

GÜLİPEK

CARBON MANAGEMENT AND STRATEGY DEVELOPMENT REPORT 2020

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01. ABOUT OUR REPORT

We are proud to present Gülipek's 2020 carbon footprint report to you our stakeholders. With this report, we give you the opportunity to evaluate the improvement steps we have taken as a result of managing our impacts resulting from our activities.

As Gülipek, this report reflecting the greenhouse gas emissions in 2020, what activities result from these amounts and the company's decline performance regarding the subject is the second carbon footprint report published by the organization and it has been calculated according to the current version of ISO:14067, which is accepted on a global scale and prepared according to the basic compliance option in line with the latest version of ISO:14064 reporting framework.

In 2019, the Carbon footprint report has been prepared only for the dyehouse factory and presented to our stakeholders. As of 2020, greenhouse gas emissions have been calculated and reported, including yarn, weaving and dyeing factories and the measures to be taken are presented for all 3 factories.



For Feedback for Our Contact Information: busra@gulipek.com.tr

Any feedback we receive from you will add strength to our strength. That's why we care about your feedback.



03. INTRODUCTION

ISO 14064 standard has been used corporate carbon footprint calculation and ISO 14067 standard has been used in reporting.

Three comprehensive calculations have been made regarding the activities that directly affect the greenhouse gas emissions of the institution in order to obtain the most healthy and detailed result in greenhouse gas emission calculations, activities arising from the service or product purchases carried out by the institution in order to continue its activities and activities that are effective in greenhouse gas emissions while carrying out the activities of the institution. It is important that the calculation of the corporate carbon footprint is based on the calendar year or the fiscal year, in order to give a healthier and more accurate result.

Therefore, 2019 has been accepted as the base year and comparisons have been made according to this year. However, the year 2021 will be accepted as the reference year since no carbon calculation has been made in the yarn factory and weaving factory and the weaving factory for 2020 could not work at full capacity due to the covid-19 outbreak.

04. OBJECTIVES OF THE PROJECT

This report, which summarizes the greenhouse gas emission inventories of Gülipek A.Ş., is the first step for measures to control greenhouse gases from its activities. The realization stages of production and the planning of energy flows, the integration of these two disciplines, is the most important step in the fight against climate change and one of the most important trump cards of Gülipek A.Ş.. One of the basic mottos of Gülipek is "...to make sustainable and livable environmental production."

PROJECT TARGETS:

- To take the corrective measures for the air quality values of Bursa,
- To reflect the amount of greenhouse gas emissions in 2020, the activities resulting from these amounts and the reduction performance of the company regarding the subject,
- To evaluate the improvement steps we have taken as a result of managing our impacts resulting from our activities,
- To comply with sustainable development goals commitments (SDGs)
- To use the information obtained in Gülipek A.Ş. sustainability report,



05. OBJECTIVE DATA AND METHODOLOGY

The carbon footprint refers to all greenhouse gas emissions for a company or a product. The carbon footprint covers all climate-related emissions (GHG). Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluoride carbons (HFCs), Perfluorocarbons (PFCs), Sulfurhexa fluoride (SF6) gases are the gases that are stated to have a greenhouse effect in the Kyoto protocol by causing environmental pollution and global warming and releasing as a result of human activities (Anonymous, 1998b; Albayrak et al., 2014).

GREENHOUSE GAS EMISSION ACCOUNT

SCOPE 2

ELECTRICITY

FORKLIFT MOTORINE USE

NATURAL GAS

GENERATOR ENGINE USE

COMPANY VEHICLES FUEL USE

RAW MATERIAL SHIPPING FUEL CONSUMPTION

PRODUCT SHIPPING FUEL
CONSUMPTION

FIRE PROTECTION
SYSTEMS

AIRCRAFT TRAVELS

FUEL CONSUMPTION
DURING WASTE
DISPOSAL
TRANSPORTATION

AIR CONDITIONING



Gülipek A.Ş. uses natural gas, electricity and diesel as energy sources. In addition, it consumes different energy in transportation forms such as product transportation, business trips, and plane travels.

The calculations made have been carried-out by using data collection, calculation, reporting and reference value tables specified in the IPCC guidelines of the Intergovernmental Panel on Climate Change according to the calculation groups specified in the GHG Protocol with the energy and carbon footprints, with the methods specified in the ISO 14064-1 series guidelines and specifications by taking into account all the contributing factors.

Within the scope of these three classifications, the emission results have been evaluated and targets have been determined for the measures to be taken. The calculations include all greenhouse gas emissions used by the factory and according to the GHG protocol, and all units have been given in kilograms/tons equivalent in carbon (CO₂e) in a single denominator.





6. CARBON FOOTPRINT PROJECT STUDY RESULTS

07. DATA COLLECTION AND DATA QUALITY

A training, briefing and team determination meeting is held with the participation of all senior managers.

The team created has requested this data and data evidence in writing from the department managers, technical units and service providers by deciding what data are needed.

The data covers a period of 12 months.

The assessment made covers the period from January 2020 to December 2020 to determine the amount of emissions for a one-year period.

The normalized reference base year is 2019.

It has been determined by considering factors such as selection of reference year, data availability and quality, and significant administrative changes.

The data subjects to the official records, data quality is good, consistent and credible.

The data has been obtained from the external institutions for the corporate-scale carbon inventories and the relevant institution managements have provided support at all levels (e.g. electricity and natural gas distribution companies).

The flight information has based on data received from organizations such as vehicle tracking system, contracted fuel station, Turkish Airlines while creating the data inventories of business travel and other transport-related emissions.

The calculations have been made by taking information such as the distance traveled by the transport vehicles and the amount of fuel at this distance and how much of the vehicle Gülipek filled.

They are not included in the calculation since the sources that emit HFC gas such as refrigerators and water dispensers have no data reliability.



08. CARBON FOOTPRINT CALCULATION METHODS AND TERMS



According to the types of Scope-1, Scope-2 and Scope-3 greenhouse gas sources, the following formulas and variables are used in the calculations.

Emission (tons CO₂) = Activity Data * Emission Factor * Oxidation Factor

Emission Factor = Emission CO₂ + EmissionCH₄ + Emission N₂O + ...

GWP (Global Warming Potential): The factor for defining the radiative force effect (GWP) of a given greenhouse gas based on mass in terms of equivalent carbon dioxide over a given time period.

CO₂e (Carbon dioxide equivalent): The unit used to compare the radiant power of a greenhouse gas with carbon dioxide.

Greenhouse Gases	Chemical Formula	Retention time in atmosphere (Years)	Global Warming Effect* (CO2e)
Carbon dioxide	CO ₂	5-200	1
Methane	CH ₄	12	25
Nitrous oxide	N ₂ O	114	298
Perfluorocarbons	PFCs	50.000**3	6.500-9.200
Hydrofluorocarbons	HFCs	226**4	140-11.700
Sulfur hexafluoride	SF ₆	3.200	23.900

^{*:} It is time dependent. For details: http://en.wikipedia.org/wiki/Greenhouse_gas#Atmospheric_lifetime

(Source: 3 EPAs, http://epa.gov/climatechange/ghgemissions/gases/fgases.html

4 Low GWP Alternatives to HFCs and PFCs, J. G. Owens,)

09. BÜTÜN KARBON AYAK iZi

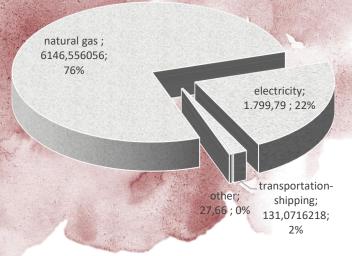
As a result of all the main and auxiliary calculated activities used during production, the carbon emission for all 3 factories is 5,474.251 tons of CO2e for Gülipek A.Ş. This amount is equivalent to the annual carbon emissions of 1,520 citizens (3.6 tons/year) in Turkey.



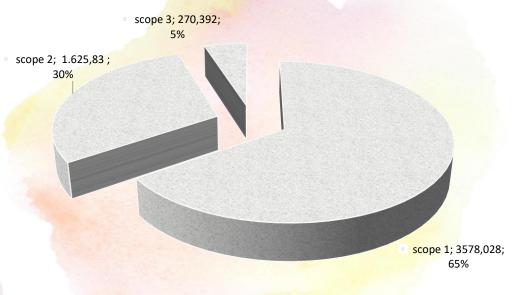
^{**:} The highest values have been shown for this group of greenhouse gases.

It has been determined that the highest greenhouse gas emission is in scope 1 with a rate of 65% when looking at the distribution. The electricity use in Scope 2 constitutes the second highest greenhouse gas emission.

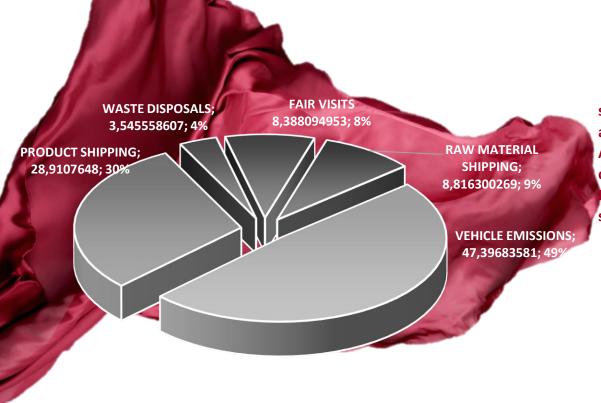
CARBON EMISSION DISTRIBUTION ACCORDING TO CATEGORIES



BREAKDOWN OF CARBON EMISSIONS BY 2020 SCOPES



When the details of the scopes are examined, 76% of the carbon emissions in Gülipek are caused by natural gas, 22% by electricity use, 2% by transportation-shipping and other activities. Since carbon emissions vary in direct proportion to energy consumption, this issue is also linked to electricity, fuel and energy costs. Reducing CO₂e emissions also means reducing energy costs for the company. Being aware of this situation, Gülipek works to reduce all energy consumption and adopts these studies as a company vision.



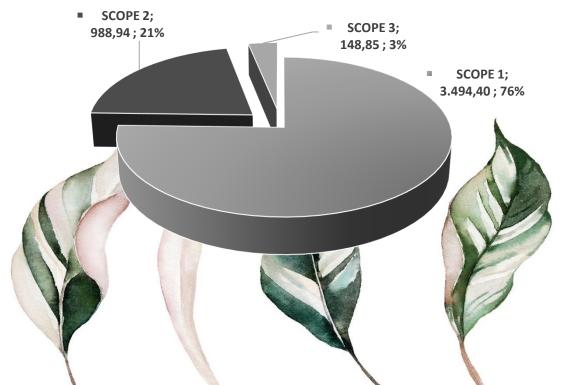
While the carbon emission values resulting from the air travel, product transportation, raw material transportation and waste disposal shipment are evaluated in scope 3, the emissions resulting from the travels of company vehicles are considered as scope 1.

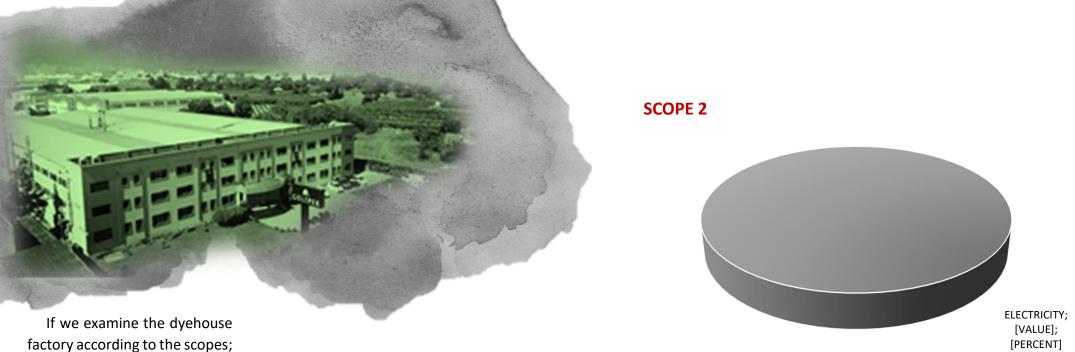
If transportation and shipping emissions are examined in a separate item, it has been determined that most of the emissions are caused by air travel and customer visits to and from Istanbul. Air travel emissions calculation includes upstream emissions and certain emissions from air travel, called the RFI-factor (RFI = Radiative Forcing Index, meaning that CO₂ emissions in the stratosphere have a higher impact than those at ground level).

10. REVIEW ON FACTORY BASIS

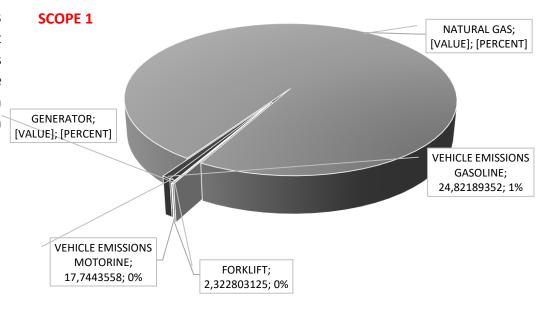
With the calculation of the greenhouse gas emissions of each factory in 2020, all factories can be evaluated separately. As a result of this situation;

CARBON EMISSION DISTRIBUTION ACCORDING TO THE DYE FACTORY SCOPE



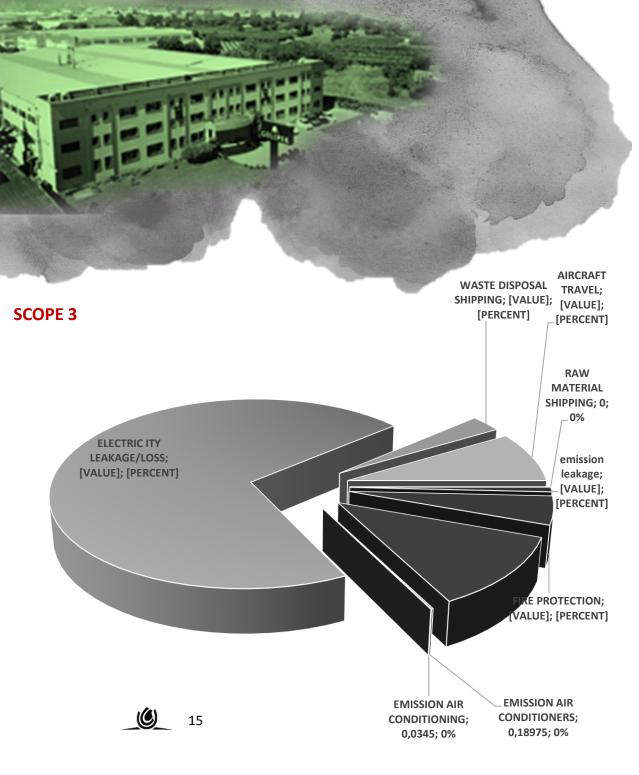


In Scope 1, the natural gas consumption with the highest percentage (99%) causes carbon footprint. Next one comes gasoline consumption and diesel consumption from the company vehicles.



Scope 2 is based on the electricity consumption only.





When the activities included in Scope 3 are detailed for the dyehouse factory, the electricity leaks/losses cause the highest rate. The electricity leakage/losses mentioned here refer to the leakages and losses of the purchased electricity before it reaches the factory. While calculating this value, the loss/leakage rates of TURKSTAT-Turkey Electricity Production Consumption and Losses by Years (1993-2019) have been taken as a basis.

The electricity leakage is followed by the product transportation with a rate of 17.73% and air travel with a rate of 12.68%.

Raw material shipment and transportation expenses of the dyehouse factory have not been included in the calculation as they are not covered by Gülipek.

R-410 gas, which is included in the greenhouse gas emission calculation of air conditioners, is used by the service side to detect leaks and/or leaks in air conditioners during maintenance. Apart from this, no additions have been made to the air conditioners due to leaks in the air conditioners in the factory. However, the R410A gas used during maintenance has been still included in the calculation.

The data subject to the fugitive emissions refers to the fire extinguishers used during fire drills.

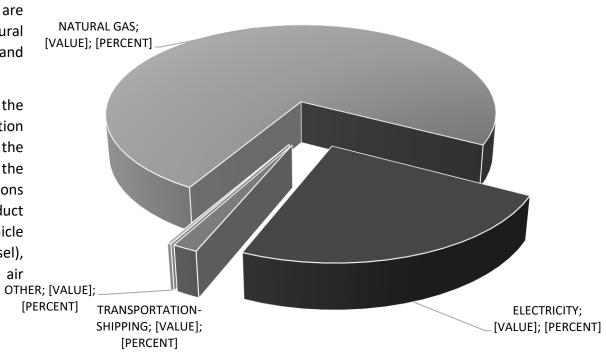
The only factory where greenhouse gas is pressed in the air conditioning system is the Paint Shop factory and the calculations have been based on the service forms.



When the corporate carbon footprint is detailed by categories; it has been determined that there are carbon emissions from natural gas, electricity and transportation activities.

The items included in the carbon footprint calculation during created the transportation activities are the emissions greenhouse gas generated during product transportation, vehicle emissions (gasoline and diesel), waste disposal transfers, air travel and business travel.

CARBON EMISSION DISTRIBUTION ACCORDING TO CATEGORIES



The raw material transportation fee, which is one of the transportation items, has not been included in the calculation as it is not covered by Gülipek.

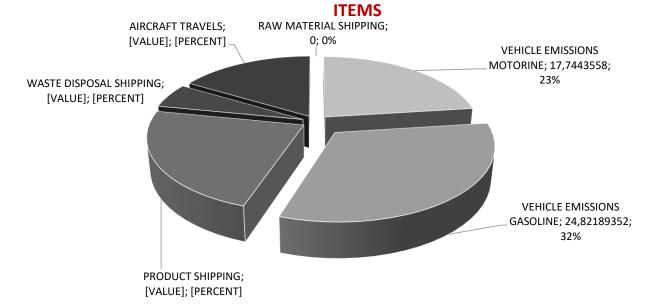
When the carbon footprint activities arising from transportation activities are detailed, it has been determined that firstly gasoline vehicles and then diesel vehicles cause the highest emissions.

In the product transportation category, only the transportations whose transportation is covered by Gülipek have been calculated by negotiating with the transportation company, the percentage of the loading on the vehicles has been detailed in each order and the part of the route traveled has been included in the calculation.





CARBON EMISSION DISTRIBUTION ACCORDING TO DYESHOP TRANSPORT



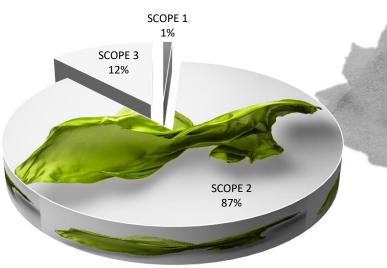
When considering the greenhouse gas emission calculations generated during these activities, the highest carbon footprint comes from the company vehicles that consume gasoline followed by the company vehicles that consume diesel.

The product transportation and air travel are among the next high items and are among the lanes that require precautions.

The category of aircraft travels cover the aircraft travels of company employees and company employees who make these trips are responsible for the factories in all three locations. However, since they work within the paint factory, they have been only included in the carbon footprint of the paint factory.

While calculating the carbon emissions that occur during the transportation of waste disposals, the shipping costs covered by Gülipek have been included in the carbon footprint. The values such as location information, type of vehicle used and amount of fuel consumed have been provided by the licensed waste company to which the waste was sent.

CARBON EMISSION DISTRIBUTION ACCORDING TO WEAVING FACTORY SCOPES





The above evaluation according to the scope of the weaving factory has been presented in the graphic. It has been determined that scope 1 causes the least carbon footprint since scope 2 causes the highest carbon footprint with a rate of 87%, scope 3 follows scope 1 and there is no natural gas consumption.

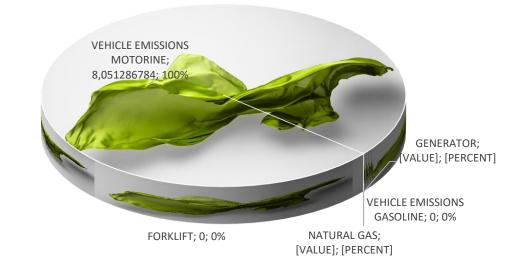
When scope 1 is elaborated, it can be seen that;

The diesel vehicle emissions provide the entire carbon footprint in Scope 1.

Apart from this, the data used in the dyehouse such as generators, gasoline vehicles, forklifts, natural gas, has not affected scope 1 since they have been not used in the weaving factory.

Therefore, the carbon footprint specified in scope 1 is caused by company vehicles that consume 100% diesel.

Scope 1







Scope 2 includes only electricity consumption and causes 636,8857353 tons of carbon dioxide equivalent output.

Scope 3 includes electricity leakage/losses, carbon emissions during raw material transportation and carbon emissions during waste disposal.

When calculating carbon material emissions during raw transportation; the distance traveled materials, by incoming raw transportation type, vehicle information, how much of the vehicle was filled by Gülipek and

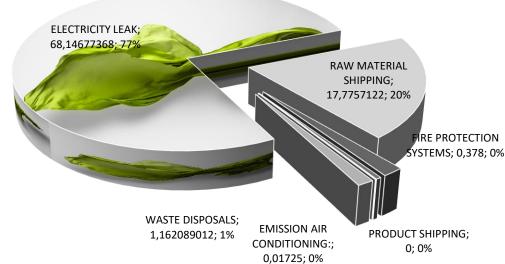
information about which company covers the transportation have been detailed and the data has been proven with the documents.

The electricity leakage/losses have been calculated based on TUIK 2020 data.

The product shipping costs have not been included in the calculation since they have not been covered by the weaving factory.

R410A gas has been injected into the air conditioning system by the service for control and included in the calculation as in the Paint Shop.







CARBON EMISSION DISTRIBUTION ACCORDING TO WEAVING **FACTORY CATEGORIES**



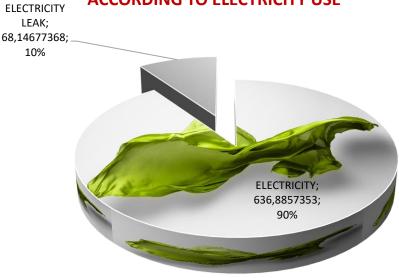
10%



When the weaving factory was evaluated according to the resources, it has been determined that the highest carbon footprint was caused by electricity consumption.

The greenhouse gas emissions from the raw material transportation and company vehicles are the second most important item. There are no other activities that cause greenhouse gas formation during factory activities.

WEAVING - CARBON EMISSION DISTRIBUTION ACCORDING TO ELECTRICITY USE

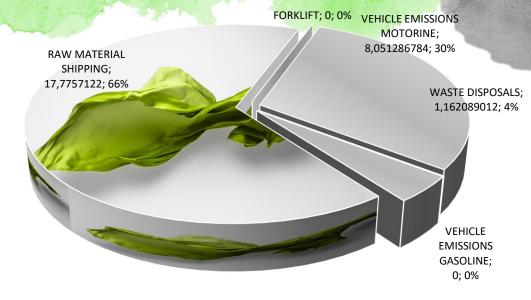


When electricity is valued in itself, while the amount of leakage/lost electricity that occurs during electricity transmission is 68,147, the electricity use is 6336,886 tons of CO2 equivalent. The electricity losses have been evaluated in scope 3. The electricity usage has been evaluated in scope 2.



[PERCENT]

CARBON EMISSIONS ACCORDING TO WEAVING-TRANSPORT ITEMS





The greenhouse gas emissions originating from to transportation-shipping is the activity that causes the highest carbon emission with a rate of 17% resulting from the use of gasoline and diesel fuel consumed during the transportation of raw materials.

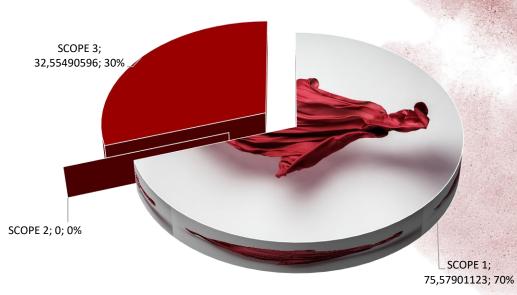
Since there is no use of gasoline vehicles in the weaving factory, the percentage rate has been expressed as zero.

The use of diesel fuel in company vehicles is the activity that causes the second highest greenhouse gas emissions.

Since the forklift used in the weaving factory is an electric forklift, it has been included in the total carbon footprint formed during the electricity consumption.

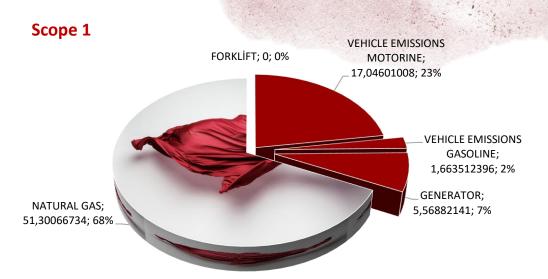


CARBON EMISSION DISTRIBUTION ACCORDING TO YARN FACTORY SCOPES



As in other factories, scopes and activities have been evaluated separately in the yarn factory.

While scope 1 includes activities that cause the most greenhouse gas emissions with a rate of 70% in the spinning mill, Scope 3 has occurred with the effect of 30% of the activities taking place during indirect activities on the other hand.



Scope 1 has been detailed in the adjacent graphic. The natural gas consumption from the activities included in Scope 1 causes the highest greenhouse gas emissions. When calculations are made according to the amount of diesel and gasoline resulting from the use of company vehicles, it is seen that most of their vehicles consume diesel. Therefore, while the greenhouse gas emission from diesel fuel consumption is 23%, the greenhouse emission from gasoline is 2%.





For the yarn factory, the product transportation part of the scope 3 is the activity that causes the highest carbon emission with an evaluation of 80%. In addition, there are gases arising from the emission of greenhouse gases used in fire protection systems and air conditioners.

The greenhouse gas emissions that is one of the activities taking place in Scope 3 and is generated during the air conditioning, electricity leakage/losses, raw material transportation, waste disposal transportation has not been included in the calculation since it is not available at the factory

When the carbon footprint is analyzed according to the sources;

It has been determined that the highest greenhouse gas emission occurs during the product transportation.

For fire protection systems, the data being used in the fire extinguishing equipment and causing the greenhouse gas formation have been obtained from the authorized company and the proven data have been included in the calculation.

CARBON EMISSION DISTRIBUTION ACCORDING TO YARN FACTORY CATEGORIES



When the yarn factory is categorized according to transportation activities, the greenhouse gas emissions from THE company vehicles consuming diesel and company vehicles consuming gasoline are considered as greenhouse gas emissions generated during the product transportation.

[PERCENT]





When the other category is examined, the headings of carbon emission, electricity leakage/losses occurring during the transportation of waste disposal in weaving and dyeing factories are not included.

Other





EMISSION AIR CONDITIONING:; 0,0345; 0%

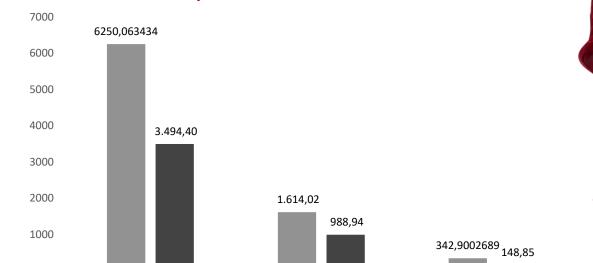
11. COMPARISON OF GREENHOUSE GAS EMISSIONS FOR 2019-2020

Scope 3

In the carbon footprint report of 2019, the carbon footprint calculations have been made based only on the paint factory. In 2020, 3 factories have been evaluated both separately and in total in terms of the greenhouse gas emissions.

Therefore, only the dyehouse factory data have been compared since it is not possible to make comparisons with previous years for all factories. The comparison of all factories will be included in the following years.

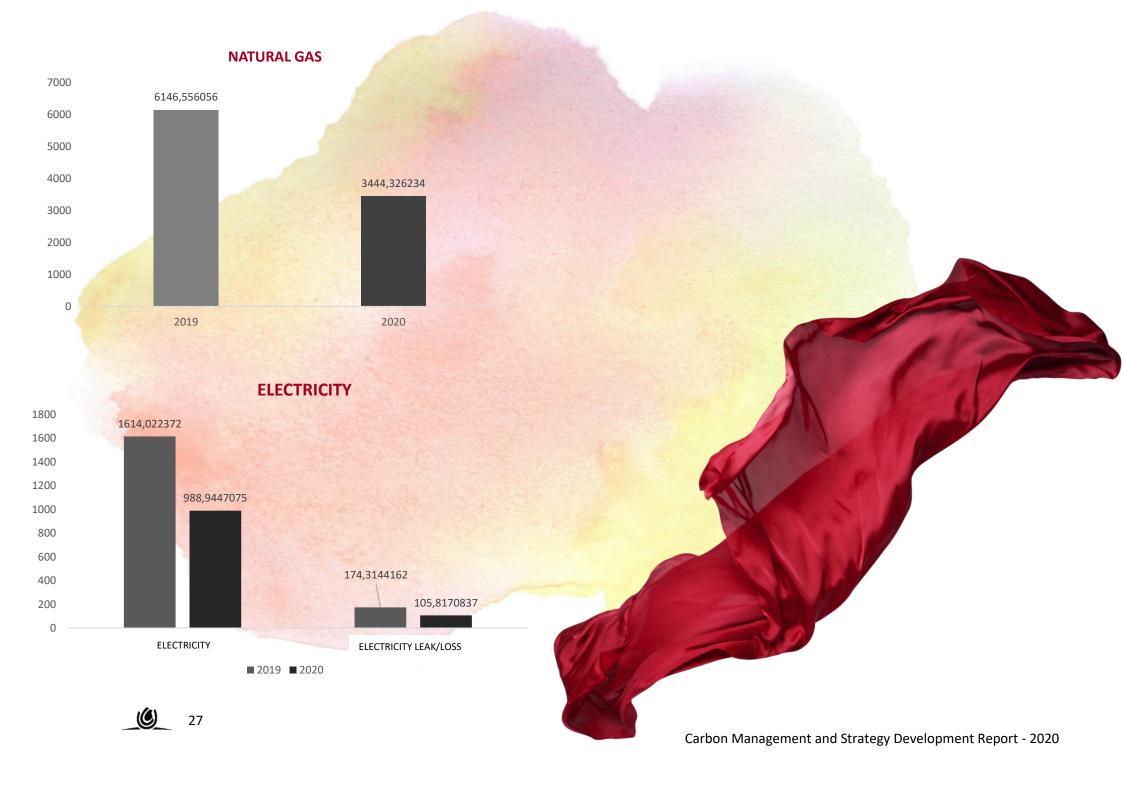
Scopes



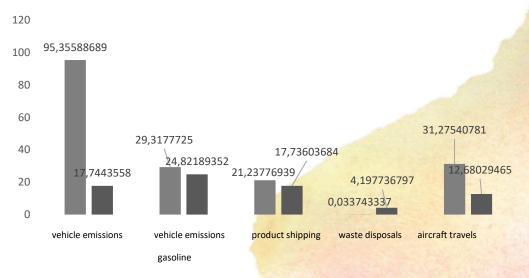
Scope 2 ■ 2019 ■ 2020 Compared to 2019, we reduced greenhouse gas emissions by 55.91% in scope 1, 61.27% in scope 2 and 43.41% in scope 3 in 2020.



Scope 1



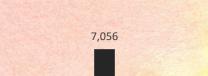
Transportation-Shipping



In order to reduce our greenhouse gas emissions in the transportation category, the company vehicles switched to the electric vehicles, thus;

In 2020, we reduced the greenhouse gas emissions caused by the diesel consumption of company vehicles by 82%.



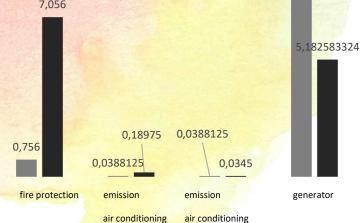


Other

1,134

0,378

leak emission



8,15157837

Carbon Management and Strategy Development Report - 2020

■ 2019 ■ 2020

12. RELATIVE CARBON FOOTPRINT

DYEHOUSE

Gülipek A.Ş. dyehouse factory has a carbon footprint of 3.204848514 tons of CO₂e/kg of production per product. This data has been calculated based on the production amount in 2020.

WEAVING

Gülipek A.Ş. weaving factory has a carbon footprint of 2,910106451 tons of CO₂e/kg production per product including scopes 1, 2 and 3.

YARN

Gülipek A.Ş. yarn factory has a carbon footprint of 0.46527953 tons of CO₂e/kg production per product including scopes 1, 2 and 3.

The water dispensers, refrigerators and welding electrodes have not been included in the carbon emission calculation since the net data could not be reached.



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13. CARBON MANAGEMENT AND STRATEGY DEVELOPMENT

Gülipek invests in clean technologies and practices that will gradually reduce its carbon footprint, sets targets for less energy consumption, a healthier and cleaner environment, and a more livable world for the next generations for every step that has been or will be taken and checks its compliance with the targets every 6 months.



Our policy	Environmental policy
	Senior management ,
Our departments and managers	Environment and sustainability department ,
	Purchasing and Work Safety department,
	Maintenance and repair department
Our management system	ISO 14001
Measurement and Monitoring	ISO 14001 Internal and external audits
Mechanisms	External audits
	Customer audits

Scan the QR code to access Gülipek Environmental Policy:





The carbon calculation made reveals that;

The current situation should be preserved and should be encouraged to strengthen energy consumption and related carbon emission reduction by Gülipek A.Ş. The relevant personnel should be allowed to explore alternatives that may require higher investment but will be able to pay off in the short term. A team that can be established for energy recovery informs the management about their adaptation to the factory by constantly following-up the new technologies and developments.



The company policies should be protected and all kinds of new machineries and equipment to be purchased should be chosen in a way that is environmentally friendly and causes less greenhouse gasses.

The calculations and studies made show that the corporate carbon footprint can be reduced if everyone acts with environmental awareness, from the purchasing process to production, from production to storage and use of vehicles.

Gülipek aims to reduce greenhouse gas and protect the environment by constantly organizing informative trainings for its employees.

14. MEASURES TAKEN TO REDUCE GREENHOUSE GAS EMISSIONS

COMPANY VEHICLES

- The company vehicles were replaced with the electric vehicles or vehicles that consume less fuel,
- The trainings were organized on choosing shorter trips and traveling together with employees while determining the route,
- ➤ The trainings were organized on the regular checking of the air in the tires,
- > The fuel efficient engine oil (if available) used instead of the conventional fuel oil.
- > The trainings were organized for drivers on efficient car use.

NATURAL GAS

- As a result of the energy etude carried out;
 - The boiler burner was renewed,
 - > The isolation of hot water and steam pipelines were completed,
 - The valve jackets were made for the valves in the steam pipelines,
 - The electric heater was switched in the dressing room instead of the natural gas heater,
 - KTM washing machine was sold due to excessive steam consumption,





ELECTRICITY

- > The trainings were organized for the employees to turn off their computer screens unnecessarily situations,
- > The energy efficiency and carbon emission problem training was organized,
- > The air leaks in the business were fixed,
- > The burners were replaced with the energy-friendly burners,
- > The deaerator pump was replaced,
- > It was ensured that the correct production rate was increased in the first time.





15. MEASURES TO BE TAKEN TO REDUCE TO AMOUNT OF GREENHOUSE GAS EMISSIONS

- Reducing the electricity, natural gas and steam consumption data by at least 10% by making process improvement studies,
- Gradual renewing the conventional machine park with energy-friendly machines,
- Switching to the renewable energy in the dyehouse and weaving factory,
- Taking the steps to meet some of the electrical energy from here by establishing the Solar Energy System on the roof of the dyehouse factory
- Preferring transportation methods that are more environmentally friendly in raw material and product transfers and have the least greenhouse gas emissions,

- Providing training to 100% of the company employees about the greenhouse gas emissions and reduction methods,
- Reducing the amount of open steam used in the thinning machine at the rate of 2/3,
- Ensuring that the open steam in the gauze machine is closed,



16. GREENHOUSE RETENTION AND REMOVAL ACTIVITIES



dioxide (CO₂).



EGE ORMAN VAKFI

Doğa Dostu Sertifikası

Sayın Gülipek kumaş ve iplik San. ve Tic. A.Ş.

Ege Orman Vakfı iş birliği ile 1000 adet fidan dikimini gerçekleştirerek, İş süreçleriniz esnasında atmosfere verdiğiniz yıllık 410 T CO2e denk "Karbon salımınızı" denkleştirdiniz.

GELECEK KUŞAKLAR ORMAN YOK DEMESİN.

EGE ORMAN VAKFI – Ege Mah. Ìşçiler Cad. No:105/31 K:3 Konak - İZMİR Tel: 0 232 464 51 60 – 463 80 80 https://www.egeorman.org.tr e-mail:egeorman@egeorman.org.tr





Number of the trees planted	1.000
Type of the tree planted	Red Pine Tree
Carbon offset amount	410 t CO2e



The afforestation and reintroduction to the nature has been carried out on Manisa-Yunt Mountain.

The process of bringing the degraded land to the environment will continue by planting more trees in the "Gülipek Grove" created in 2021 on behalf of Gülipek.





Carbon Management and Strategy Development Report - 2020

17. RESOURCES

- Greenhouse Gas Protocol web page;
 http://www.ghgprotocol.org/standards/corporate-standard
- TUİK (Turkish Statistical Institute) web site link:

 http://www.tuik.gov.tr/PreIstatistikTablo.do?istab id=159

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- Ministry of Development, Socio-Economic Development Ranking Research of Provinces and Regions (SEGE-2011), link:
 - http://www.kalkinma.gov.tr/Lists/Yaynlar/Attachments/54 8/SEGE-2011.pdf
- Bursa Provincial Environmental Status Report 2014, link:
 http://www.csb.gov.tr/db/ced/editordosya/bursa icdr201
 4.pdf
- Department of Zoning and Urbanization, City Planning Branch Directorate, Climate, Natural Building Sector Bursa Air Pollution and Quality Report
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17. RESOURCES

Bursa Metropolitan Municipality Activity Report 2019

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TUİK, Bursa with Selected Indicators, 2019

Uludağ Elektrik Dağıtım A.Ş

Turkish Airlines

Intergovernmental Panel on Climate Change IPCC

TUİK

SIMPET

BURSAGAZ

ISO 14064

ISO 14067



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