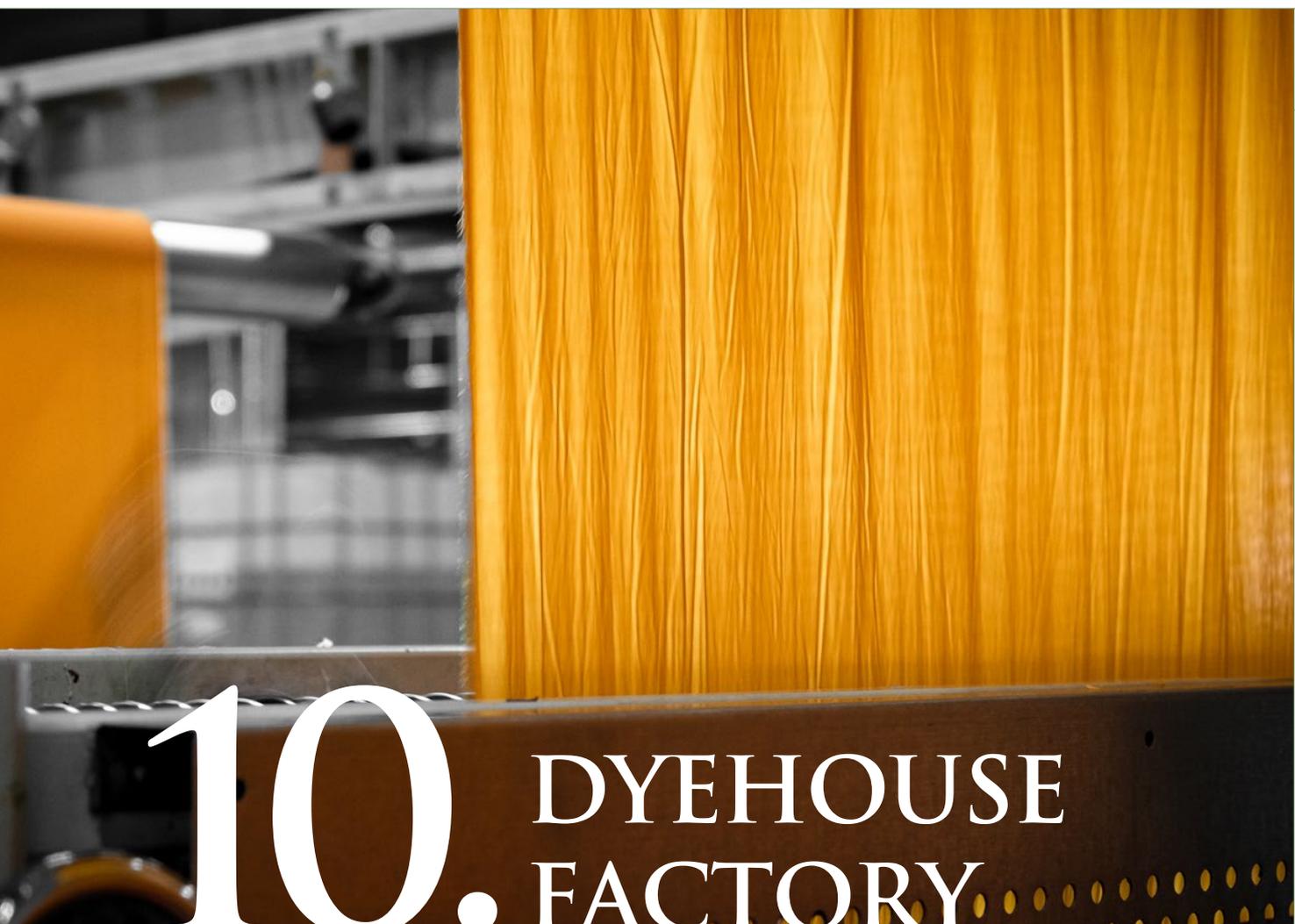
When the emission distributions for 2021 are detailed, the emissions caused by raw materials constitutes 88.74%. When the emissions caused by the raw materials received are detailed, the yarn, which is the raw material of the weaving factory, constitutes 47.93%, the fabric, which is the raw material of the dyehouse, 10.06%, and the fiber, which is the raw material of the spinning factory, 30.75%.



**Chart 7.** Detail of Emission Distributions in 2021

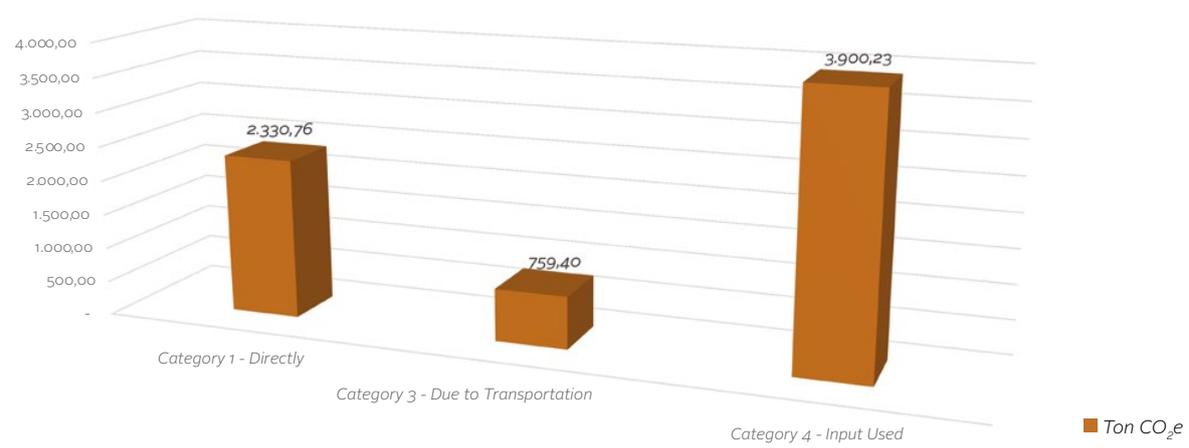
The highest rates after raw material purchases are observed to be energy related. Natural gas accounts for 5.92%, while electricity accounts for 1.83%. When energy related CO<sub>2</sub>e emissions

are reduced, so are the enterprise's energy costs. Being aware of this situation, Gülipek Tekstil works to reduce all energy consumption and adopts these studies as the company's vision.



# 10. DYEHOUSE FACTORY

THE DYEHOUSE FACTORY'S TOTAL CARBON EMISSIONS IN 2021 ARE 6990.390 TONS OF CO<sub>2</sub>e. IN THE REPORTING YEAR, MWH EQUAL TO THE ELECTRICITY CONSUMED IN 2021 WAS PURCHASED, INDICATING THAT THE ELECTRICITY USED IN THE DYEHOUSE FACTORY WAS SOURCED FROM RENEWABLE SOURCES, AND THE REK-G CERTIFICATE WAS OBTAINED. THEREFORE, EMISSIONS FROM ELECTRICITY USE IN SCOPE 2 AND ELECTRICITY LOSS/LEAKAGE IN SCOPE 6 ARE NOT CONSIDERED.



**Chart 8.** 2021 Dyehouse Factory Emission Amounts by Scope

## 10.1.1. SCOPE 1

According to the steady combustion, moving combustion, and loss/leakage, which are direct emission sources included in Scope 1, a total of 2330,761 tons of CO<sub>2</sub>e emissions are produced. With the use of natural gas, 98.19% of carbon emissions are released. In this context, company vehicles emit the second-highest amount of pollution, consuming 0.93 % diesel fuel.

The dyehouse owns nine vehicles that run on diesel and gasoline fuel and are used for business purposes. Two of the vehicles are hybrid vehicles with the aim of reducing their emissions and fuel consumption.

Refrigerator loss/leakage data from the reporting year are included in the calculation when entered in category sub-items. Emissions were calculated for generators in the steady combustion category and forklifts in the moving combustion category. Diesel is used as a fuel source in generators and forklifts.

40 kg of R410 gas was added to the air conditioning system during the reporting year. The calculation includes gas additions to the air conditioning system and fire extinguishers. Because there is no gas addition to the air conditioning system, it has not been calculated.

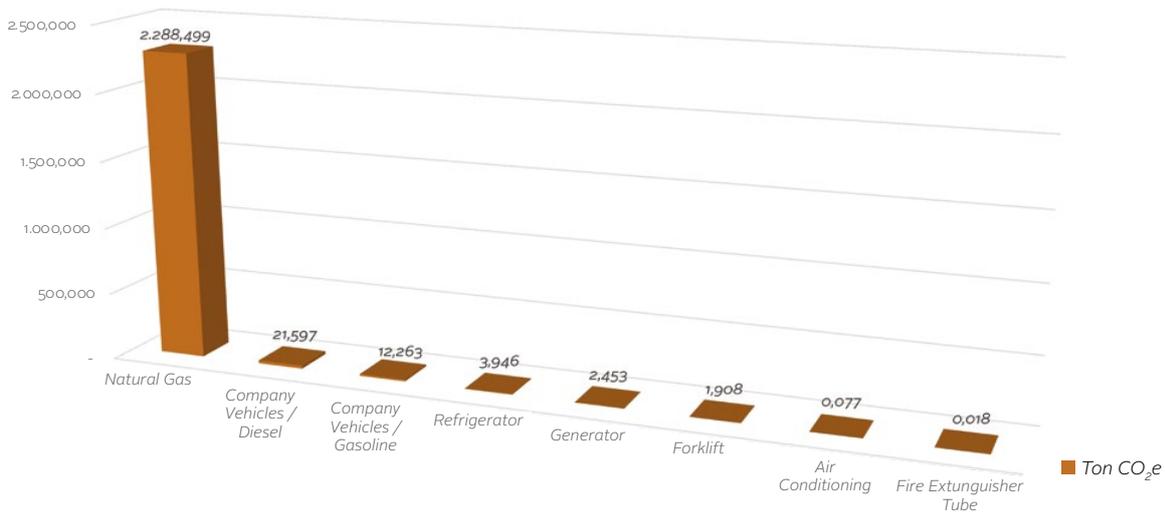


Chart 9. 2021 Dyehouse Factory Scope 1 - Direct Carbon Emissions

## 10.1.2. SCOPE 3

In Scope 3, emissions that are released during transportation activities are examined. These emissions include the company's product and raw material shipping, flights for business trips, and carbon emissions generated during waste disposal transportation.

In Scope 3, a total of 759,396 tons of CO<sub>2</sub>e carbon emissions are released. When the scope is detailed, it is seen that the highest emission rate of 73.26% occurs during product shipping. In the reporting year, while the shipping of products delivered to the country was carried out by the road, some of the products delivered abroad were delivered by airline. Calculations are

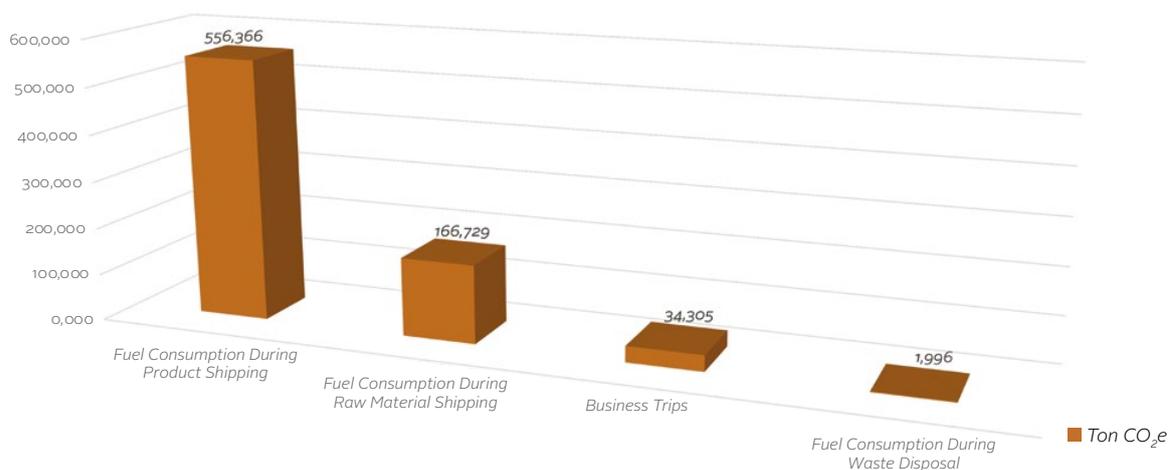
made in accordance with road and airline data. The resulting value was collected and gave the emission values that occurred during the product shipping.

The majority of the fabrics used in the dyeing factory are purchased from the weaving factory using company vehicles. Carbon emissions from the transportation of foreign-purchased fabrics account for 29.96% of Scope - 3.

The emissions from product and raw material transportation were calculated by taking into account the cargo information of the transporting vehicles, whether they were cooled or not, and the

vehicle occupancy rate. Carbon emissions from business trips account for 4.517 % of this category. Business trips represent the emissions caused by employees' business-related air travel. Because

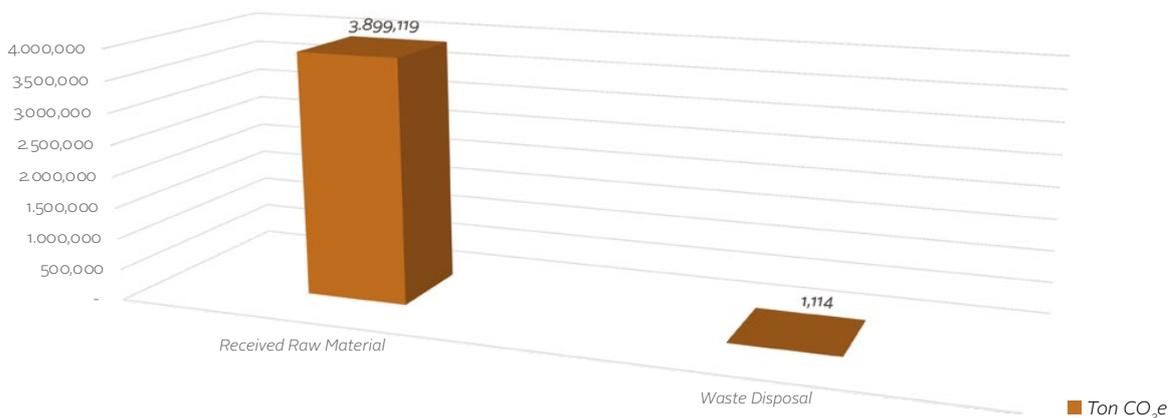
employees from all three factories are affiliated with the Dyehouse Factory, business trips to the Spinning and Weaving factories are also included.



**Chart 10.** 2021 Dyehouse Factory Scope 3 – Carbon Emissions from Transportation

### 10.1.3. SCOPE 4

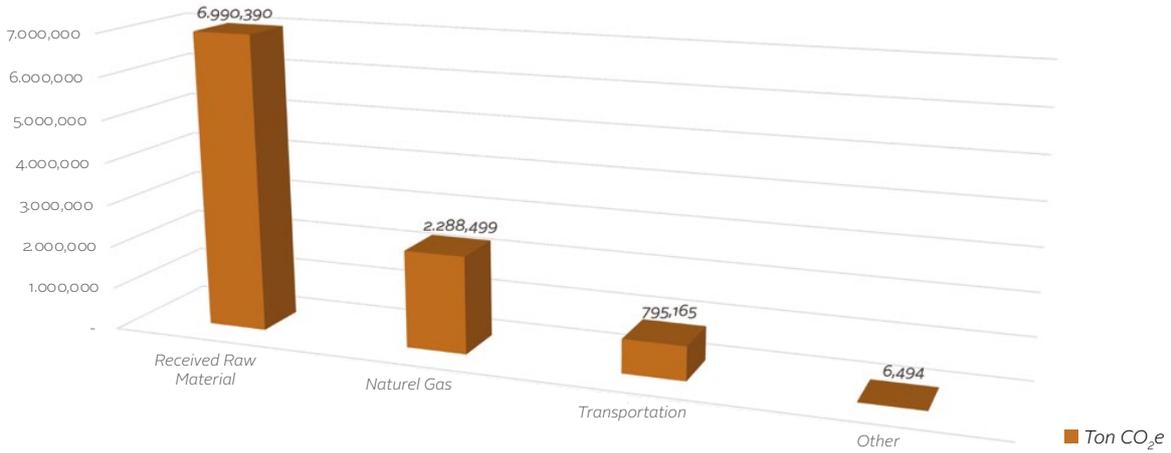
In Scope 4, the emissions generated by the enterprise's products are calculated by categorizing them as emissions from raw material purchases and wastes generated. The highest carbon emission belongs to this scope, and it is 3,900,233 tons of CO<sub>2</sub>e in total.



**Chart 11.** Dyehouse Factory in 2021 Scope 4 – Carbon Emissions from Used Input

## 10.2. CARBON EMISSIONS BY CATEGORIES

While calculating the corporate carbon footprint, it has been determined that there are carbon emissions from raw material and waste production, natural gas, electricity, transportation, and other activities.



**Chart 12.** Emission Distribution of Dyehouse Factory by Categories

\*Other: Emissions from Refrigerator Loss/leakage, Air Conditioning, Generator and Fire extinguisher tubes.

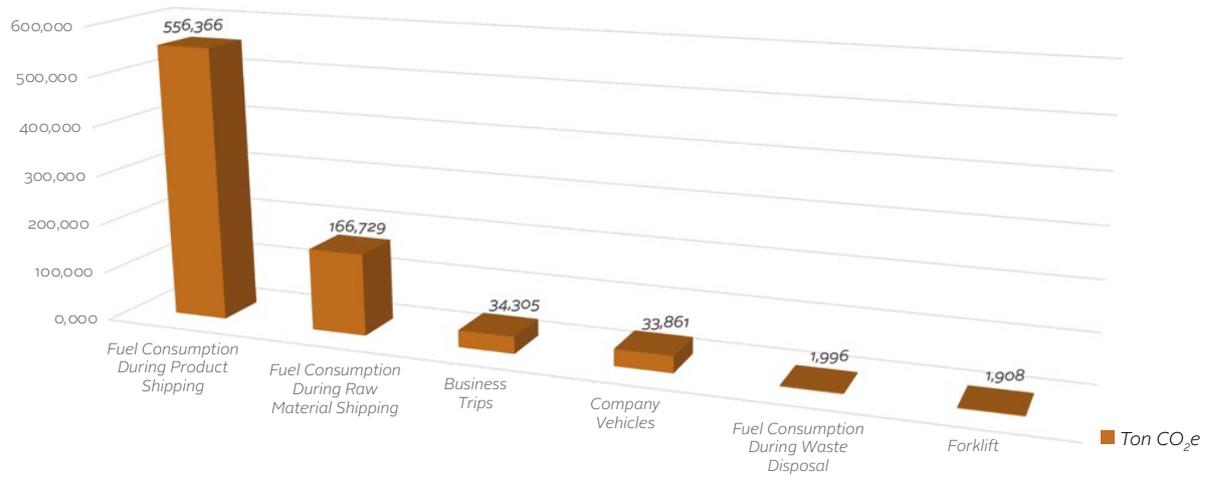
### 10.2.1. CARBON EMISSIONS BY TRANSPORTATION ITEMS

Transportation-related carbon emissions account for 10.86% of the Dyehouse's total emissions. The highest emission rate occurs during product and raw material shipping, according to transportation items. The shipping costs covered by Gülipek Tekstil are considered when calculating product and raw material shipments.

Business trips is another source of high emissions from transportation. Flights taken by company employees for business purposes are considered business trips. Travels are included in the

Dyehouse's carbon emission calculation because they are performed by white-collar employees working within the Dyehouse.

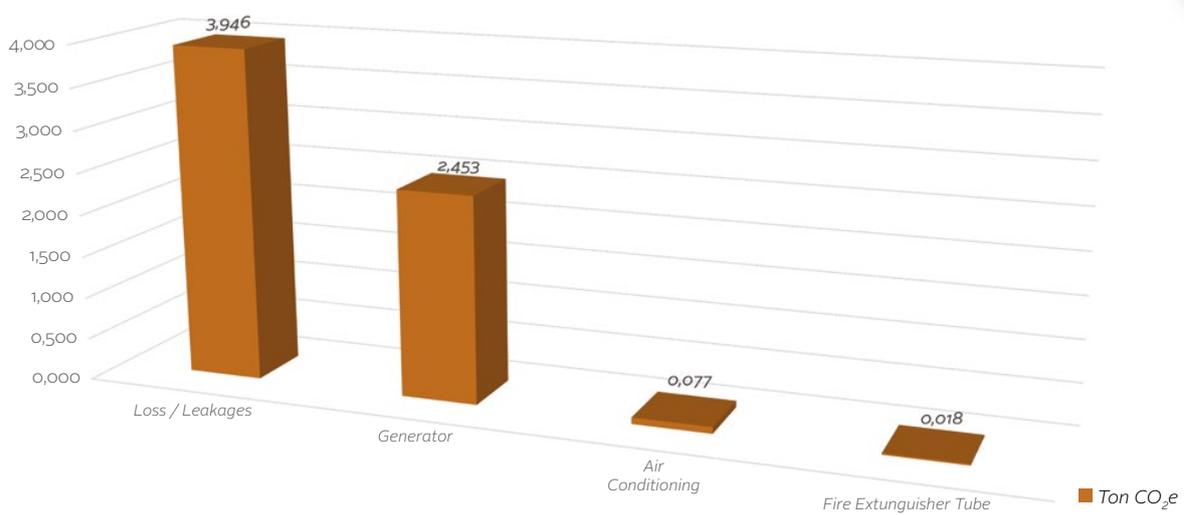
The shipping costs covered by Gülipek Tekstil are included in the carbon footprint calculation when calculating the carbon emissions that occur during waste disposal transportation. Values such as location, vehicle type, and fuel consumption were obtained from the licensed waste companies to which the wastes were delivered.



**Chart 13.** Distribution of Emissions by Dyehouse Factory Transportation Items

## 10.2.2. OTHER

Loss/leakage, fire protection, air conditioning, and generator are IN the other categories. Because there was no gas filling in the Dyehouse factory's air conditioning system in 2021, the air conditioning data were not included in the calculation.

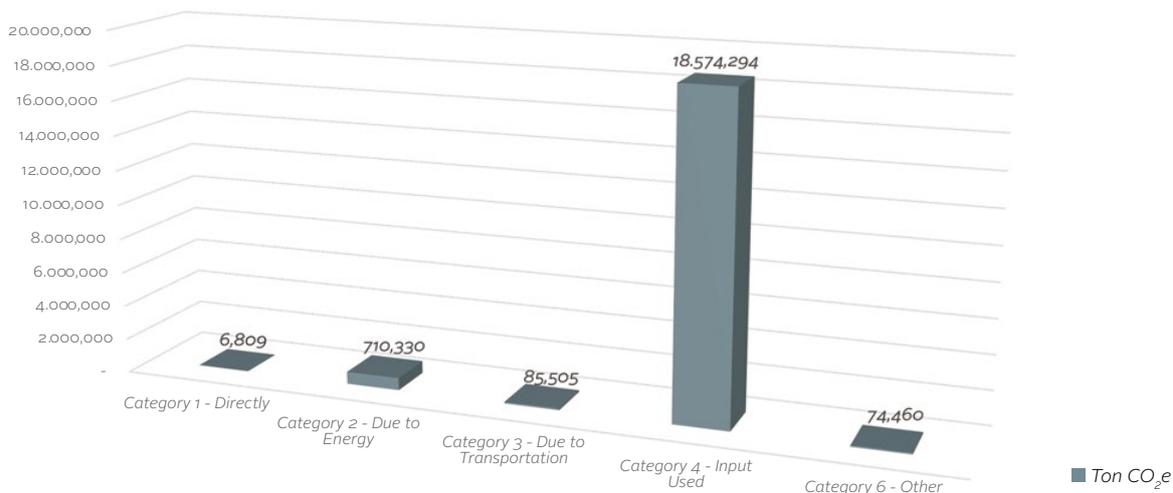


**Chart 14.** Dyehouse Factory Other Category Emission Distributions



# 11. WEAVING FACTORY

THE CARBON FOOTPRINT OF THE WEAVING FACTORY WAS CALCULATED TO BE 19,451,398 TONS OF CO<sub>2</sub>E DURING THE REPORTING YEAR. SCOPE 4 HAS THE HIGHEST RATE OF CARBON EMISSIONS, AT 95.49%. SCOPE 2, WHICH INCLUDES ELECTRICITY CONSUMPTION, ACCOUNTS FOR THE WEAVING FACTORY'S SECOND-HIGHEST CARBON EMISSIONS. BECAUSE THE WEAVING FACTORY'S ELECTRICITY CONSUMPTION IS NOT MET BY RENEWABLE RESOURCES, ELECTRICITY LOSSES AND LEAKAGES ARE CALCULATED IN SCOPE 6.



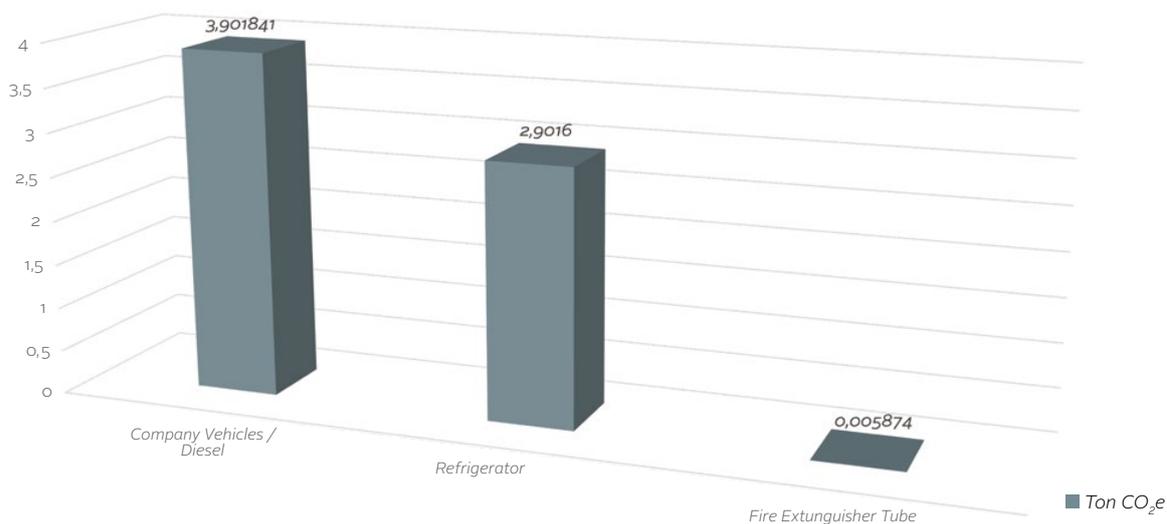
**Chart 15.** 2021 Weaving Factory Emission Amounts by Scope



### 11.1.1. SCOPE 1

Gasoline-powered vehicles, natural gas, and generators in the dyehouse and spinning factories are not used in Scope 1 of the weaving factory. Because the factory's air conditioners were not filled with gas during the reporting year, emissions from air conditioners were not calculated.

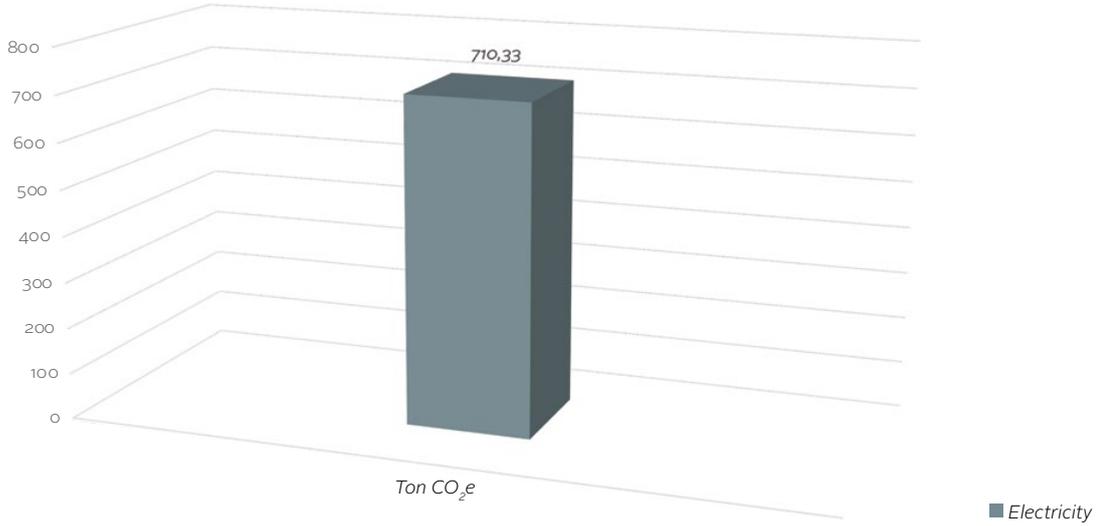
The weaving factory's direct emissions total 6,809 tons of CO<sub>2</sub>e in total. Diesel-powered vehicles, refrigerator loss/leakage, and emissions from fire protection are all included in this category. When these items are examined, it is discovered that company vehicles emit 57.31% of the emissions, refrigerators emit 47.61%, and fire extinguishers emit 0.09%.



**Chart 16.** 2021 Weaving Factory Scope 1 - Direct Carbon Emissions

## 11.1.2. SCOPE 2

For 2021, the carbon emission caused by the electricity consumption of the Weaving factory is 710.33 tons of CO<sub>2</sub>e.



**Chart 17.** 2021 Weaving Factory Scope 2 - Electricity Carbon Emissions

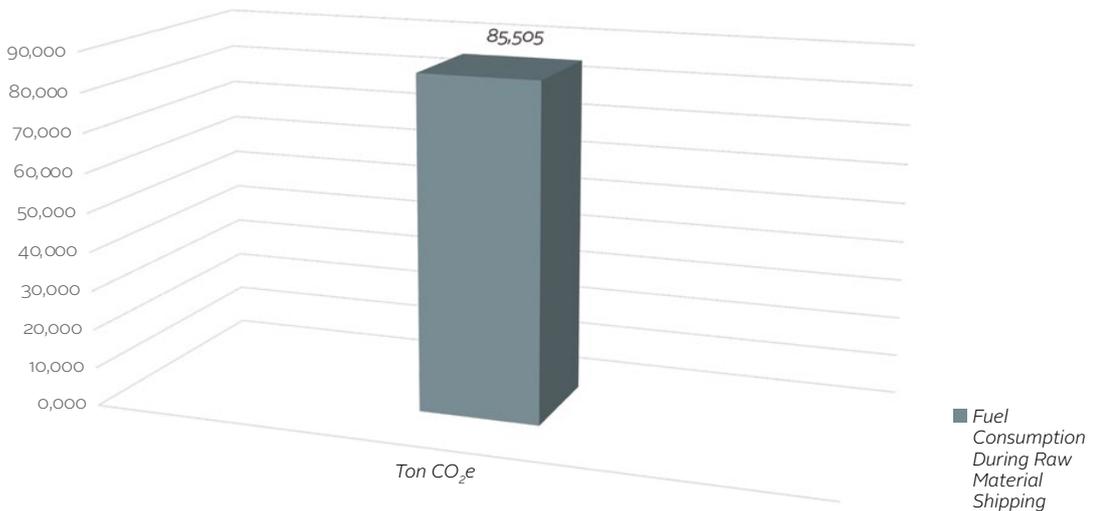
## 11.1.3. SCOPE 3

There was no waste output during the reporting year, and the Weaving factory covered the transportation costs. The only parameter that constitutes the weaving factory's transportation-related carbon emissions is the carbon emissions that occur during raw material transportation.

While calculating the carbon emissions that occur during raw material transportation, the distance traveled by the incoming raw materials, the type of transportation, the trailer and cooling

information of the transporting vehicles, how much of the vehicle was filled by Gülipek Tekstil, and which company covered the transportation were all detailed, and the data was supported by documents.

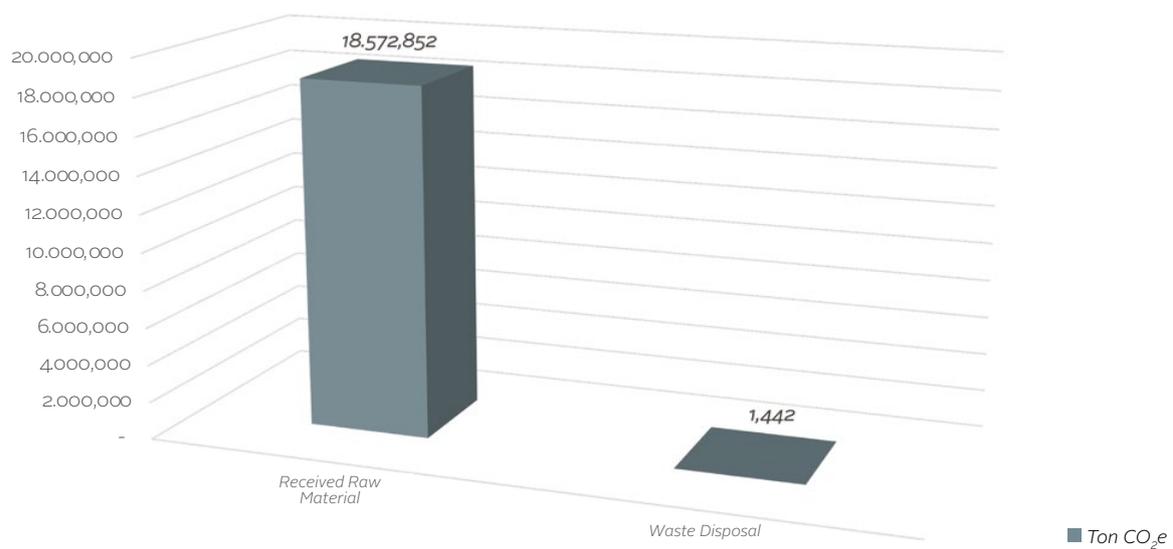
There has been no emission release due to product transportation because all of the weaving factory's products are the raw material of the dyeing factory.



**Chart 18.** 2021 Weaving Factory Scope 3 - Carbon Emissions from Transportation

## 11.1.4. SCOPE 4

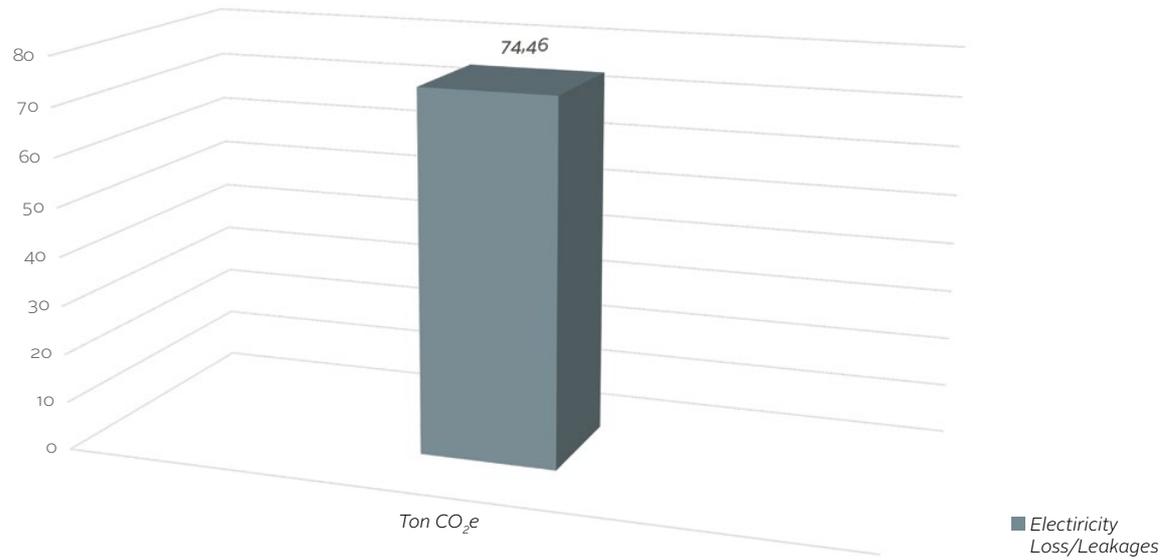
Scope 4 generates a total of 18,574,294 tons of CO<sub>2</sub>e carbon emissions in the weaving factory. Raw materials account for 99.99% of the weaving factory's inputs. The main input of the weaving factory is yarn purchases.



**Chart 19.** Weaving Factory in 2021 Scope 4 – Carbon Emissions from Used Input

## 11.1.5. SCOPE 6

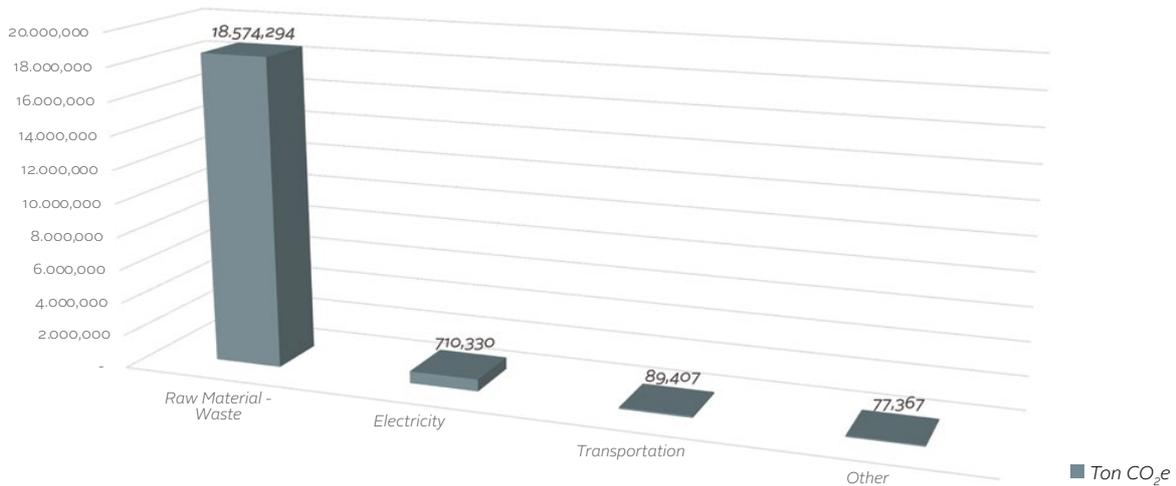
Since the electrical energy of the weaving factory is not met from renewable resources, the number of emissions resulting from electricity loss/leakage has been calculated in Scope -6.



**Chart 20.** 2021 Weaving Factory Scope 2 - Other Carbon Emissions

## 11.2. CARBON EMISSION DISTRIBUTION BY CATEGORIES

When the emissions for the weaving factory are examined by their categories, it is found that emissions from raw materials and waste are higher than the other category.



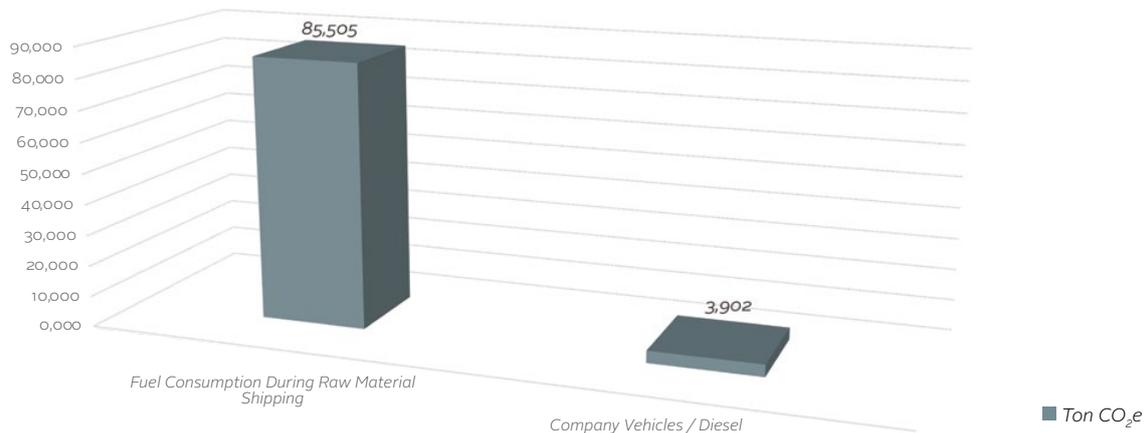
**Chart 21.** Emission Distribution of Weaving Factory by Categories

\***Other:** Electricity and Refrigerator Loss/leakage and Emissions due to the Fire extinguisher.

### 11.2.1. CARBON EMISSIONS BY TRANSPORTATION ITEMS

When the emissions for the weaving factory are examined by their categories, it is found that emissions from raw materials and waste are higher than the other category. In the weaving factory, only diesel-powered vehicles are used. Company vehicles are used for the transportation

of some raw material purchases. When calculating the emissions from raw material purchases, Gülipek Tekstil's transportation costs and the transportation made by the company with its own vehicles are included in the calculation.

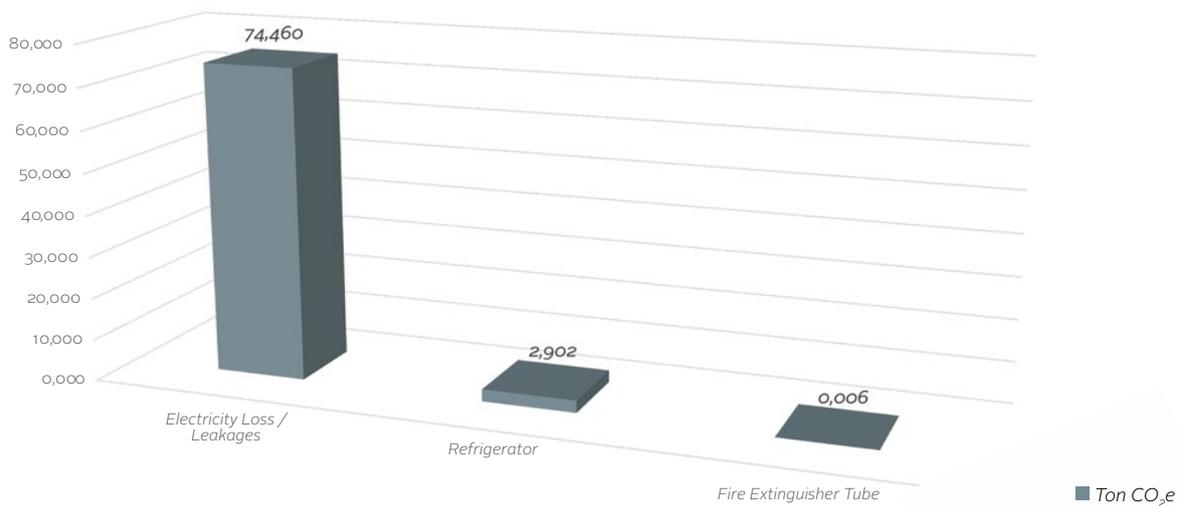


**Chart 22.** Emission Distributions by Weaving Factory Transportation Items

## 11.2.2. OTHER

The other category of the weaving factory includes fire extinguishers, electricity, and refrigerator losses/leakages.

Because electric forklifts are used in the weaving factory, no emissions are produced.



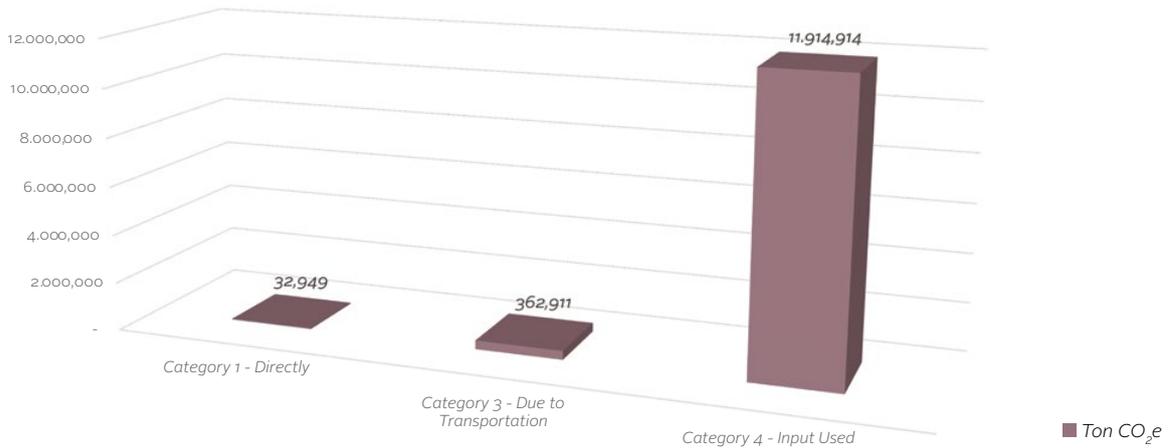
**Chart 23.** Emission Distributions in Other Category of Weaving Factory



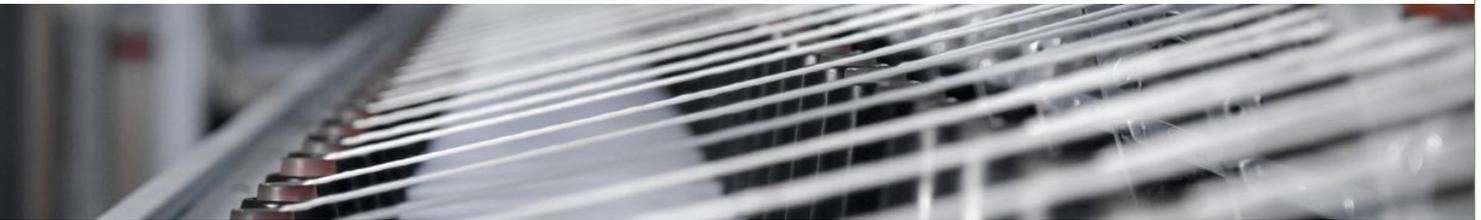


# 12. SPINNING FACTORY

IN THE REPORTING YEAR, THE SPINNING FACTORY'S CARBON FOOTPRINT WAS 12,310,774 TONS OF CO<sub>2</sub>E. EVERY YEAR SINCE 2019, AN I-REC CERTIFICATE HAS BEEN ISSUED CERTIFYING THAT THE ELECTRICITY USED IN THE SPINNING FACTORY IS DERIVED FROM RENEWABLE SOURCES. AS A RESULT, EMISSIONS FROM ELECTRICITY CONSUMPTION AND LOSSES/LEAKAGES ARE NOT CALCULATED.



**Chart 24.** 2021 Spinning Factory Emission Amounts by Scope



## 12.1.1. SCOPE 1

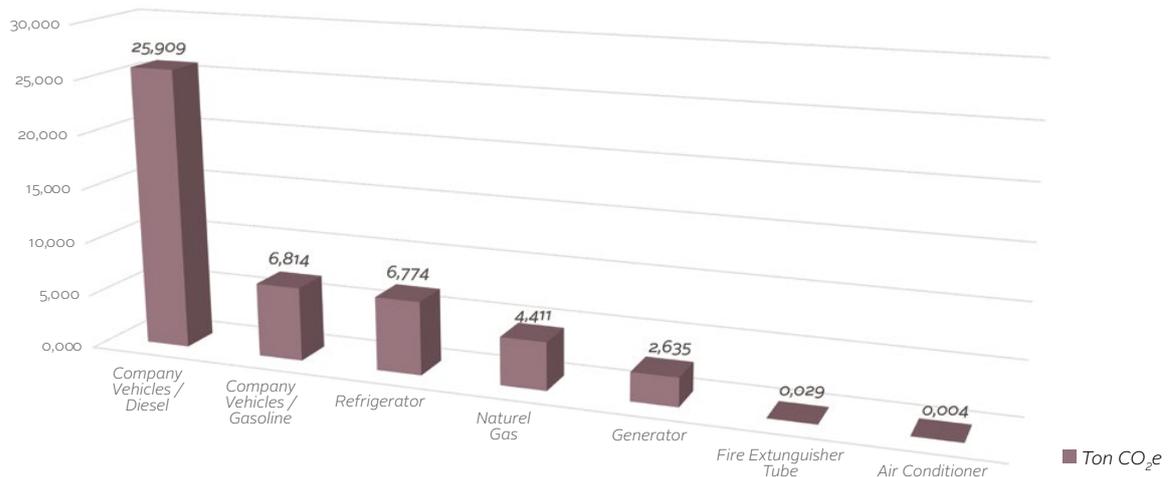
According to the steady combustion, moving combustion, and loss/leakage, which are direct emission sources included in Scope 1, a total of 32,949 tons of CO<sub>2</sub>e emissions are produced.

Since electric forklifts are used in the spinning factory, emissions are not calculated. There are 5 vehicles of the spinning factory, one of which has been revised as a hybrid vehicle in order to reduce fuel consumption and emissions.

78.63% of the emissions of the spinning factory in Scope 1 belong to diesel-powered vehicles

and 20.67% of gasoline fuel. Emissions caused by moving combustion have the highest values in this category.

Refrigerator losses/leakages in Scope 1 are 20.56%, natural gas 13.39%, and generator 7.99% carbon emissions due to steady combustion. The use of air conditioners, which are included in the calculation as loss and leakage, cause 0.01%, and fire extinguishing tubes cause 0.09% emissions.

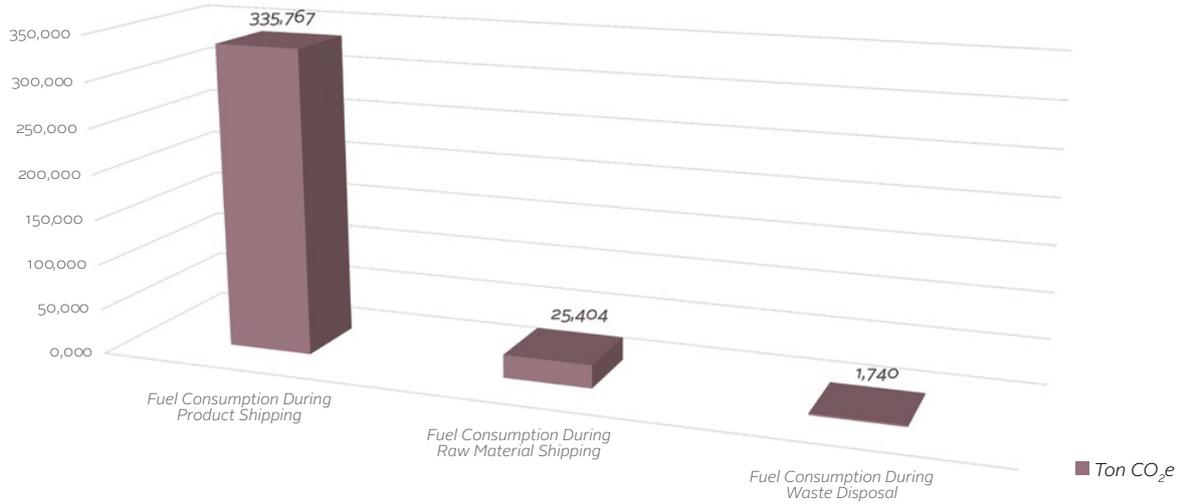


**Chart 25.** 2021 İplik Fabrikası SCOPE 1 Karbon Emisyonları

## 12.1.2. SCOPE 3

Transportation emissions of the spinning factory, which are included in Scope 3, total 362,911 tons of CO<sub>2</sub>e. In Scope 3, product transportation accounts for 92.51% of carbon emissions, raw material transportation accounts for 7.00 %, and waste disposal transportation accounts for 0.48 %.

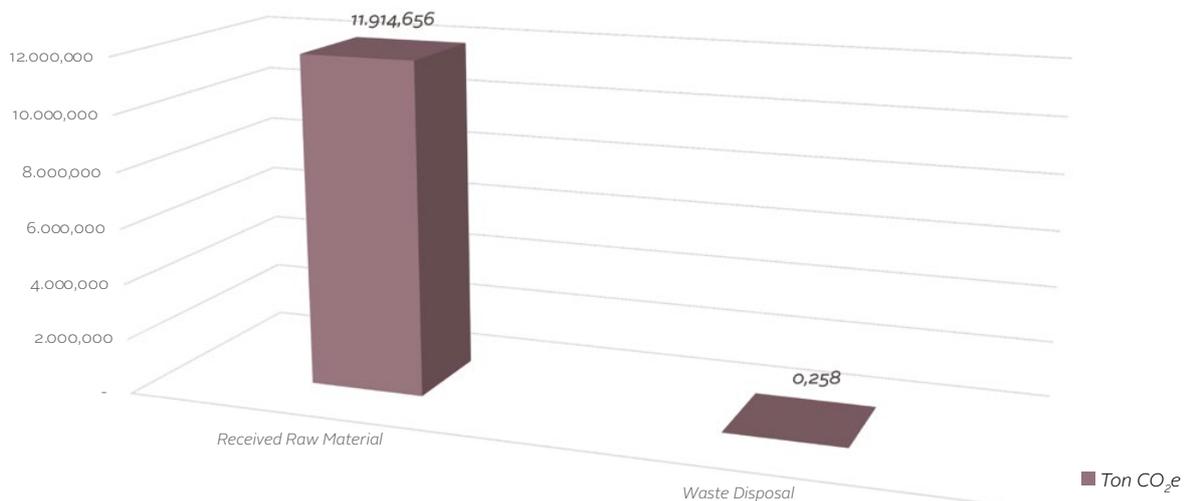
When calculating emissions during product and raw material transportation, Gülipek Tekstil includes those whose transportation costs are covered.



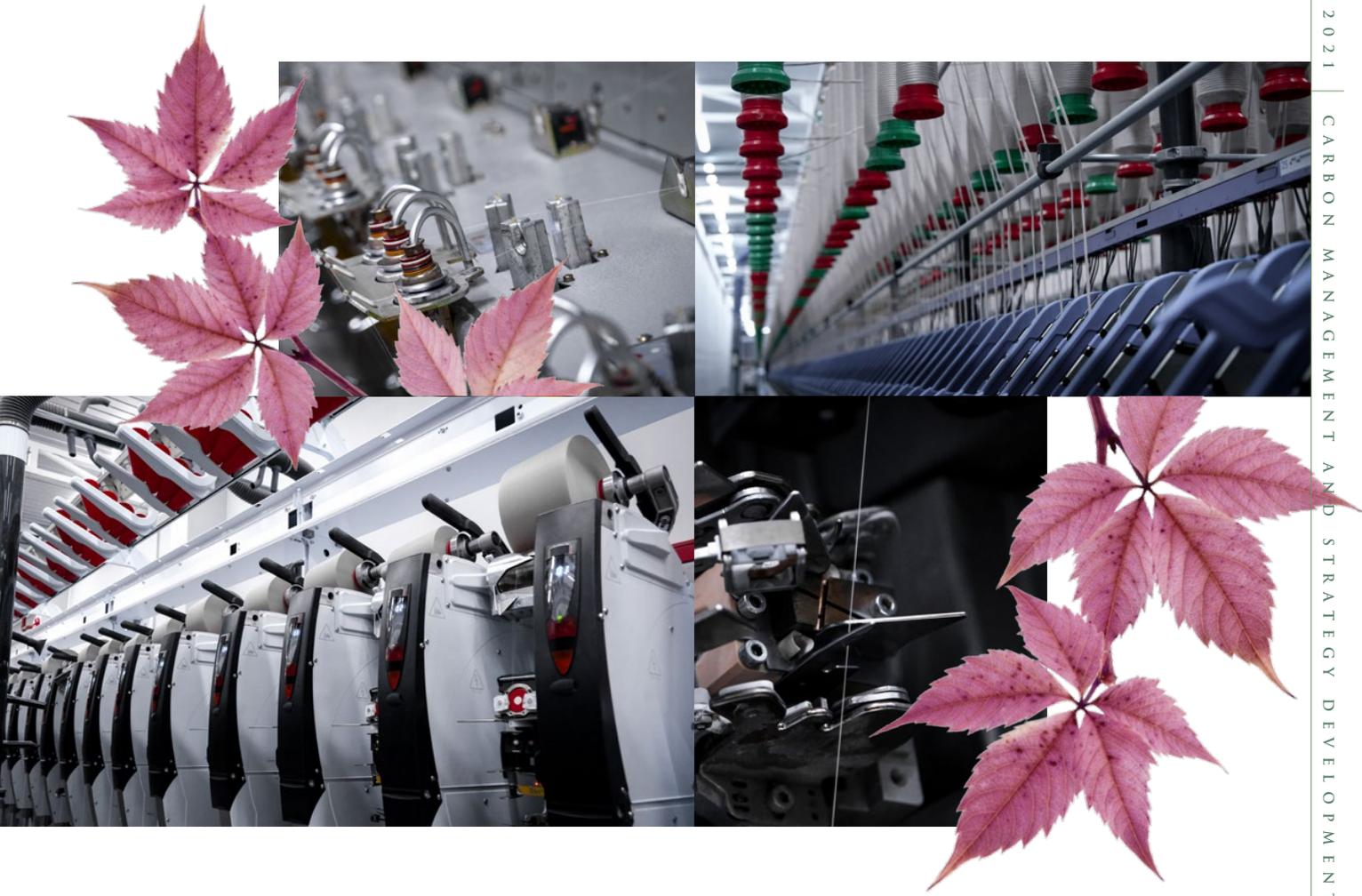
**Chart 26.** 2021 Spinning Factory Scope 3 – Carbon Emissions from Transportation

## 12.1.3. SCOPE 4

Scope 4 generates a total of 362,911 tons of CO<sub>2</sub>e carbon emissions in the spinning factory. Raw materials account for 99.99% of the spinning factory's inputs. The main input of the spinning factory is fiber purchases.



**Chart 27.** Spinning Factory in 2021 Scope 4 – Carbon Emissions from Used Input



## 12.2. CARBON EMISSION DISTRIBUTION BY CATEGORIES

While calculating the corporate carbon footprint, it has been determined that there are carbon emissions from raw material and waste production, natural gas, transportation, and other activities.

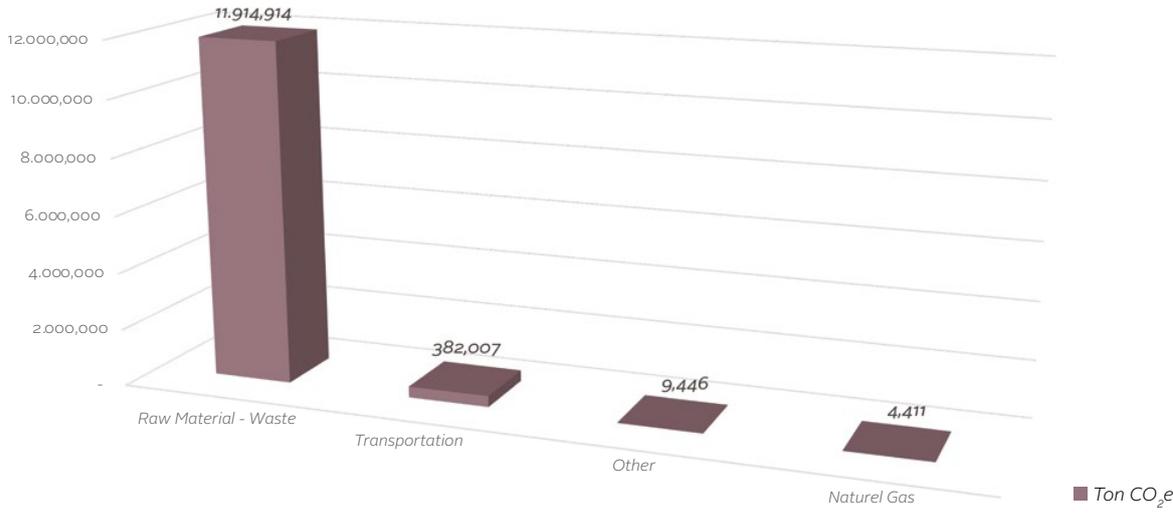


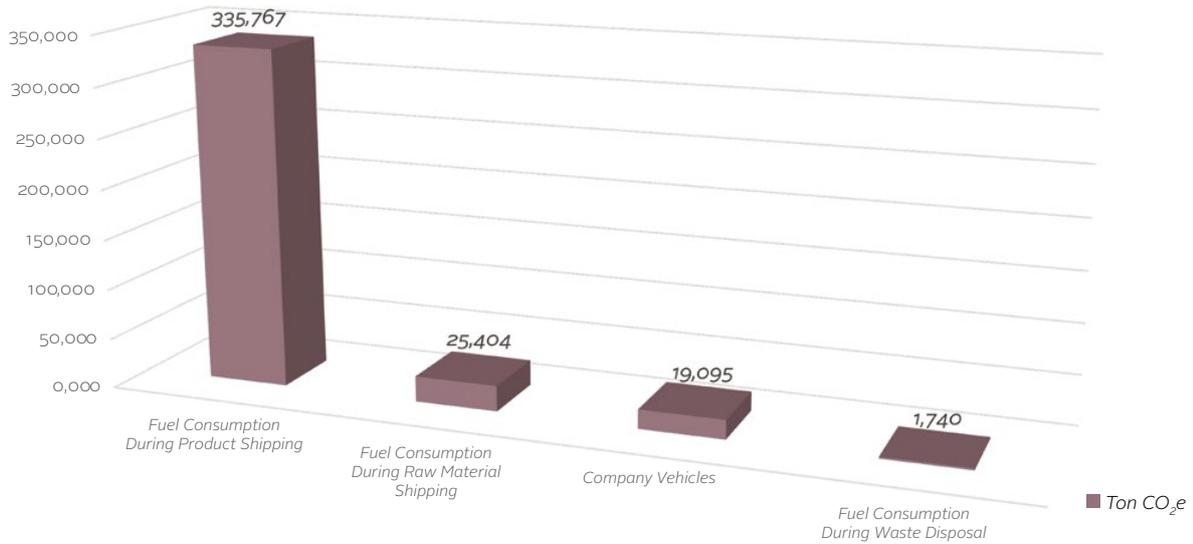
Chart 28. Spinning Factory Emission Distribution by Categories

\*Other: Emissions due the air-conditioner, refrigerator loss/leakage, generator, and fire extinguisher

## 12.2.1. CARBON EMISSIONS BY TRANSPORTATION ITEMS

The transportation items of the spinning factory are company vehicles, waste disposal transportation, emissions during raw material, and product transportation. While calculating the emissions resulting from raw material purchases, the transportation fee is included in the calculation by Gülipek Tekstil.

Electric forklifts are used in the spinning factory.

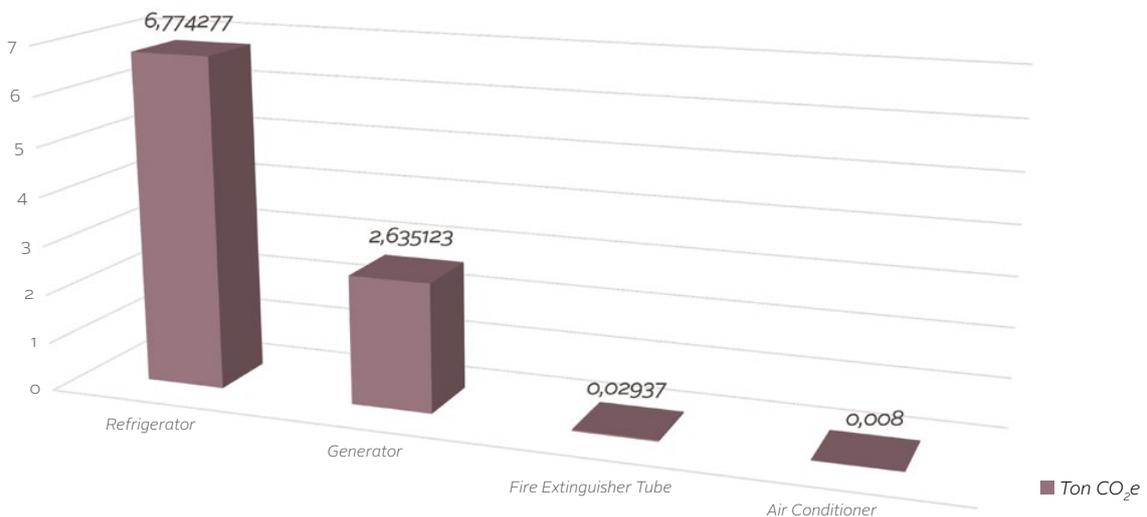


**Chart 29.** Emission Distributions by Spinning Factory Transportation Items

## 12.2.2. OTHER

The other category of the spinning factory is generator, fire extinguisher, air conditioner, and refrigerator loss/leakages.

There is an air-conditioning system in the spinning factory.



**Chart 30.** Emission Distributions in Other Category of Spinning Factory

# 13. COMPARISON OF GREENHOUSE GAS EMISSIONS BY YEARS

GÜLİPEK TEKSTİL'S FIRST CARBON FOOTPRINT REPORT, PUBLISHED IN 2019, ONLY INCLUDED CALCULATIONS FOR THE DYEHOUSE FACTORY. SINCE 2020, THE CARBON FOOTPRINTS OF THE WEAVING AND SPINNING FACTORIES HAVE BEEN CALCULATED. THEREFORE, WHEN COMPARING YEARS, THE DYEHOUSE FACTORY WILL BE COMPARED TO 2019 AND 2020, WHILE THE WEAVING AND SPINNING FACTORIES WILL BE COMPARED TO 2020.

# 13.1. FACTORY SCOPES

Because the emissions of the Dyehouse factory were calculated in 2019, the years 2020 and 2021 were compared when comparing the scopes.

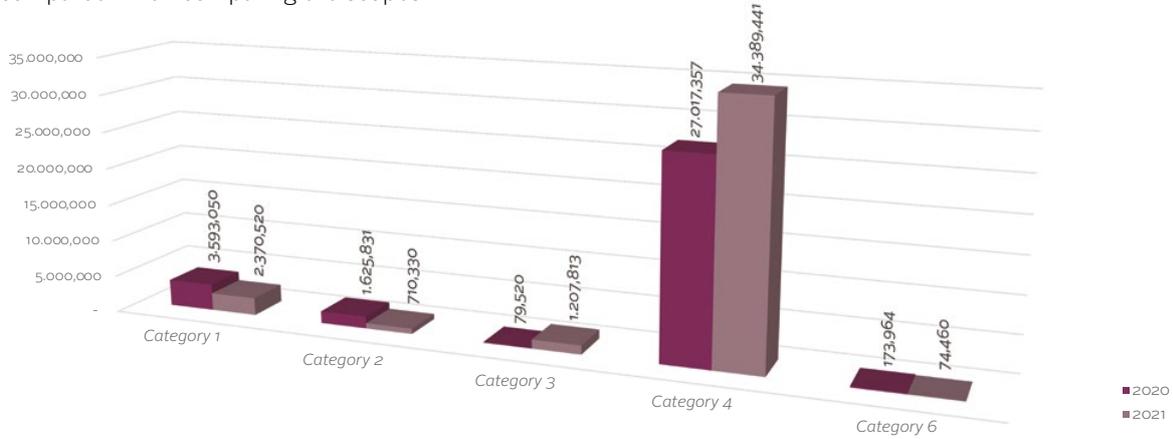


Chart 31. Scope Inventory Chart for 2020 and 2021



# 13.2. EMISSION ITEMS

The emission sources used to calculate the carbon footprints of the Dyehouse, Weaving, and Spinning factories have been compared for the years 2020 and 2021.

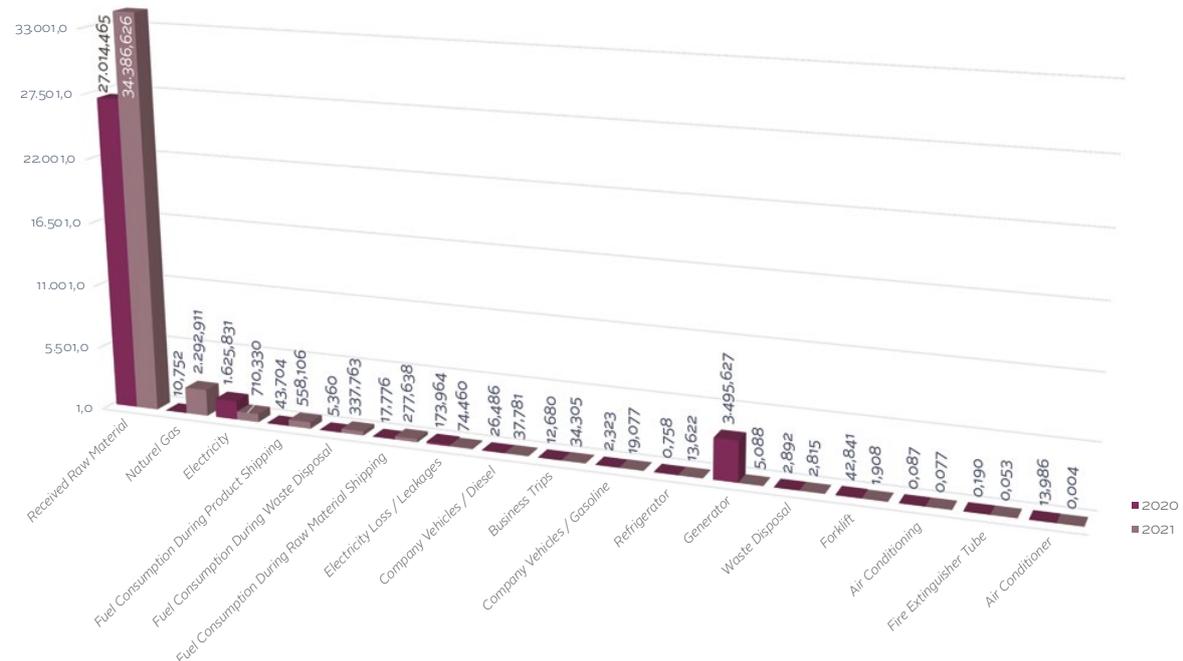
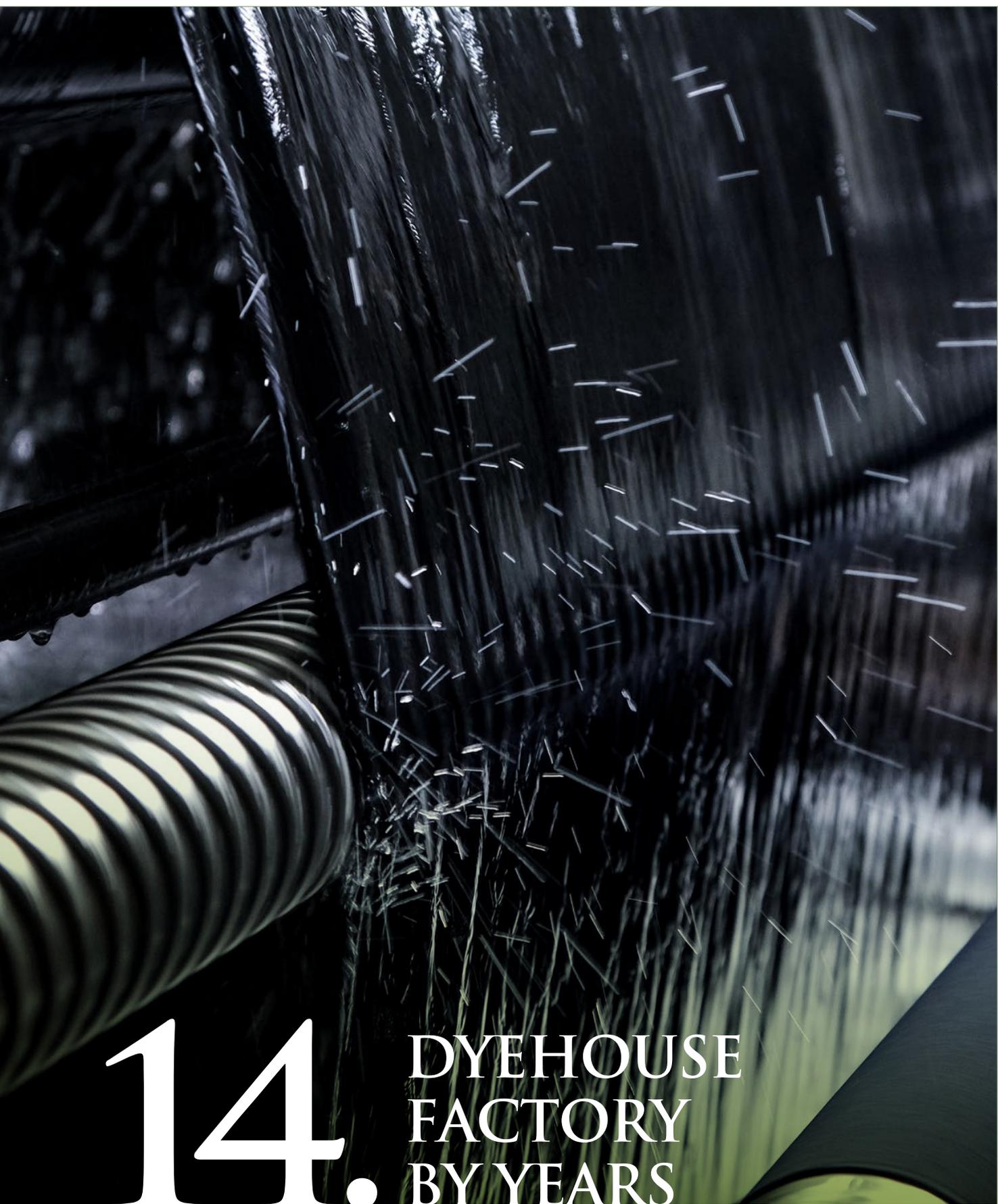


Chart 32. Emission Items Inventory Chart for the Years 2020 and 2021



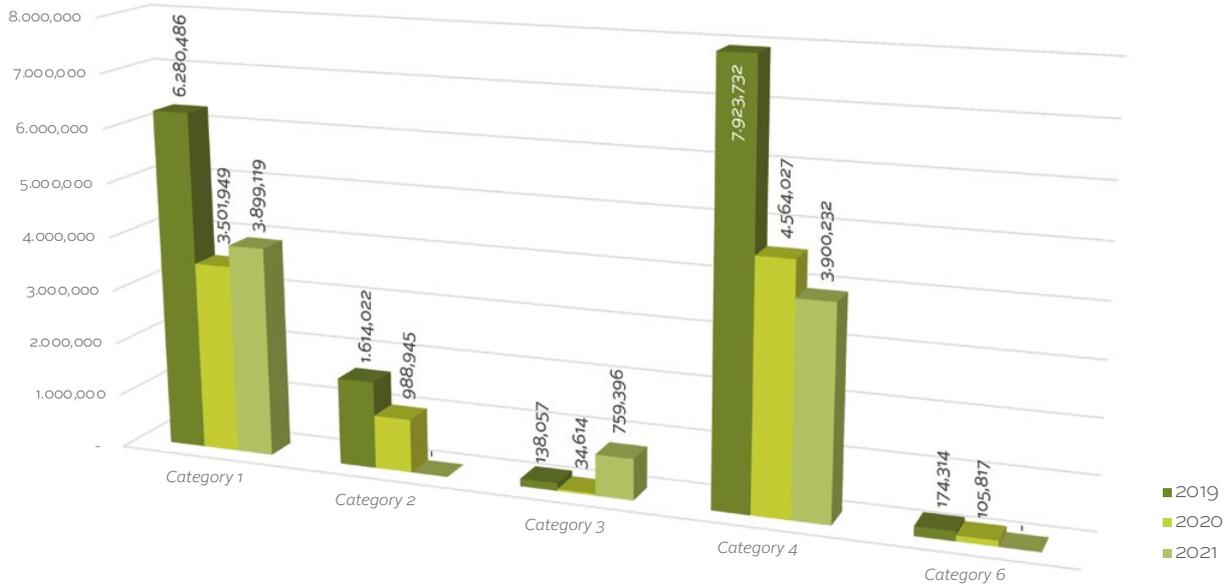
# 14. DYEHOUSE FACTORY BY YEARS



## 14.1. SCOPES

When the dyehouse factory's emissions for the years 2019, 2020, and 2021 are analyzed by the scopes, an increase is observed with the exception of the emissions due to the transportation, which constitutes Scope 3.

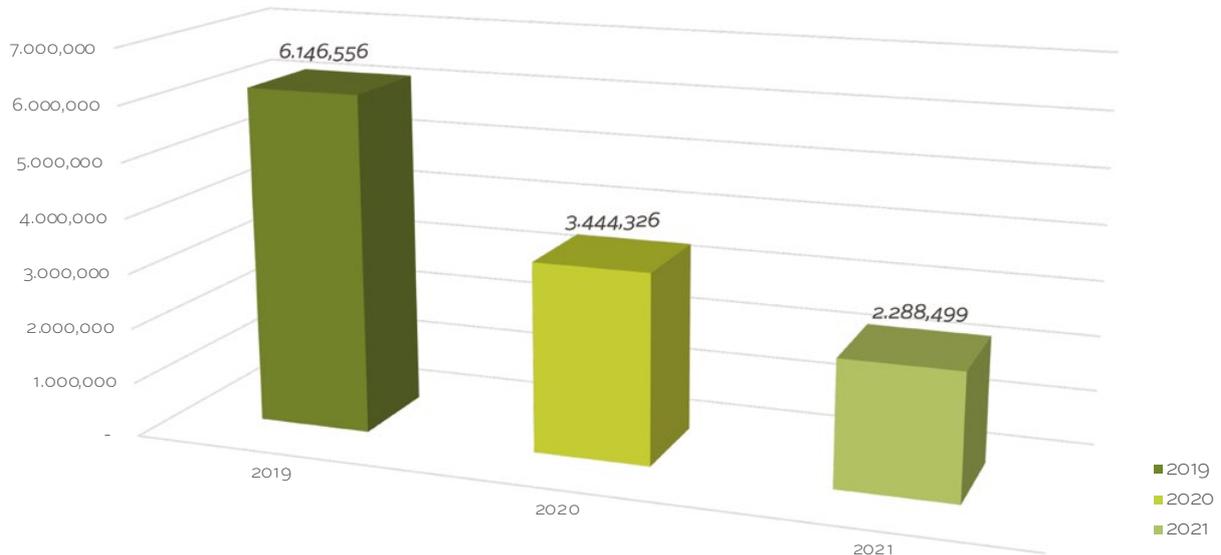
In the reporting year, there was no emission in Scope 2 and Scope 6 at the dyehouse factory.



**Chart 33.** Dyehouse Scope Inventory Chart

## 14.2. NATURAL GAS

When the emissions due to natural gas were examined by years, it was observed that there was a decrease every year. In the reporting year, insulation was added to the pump jackets, and many machines were insulated.



**Chart 34.** Dyehouse Natural Gas Inventory Chart

## 14.3. ELECTRICITY

Emissions due to electricity decreased in 2019 and 2020 as a result of improvements made to reduce electricity consumption and the Covid-19 pandemic.

During the reporting year, the Dyehouse factory received the YEK-G Certificate, indicating that it meets its electricity consumption through renewable sources. The same number of mWh was used to calculate the amount of electricity (mWh) consumed in 2021.

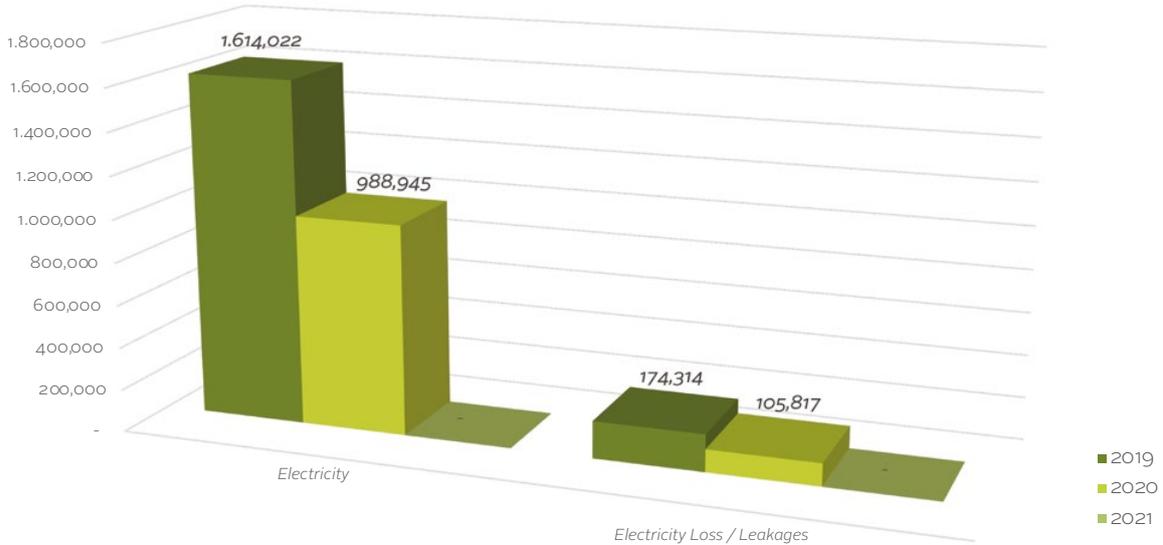


Chart 35. Dyehouse Electricity Inventory Chart

## 14.4. TRANSPORTATION

When the transportation inventory for the dyehouse factory was analyzed by year, an increase in the emissions generated during the

transportation of raw materials and products was observed.

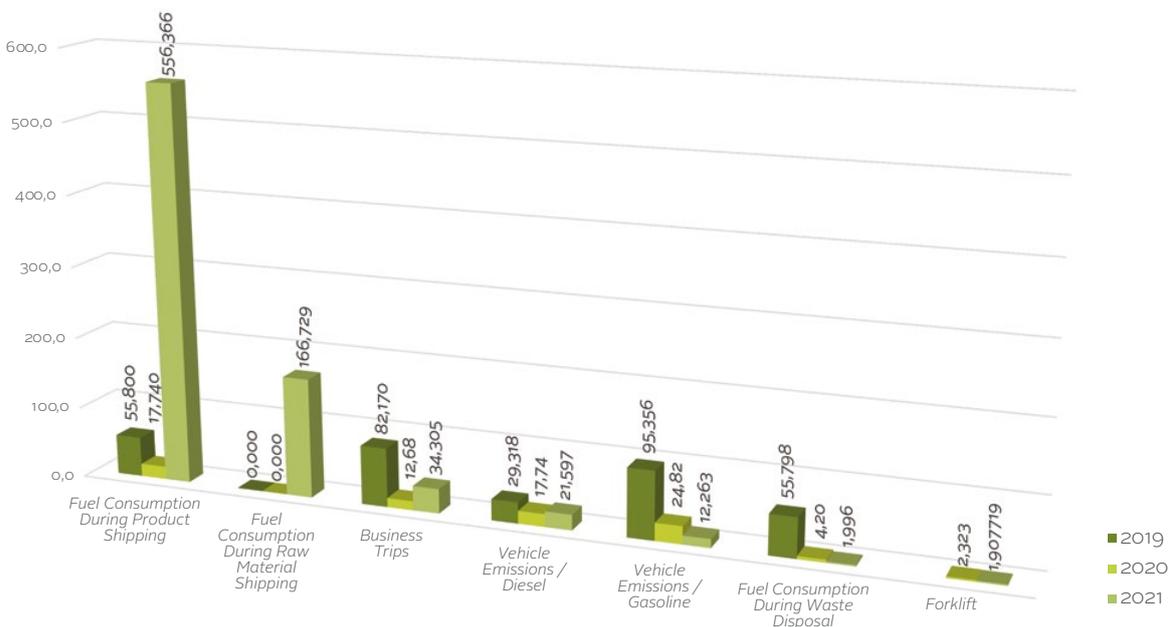


Chart 36. Dyehouse Transportation Inventory Chart

## 14.5. RAW MATERIALS AND WASTE CARBON EMISSIONS CALCULATION

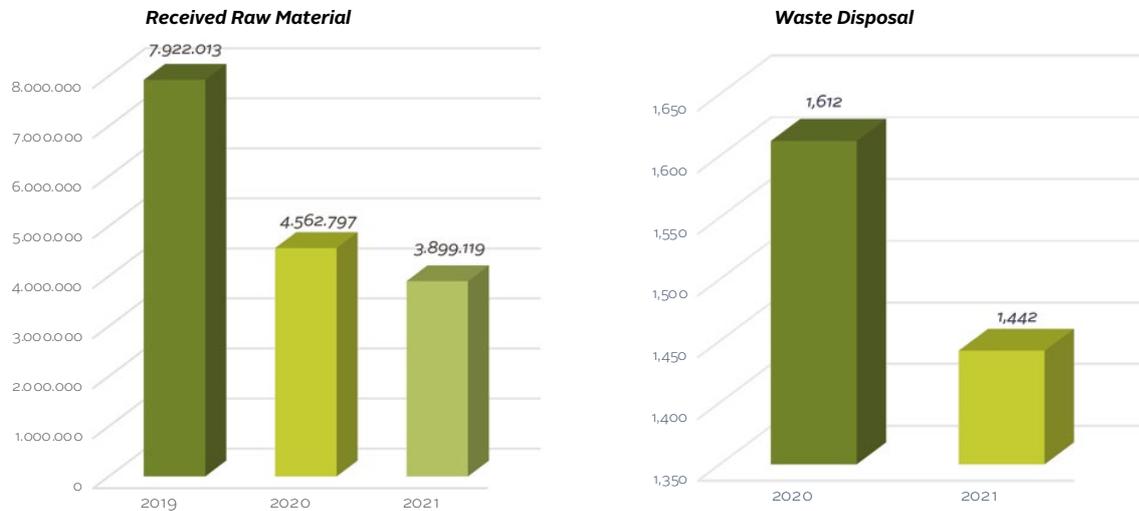


Chart 37. Dyehouse Factory Raw Material and Waste Inventory Chart

## 14.6. OTHER

Electricity losses and leakages caused the most emissions in the Other category in 2019 and 2020. No emissions due to electricity losses or leakages

have occurred since the YEK-G Certificate was issued in 2021.

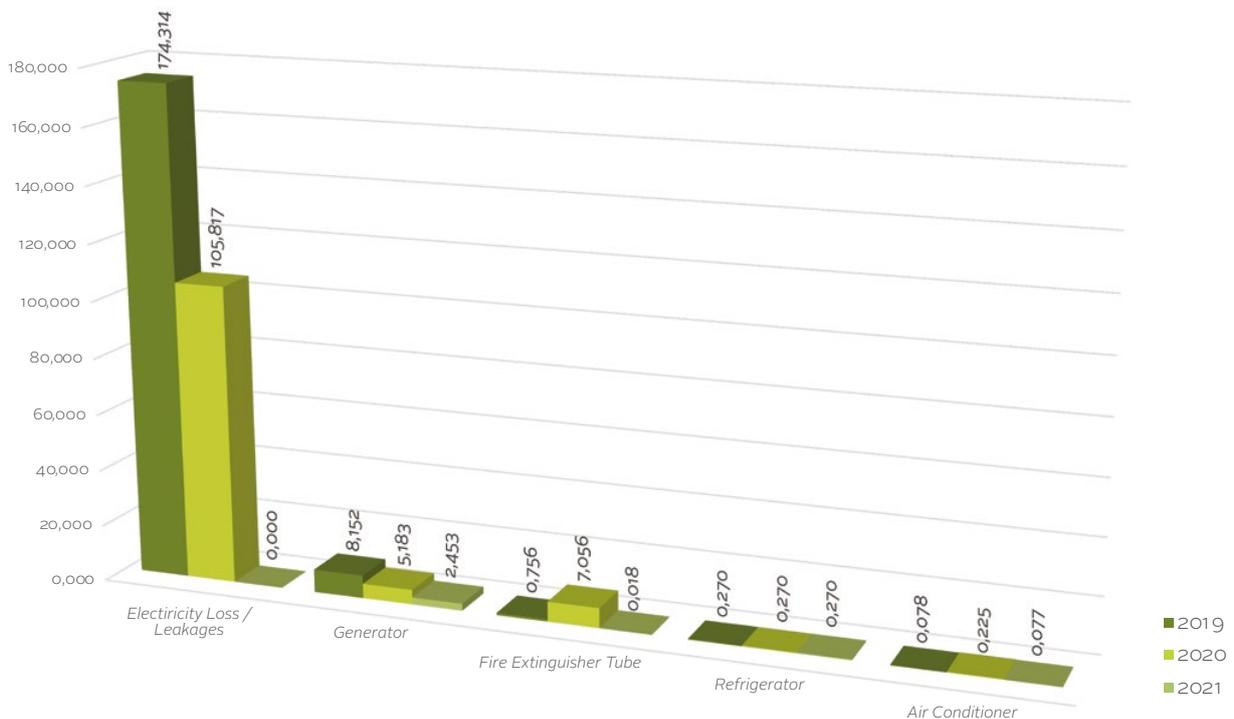
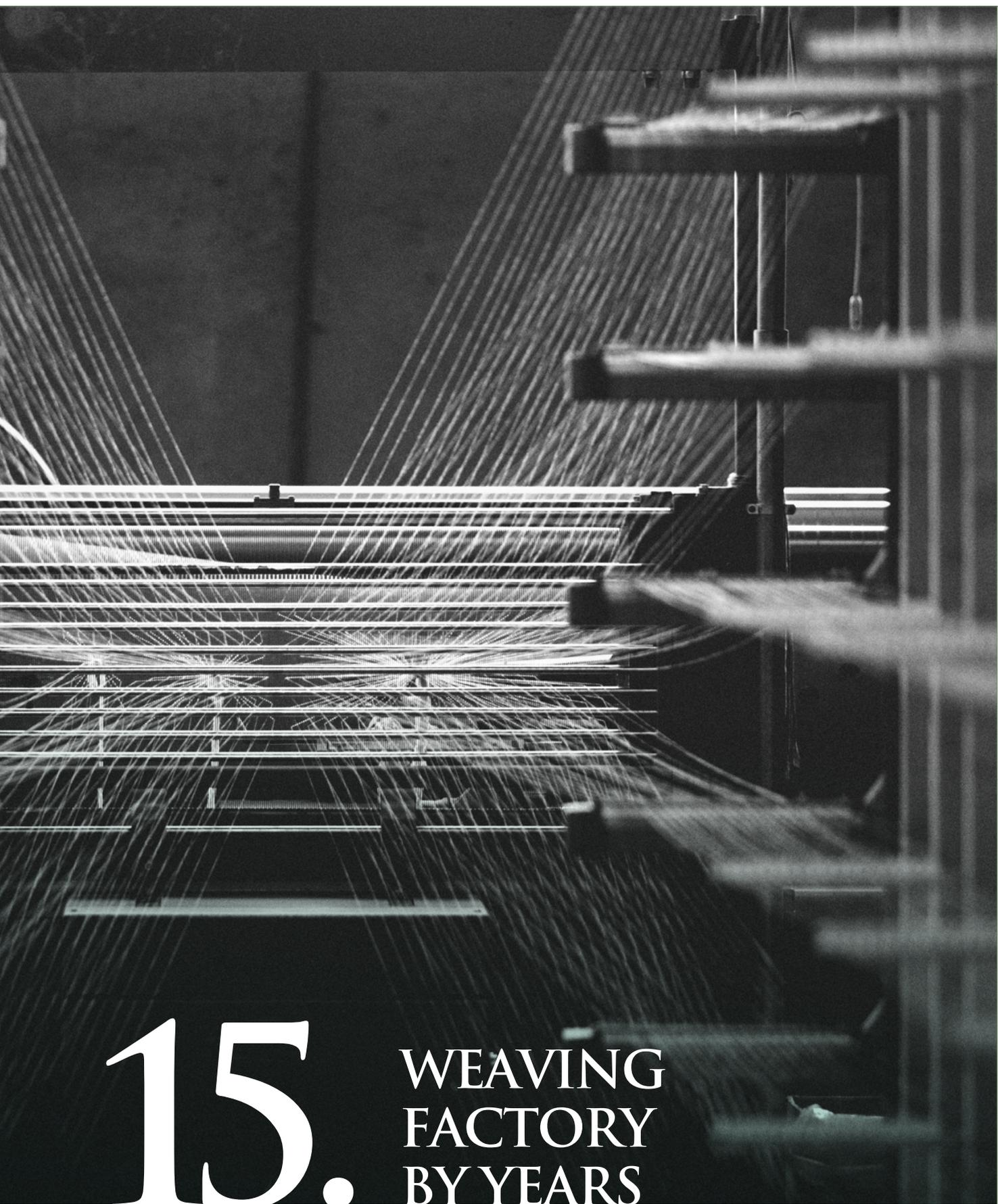
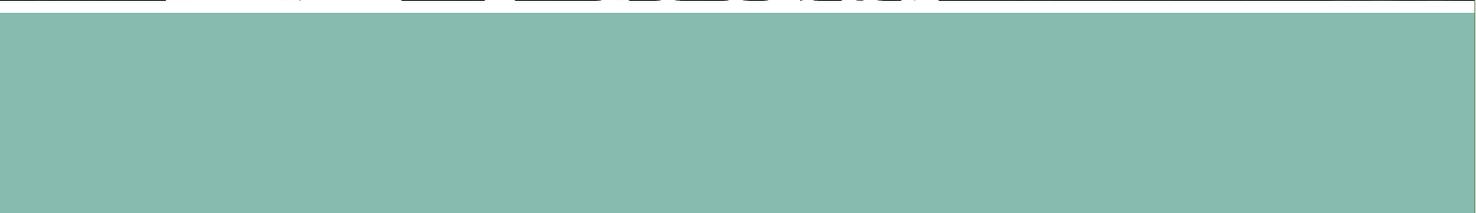


Chart 38. Dyehouse Factory Other Inventory Chart



# 15. WEAVING FACTORY BY YEARS



## 15.1. SCOPES

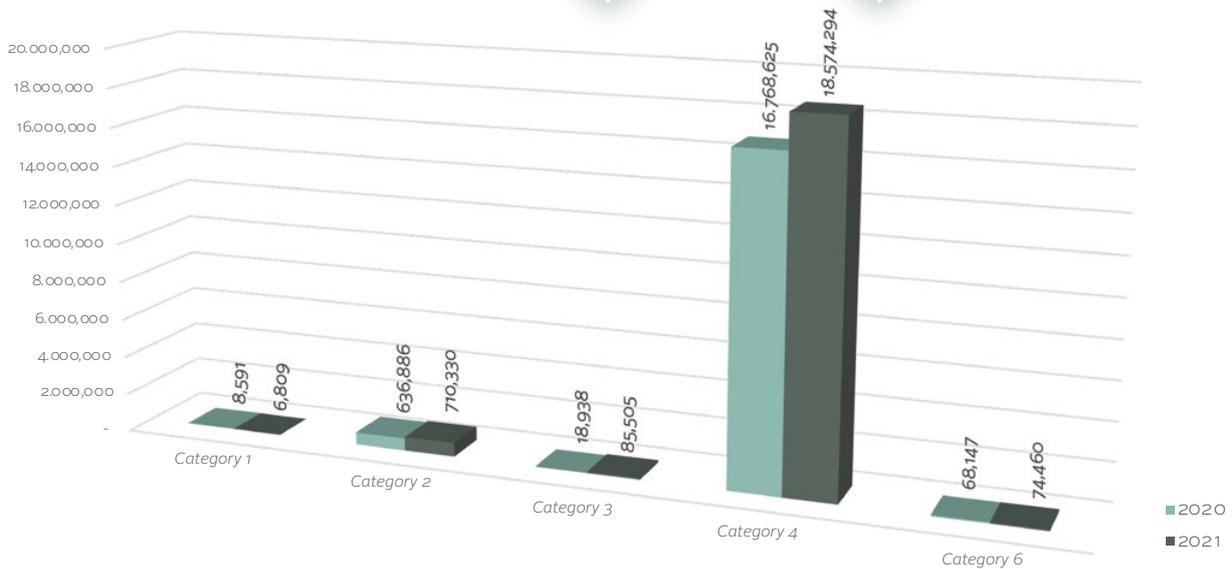
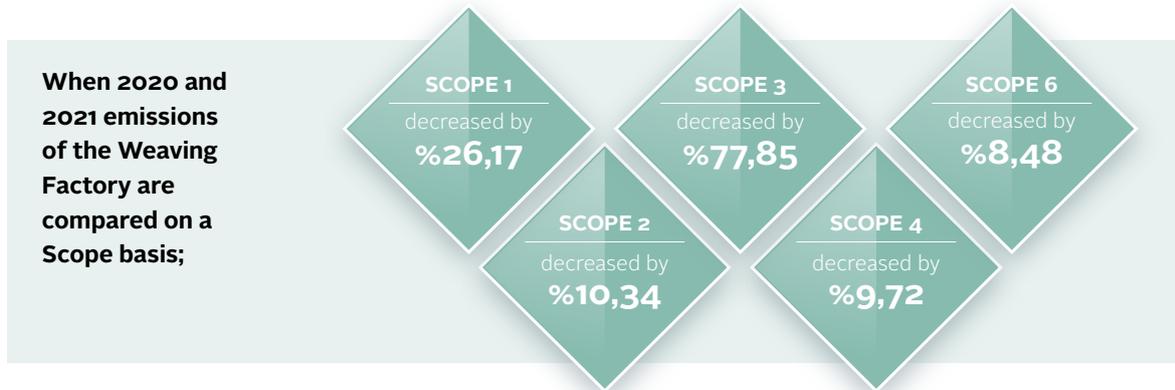


Chart 39. Weaving Factory Scope Inventory Chart

## 15.2. ELECTRICITY

When the emissions due to electricity use of the weaving factory in 2020 and 2021 are compared, an increase of 10,33% is observed.

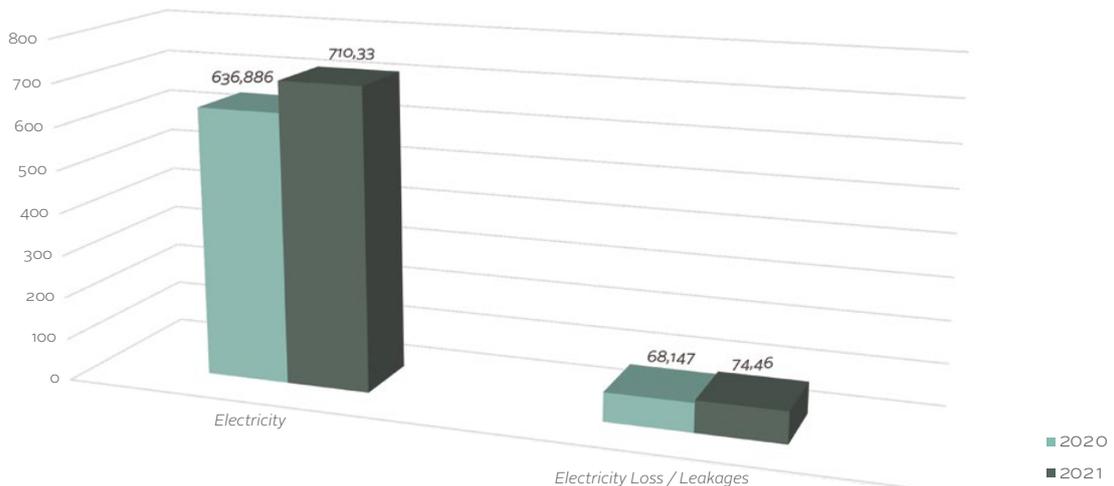
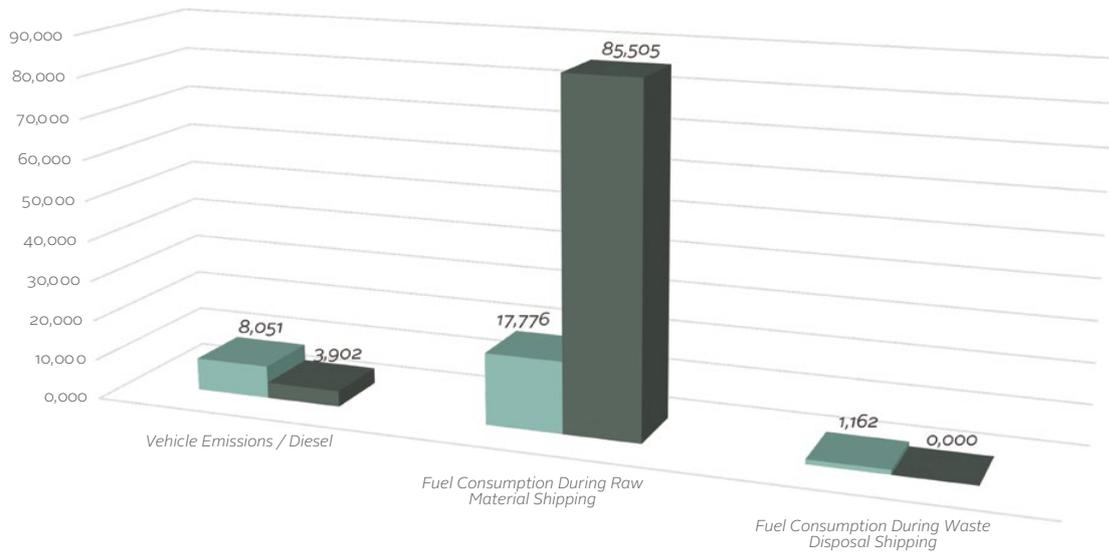


Chart 40. Weaving Factory Electricity Inventory Chart

## 15.3. TRANSPORTATION

There is no product transportation because the weaving factory's products are only given to the dyehouse factory.

Diesel-powered vehicles' emissions were reduced by 106,34%. Emissions from raw material transportation increased by 792.1%.



**Chart 41.** Weaving Factory Transportation Inventory Chart



## 15.4. RAW MATERIALS AND WASTE CARBON EMISSIONS CALCULATION

When the emissions from the raw materials used in the weaving factory were examined in 2020 and 2021, a 9.72% increase was observed.

A reduction of 11.77% was observed in the waste-related emissions of the weaving factory in 2020 and 2021.

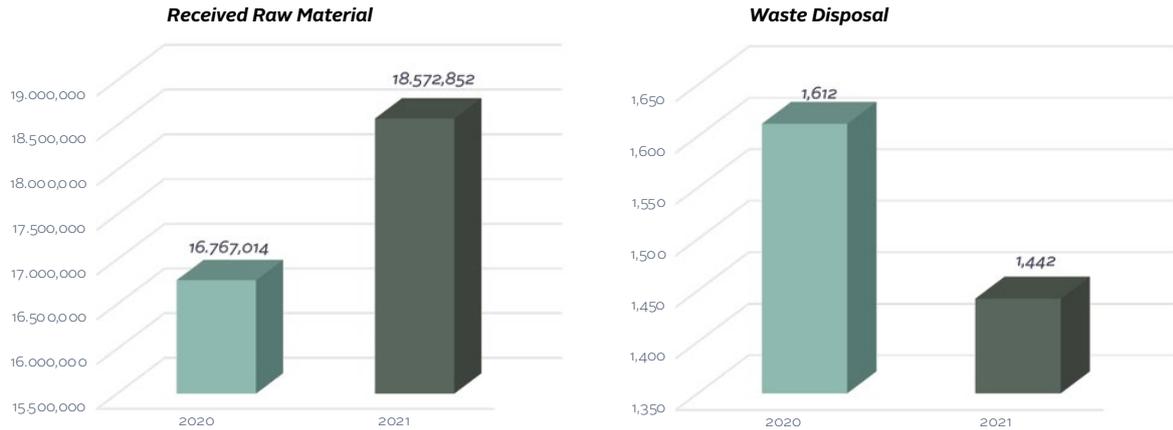


Chart 42. Weaving Factory Raw Material and Waste Inventory Chart

## 15.5. OTHER

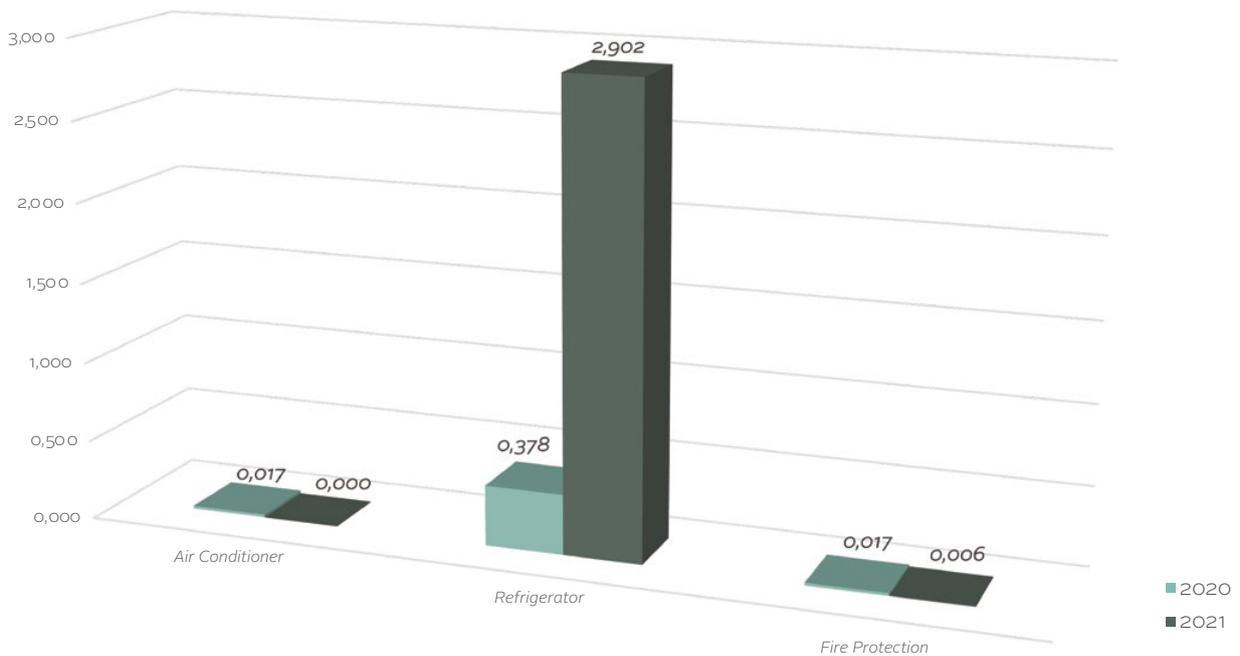


Chart 43. Weaving Factory Other Inventory Chart



# 16.

SPINNING  
FACTORY  
BY YEARS

## 16.1. SCOPELAR

When 2020 and 2021 emissions of the Spinning Factory are compared on a Scope basis;



The reason for the decrease observed in Scope 1 is the decrease in emissions from natural gas consumption.

The reason for the increase observed in Scope 2 is the emissions that occur during product transportation. The increase in Scope 4 is due to the increase in the number of emissions from the raw materials received.

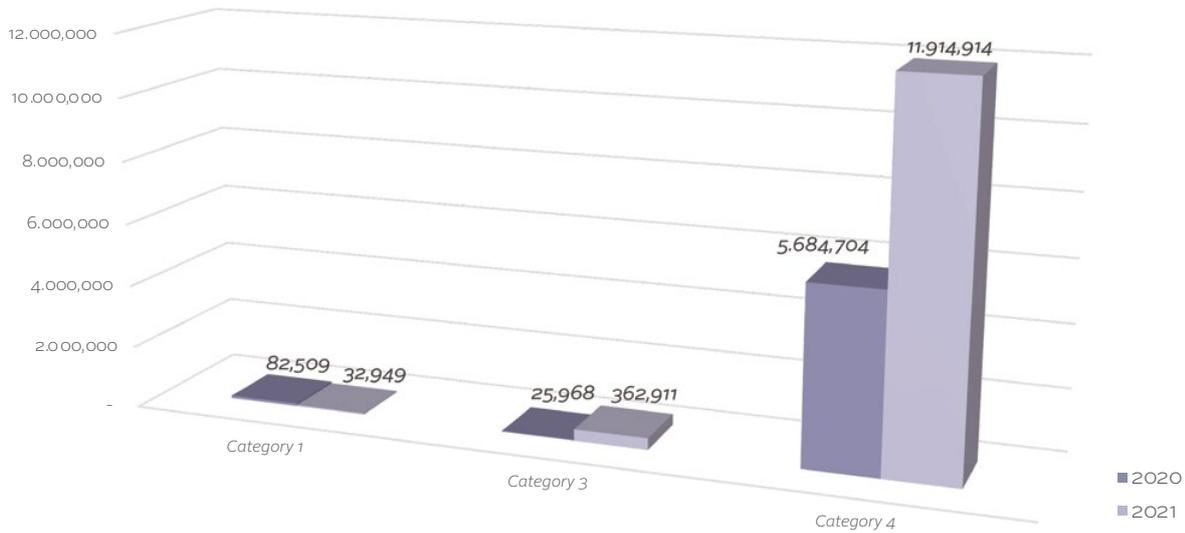


Chart 44. Spinning Factory Scope Inventory Chart

## 16.2. NATURAL GAS

There was an increase of 12,69% in natural gas consumption. Emissions due to natural gas consumption in 2020 and 2021 were also affected by this increase.

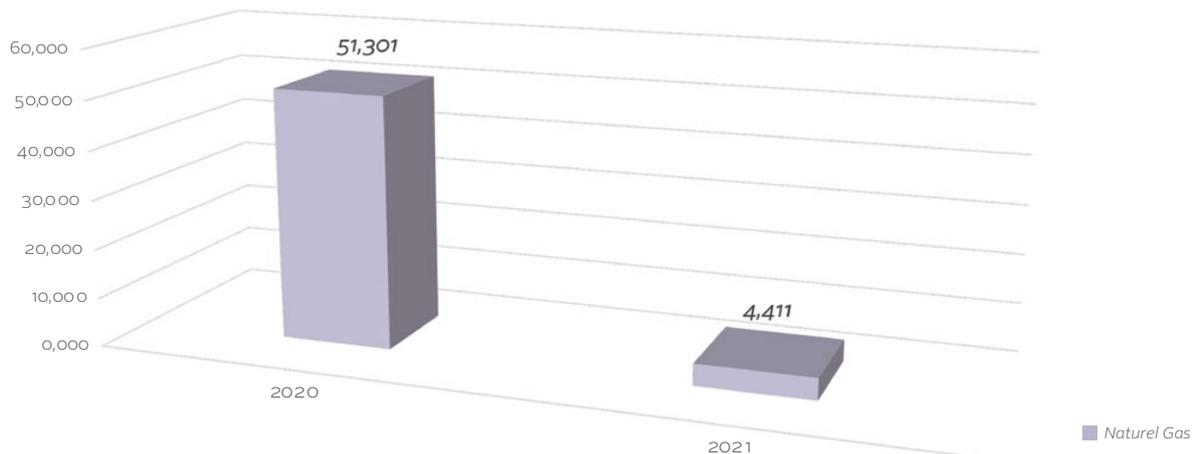
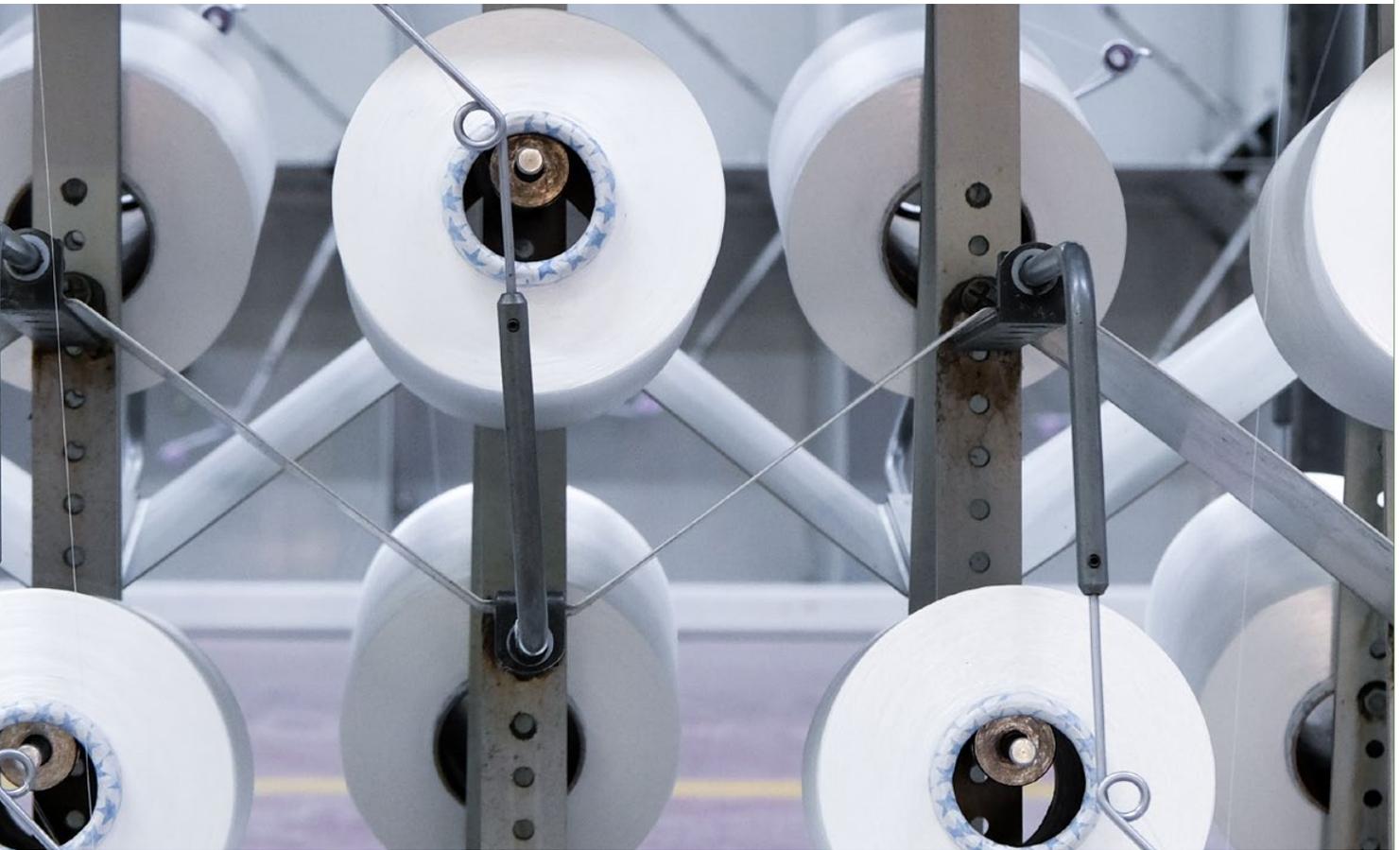


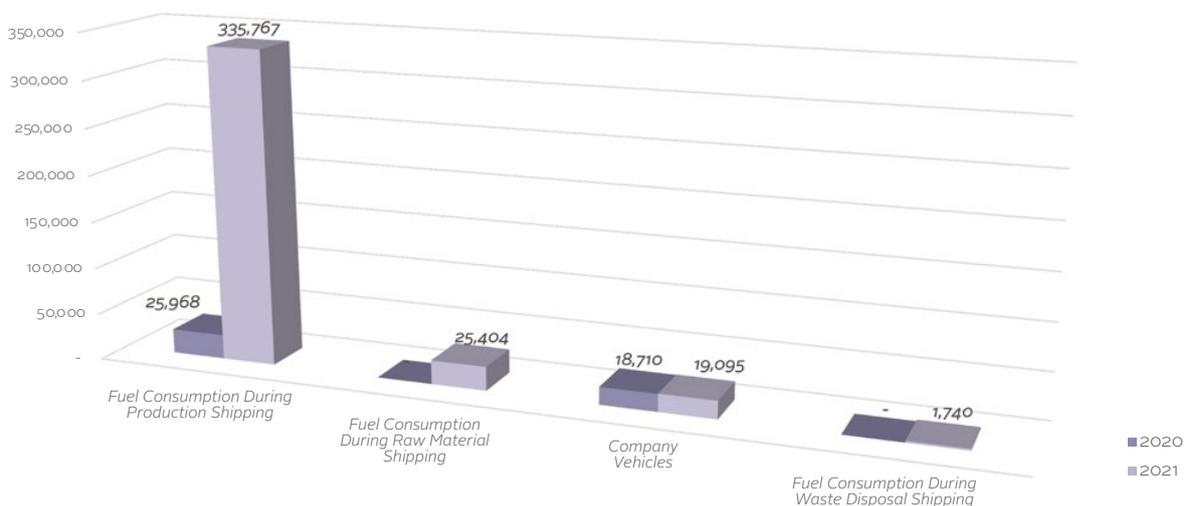
Chart 45. Spinning Factory Natural Gas Inventory Chart



## 16.3. TRANSPORTATION

In 2020, there was no transportation procedure of raw materials or waste from the spinning factory.

Emissions during product transportation increased by 92.66% depending on the products whose transportation costs are covered by Gülipek Tekstil.



**Chart 46.** Spinning Factory Transportation Inventory Chart

## 16.4. RAW MATERIALS AND WASTE CARBON EMISSIONS CALCULATION

Emissions due to the raw material purchases and waste disposal in the spinning factory are increasing.

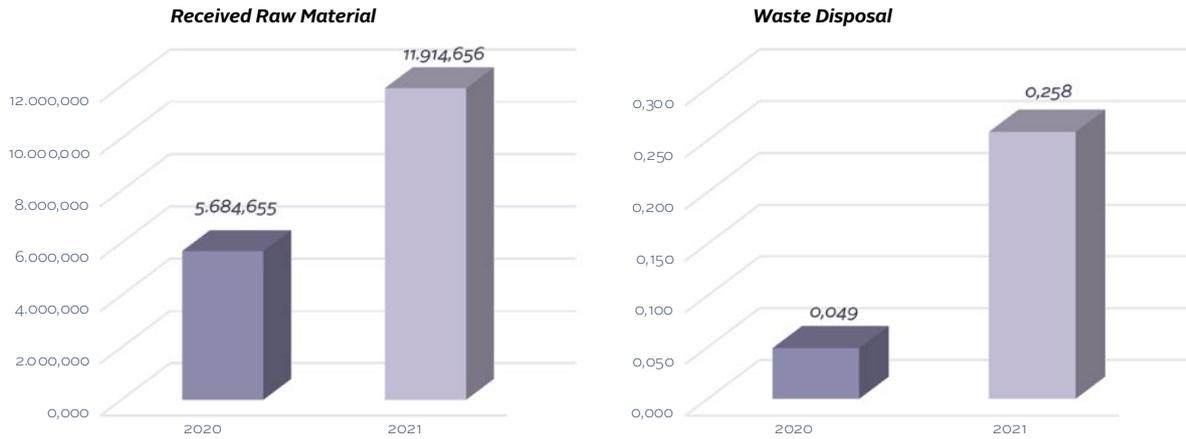


Chart 47. Spinning Factory Raw Material and Waste Inventory Chart

## 16.5. OTHER

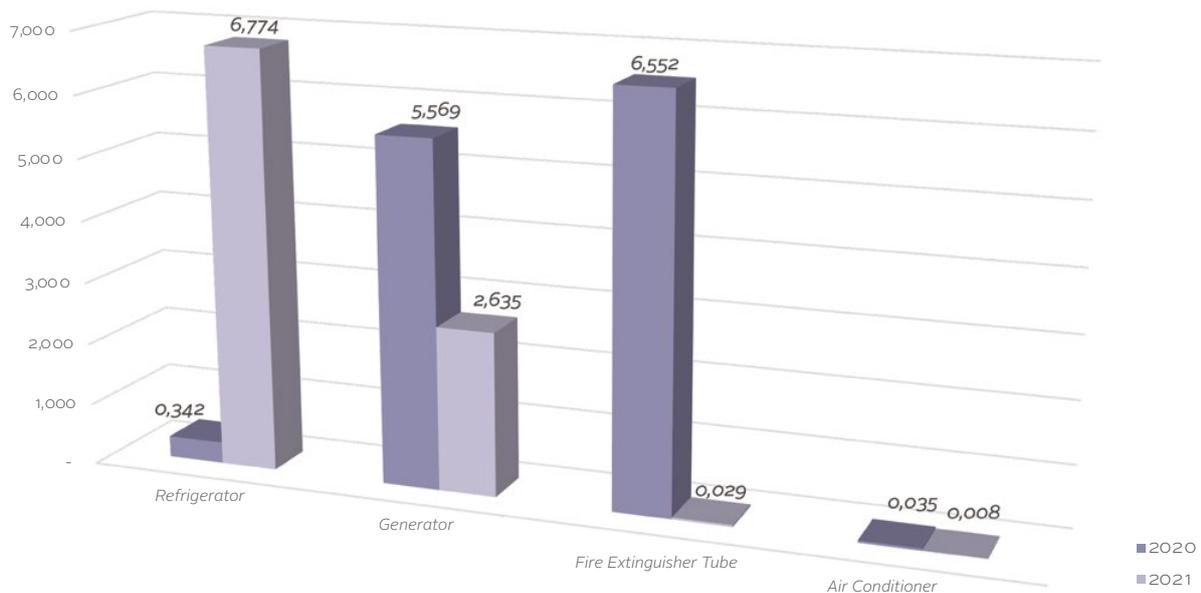


Chart 48. Spinning Factory Other Inventory Chart

# 17. RELATIVE CARBON FOOTPRINT

In the reporting year;

**The dyehouse factory**  
has a carbon footprint of **7,035 tons of CO<sub>2</sub>e/kg.** of production per product.

**The weaving factory**  
has a carbon footprint of **61,023 tons of CO<sub>2</sub>e/kg.** of production per product.

**The spinning factory**  
has a carbon footprint of **27,733 tons of CO<sub>2</sub>e/kg.** of production per product.

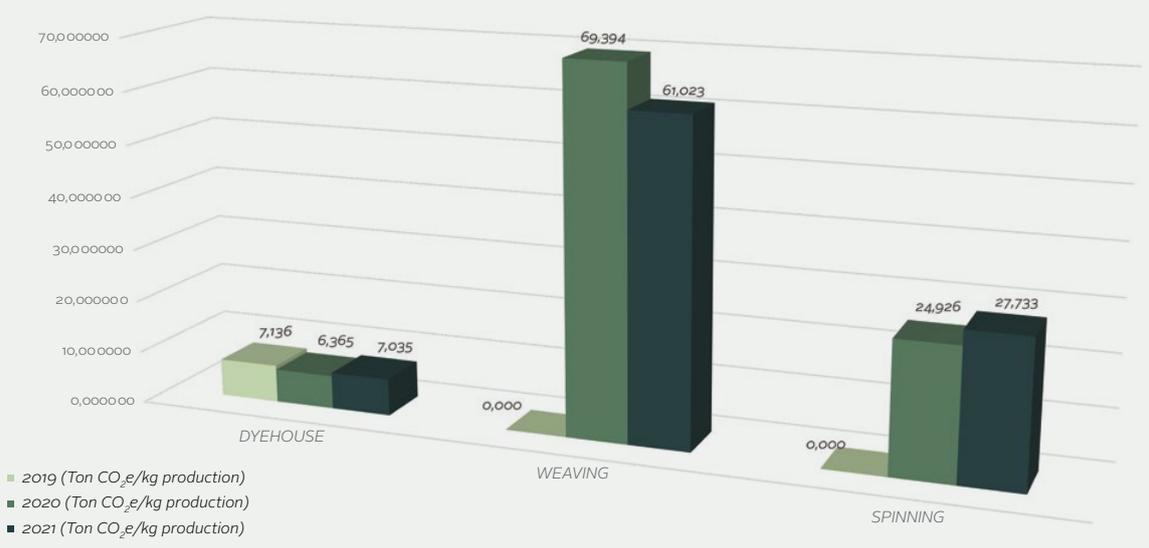


Chart 49. Relative Carbon Footprint Chart by Years



# 18. CARBON MANAGEMENT AND STRATEGY DEVELOPMENT

GÜLİPEK TEKSTİL INVESTS IN CLEAN TECHNOLOGIES AND APPLICATIONS TO REDUCE ITS CARBON FOOTPRINT GRADUALLY. IT ESTABLISHES TARGETS FOR LESS ENERGY CONSUMPTION, A HEALTHIER AND CLEANER ENVIRONMENT, AND A MORE LIVABLE WORLD FOR FUTURE GENERATIONS FOR EACH STEP TAKEN OR TO BE TAKEN TOWARD A SUSTAINABLE FUTURE, AND MONITORS COMPLIANCE EVERY SIX MONTHS.



The carbon calculation reveals that the current situation should be maintained, and Gülipek Tekstil should encourage this situation to strengthen the reduction of energy consumption and related carbon emissions. Relevant personnel should be given the freedom to investigate alternatives that may require a larger investment but may pay off in the short term. A team for energy recovery that can be formed constantly monitors new technologies and developments and informs management about their application in the factory.

Company policies should be protected, and any new machinery and equipment to be purchased

should be environmentally friendly and emit fewer greenhouse gases.

Calculations and studies show that the corporate carbon footprint can be reduced if everyone acts with environmental awareness, from raw material production to factory production, storage, and vehicle use.

Gülipek Tekstil aims to reduce greenhouse gas emissions and protect the environment by organizing informative training for its employees on a regular basis.

## 18.1. OUR MANAGEMENT STRATEGY

Our Policy	Environment Policy
Our Departments and Managers	Senior Management
	Environment and Sustainability Department
	Occupational Safety Department
Our Management System	ISO 14001
Measurement and Monitoring	ISO 14001 Internal and External Audits
Mechanisms	Customer Audits

**Table 2.** Management Strategy

To access Gülipek Environmental Policy, scan the QR code:



# 19.

MEASURES  
IMPLEMENTED TO  
REDUCE GREENHOUSE  
GAS EMISSIONS



## COMPANY VEHICLES

- Company vehicles were replaced with electric vehicles.
- Training on the preference for shorter trips that employees make together was organized while determining the route.
- Fuel efficient engine oil (if available) is used instead of conventional fuel oil.
- Drivers were given training on efficient driving and how to check the air in their tires on a regular basis.



## NATURAL GAS

- By connecting the dyehouse cooling water returns to the hot water tank, the heat recovery system's efficiency has been increased.
- The boiler burner has been renewed.
- The hot water and steam pipelines have been insulated.
- Valve jackets are made for the valves in the steam pipelines.
- Jet machines used in the dyeing process will be replaced with Air Jets. In this way, natural gas and steam consumption will also decrease.



## ELECTRICITY

- At the dyehouse factory, works have begun to switch to renewable energy.
- Energy consultancy service started to be received for the dyehouse factory.
- A detailed Energy Audit Report has been prepared regarding the efforts to reduce the energy used for the dyehouse factory.
- The dye baths that in the Jet machines of the dyehouse factory are integrated into a single bath.
- It is planned to replace the lighting in the common area with LED and sensor lighting systems.





20. GOALS

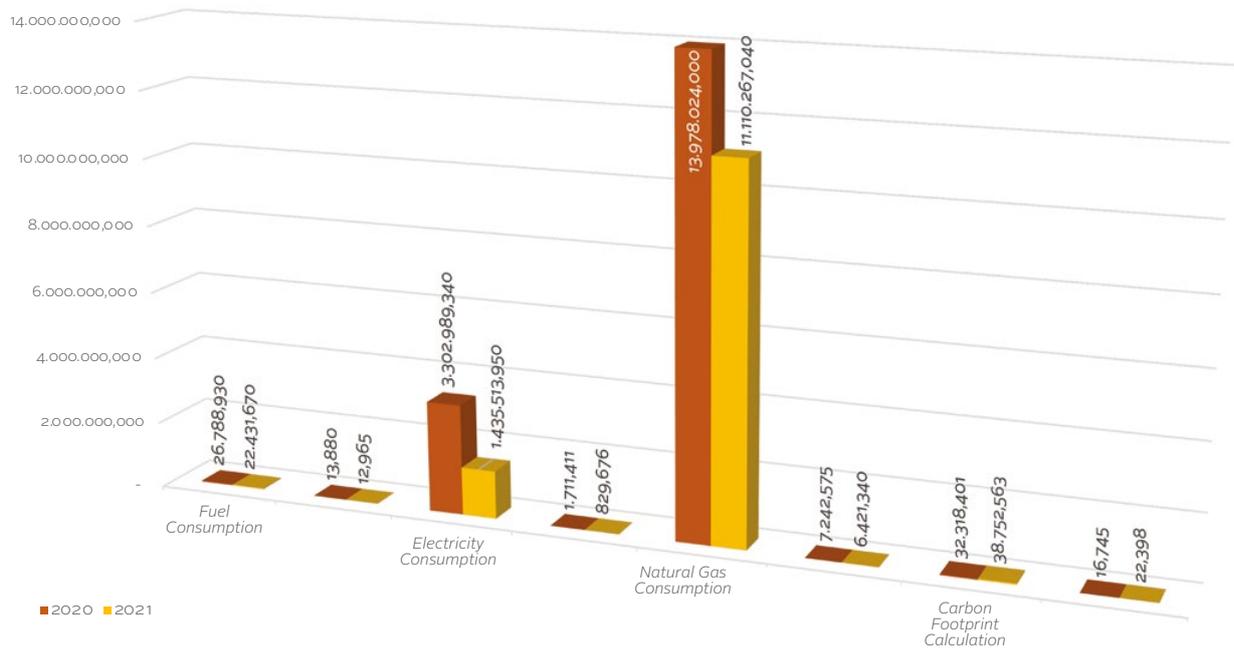


Chart 50. Goals for 2020 and 2021 Chart

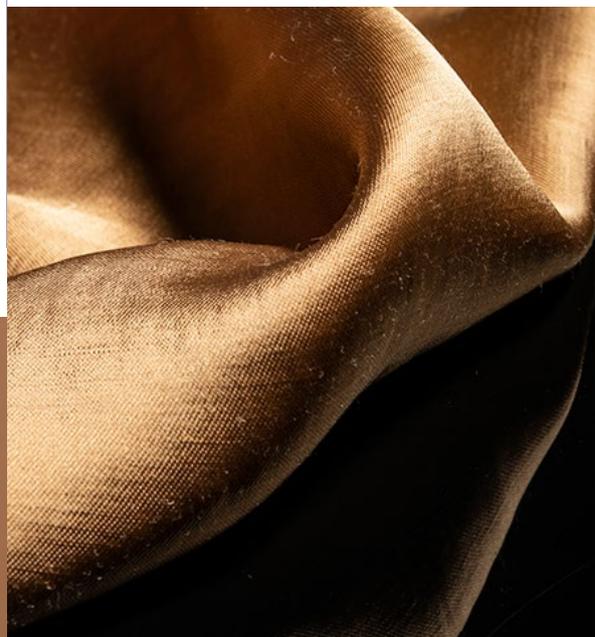
**Goals for 2020 and 2021;**

- It is planned to reduce gasoline and diesel consumption by 1%
- Electrical energy consumption by 2%,
- Natural gas energy consumption by 3%,
- 6% reduction in carbon footprint emissions.

**When the goals for 2020 and 2021 are examined;**

- 19% reduction was achieved in gasoline and diesel use,
- With the transition to renewable energy, 130% reduction in electricity consumption,
- With the improvements made in the production line, a decrease of 26% was achieved in natural gas consumption.

When the categories that affect the carbon footprint of Gülipek Tekstil are examined, it is observed that the works have reduced electricity, natural gas, and fuel consumption. Factory improvements will continue in light of the “Measures to be Implemented to Reduce the Amount of Greenhouse Gas Emissions.” However, due to the addition of Scope 4 to the calculation and the increase in production amounts following the Covid-19 pandemic, the 6% improvement target, which is the Carbon Footprint target, could not be met.

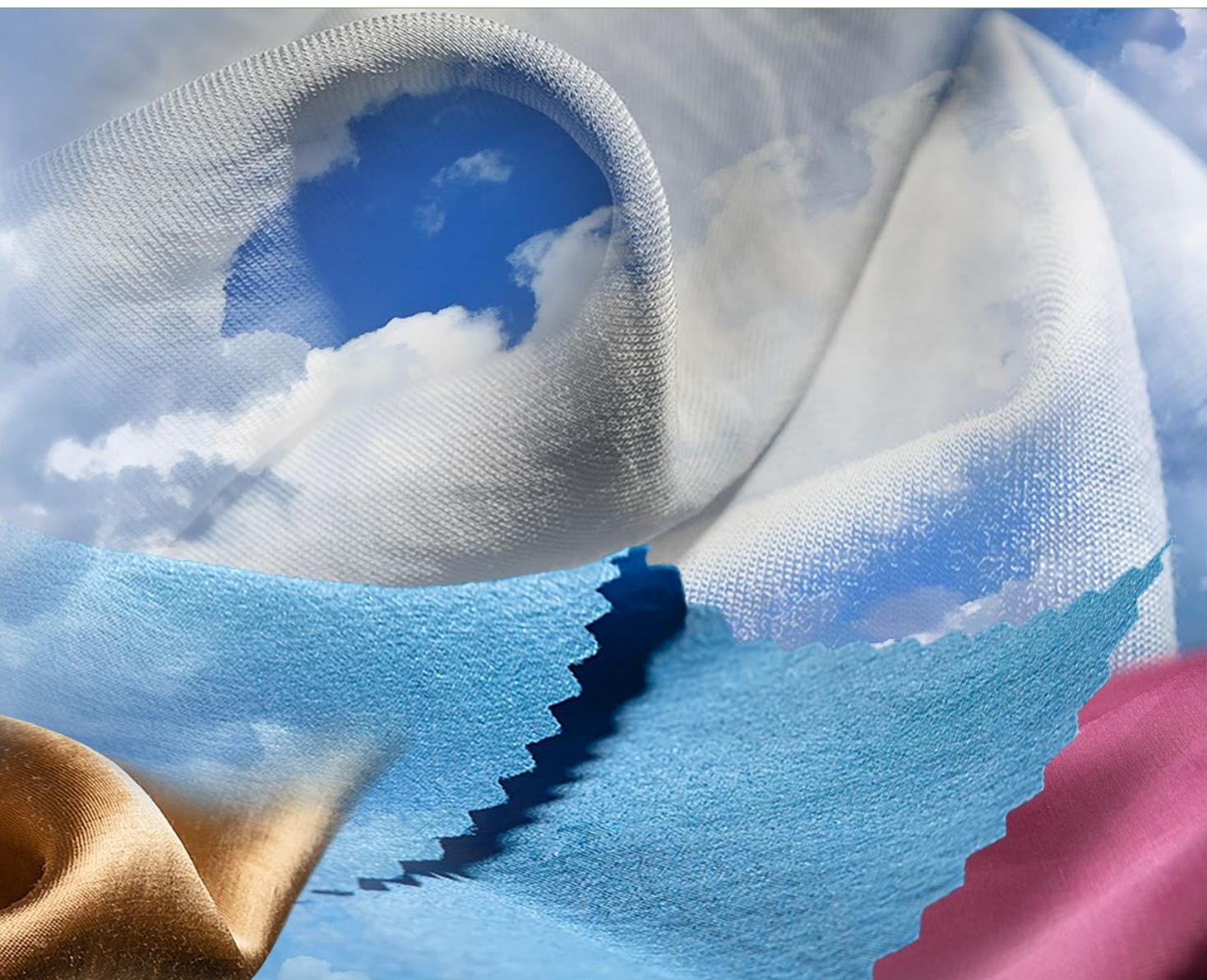


# 21.

## MEASURES TO BE IMPLEMENTED TO REDUCE GREENHOUSE GAS EMISSIONS

- In 2021, an Energy Audit Report was prepared for the Dyehouse factory. This report was created by analyzing the factory's data for 2019, 2020, and 2021. The company has taken detailed measurements in the business to determine where improvements can be made. The report recommends switching to flash steam application, using

boiler efficiency and an automatic salt dosing monitoring system, removing and monitoring compressed air leakages, recovering waste heat that occurred in the compressor, replacing the lighting system with LED lamps, and installing a photovoltaic system on the roof.



- It is planned to replace the lighting used in the common area with LED and sensor lighting systems since the lighting system change suggested in the Energy Audit report can be made in a short time.
- Pad Batch Dyeing Machine has been removed from the machine parkour in order to reduce water and energy consumption.
- It is planned to replace the Jet machines determined in the dyeing process with 2 pieces of 500 kg and 1 piece of 250 kg Air Jets.
- It is planned to reduce electricity, natural gas, and steam consumption data by at least 5% by making process improvement works.
- Transportation methods that are more environmentally friendly and produce the least greenhouse gas emissions will be examined.
- It is planned to provide training on greenhouse gas emissions and reduction methods to 100% of the company's employees.





# 22. CARBON OFFSETTING

## 22.1. 2019 AND 2020

Carbon Offsetting, also known as Carbon Balance, aims to offset carbon emissions caused by production or individual activities.

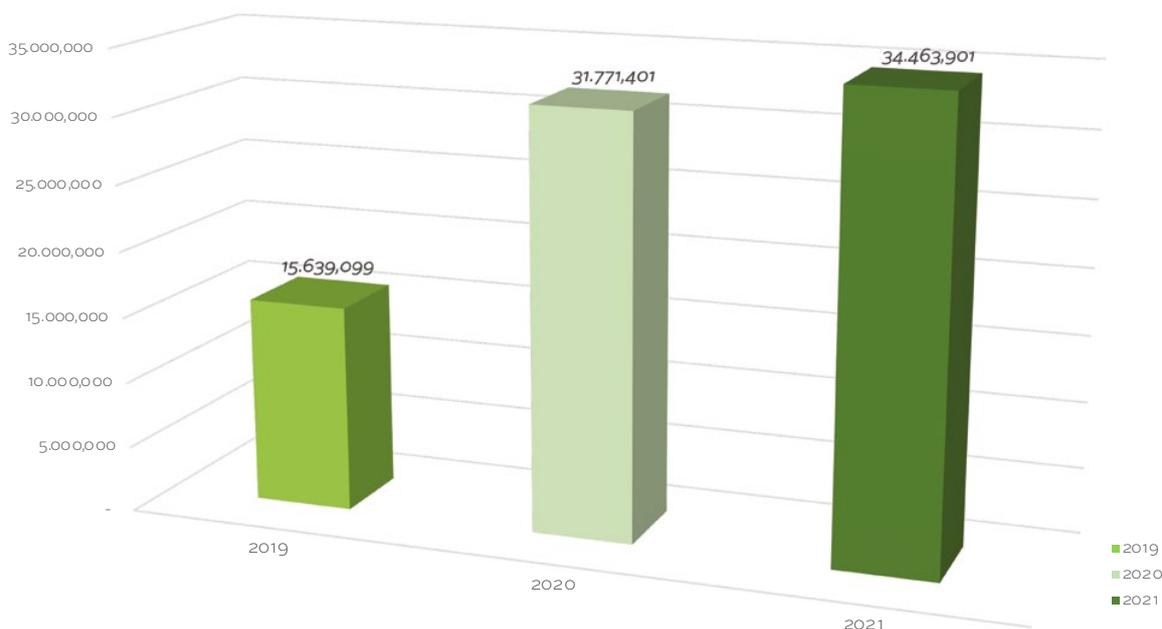
For offsetting carbon emissions, 1,200 saplings were donated in 2019. This sapling donation offset 410 tons of CO<sub>2</sub> carbon emissions.

For offsetting carbon emissions, 1,330 saplings were donated in 2020. This sapling donation offset 547 tons of CO<sub>2</sub> carbon emissions.



## 22.2. 2021

It is planned to donate 10,425 saplings in the reporting year to offset a total of 4,288,662 tons of CO<sub>2</sub>e emissions due to the Scope 1, 2, and 3.



**Chart 51.** Amount of Carbon Footprints After Offsetting in 2019, 2020 and 2021



GÜLİPEK

# APPENDIX





Appendix 5. 2019 Sapling Donation Documents



Appendix 6. 2019 Sapling Donation Document



Appendix 7. 2021 Gülüpek Tekstil Carbon Footprint Verification Statement





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