

VASI GROUP COMPANIES

VASI • DÖNSA İSTANBUL • DÖNSA YOZGAT • INSPIRIT • ACTIVETIME • DEMSA

VASI ŞİRKETLER GRUBU



CORPORATE CARBON FOOTPRINT REPORT 2019

*GHG emissions resulting
from VASI Group Companies internal operations*

A. ABOUT THIS REPORT

This report aims to calculate and present the greenhouse gas emissions caused by the activities and the energy consumption within VASI GROUP COMPANIES boundaries as CO2 equivalent.

VASI GROUP COMPANIES Corporate Carbon Footprint Calculation and Reporting has been prepared by the Co2nnector Pro in accordance with the data provided by VASI GROUP COMPANIES during the period January 1, 2019 - December 31, 2019.

The report was prepared in accordance with the GHG Protocol Standard and the ISO 14064-1 standard. The results of the study presented in this report show the total carbon footprint values resulting from the operations carried out in the factory of VASI GROUP COMPANIES.

This work supports the following UN Sustainable Development Goals;



B. COMPANY PROFILE



Design, develop, manufacture and export socks, since 1987

VASI is headquartered in Esenyurt, Istanbul which works on design, develop and export. DONSA-Istanbul is located in Esenyurt, Istanbul based on a 10.000 m2 area which is the main production facility for the group.

DONSA-Yozgat is under construction, will be in operation as of Q1, 2020. The facility is 10.000 m2 close area, located in 20.000 m2 land in an Industrial Park at the centre of Turkey.

Other companies are Inspirit, Activetime and Demsa with a different function of the group.

Over 30 Years of Experience and Expertise

The main strengthen of VASI is; over 30 years of experience with an inspirational team; which design, develop material and socks, in collaboration with customers and other relevant stakeholders.

As a socks manufacturer machinery and technology have a big influence on operations. Therefore mechanical and technological adoption is a crucial for being creative, innovative and sustainable on business. Thus, makes VASI desirable and one of the competitive socks manufacturers in Turkey.

Leaving No One Behind

According to UN Sustainable Development Goals / UNDP "Fulfilling the 2030 Agenda's pledge to "leave no one behind" must to take into account a world that is undergoing profound transformations. One of these is the 'fourth industrial revolution', characterized by an unprecedented speed of technological change. On the side-lines of the 73rd Session of the UN General Assembly, UNDP Administrator Achim Steiner led a discussion on the topic of "Curse or Cure? Leaving No One Behind in an Age of Technological Revolution".

As a socks manufacturer, VASI does not want to be behind "in Age of Technological Revolution". Therefore, technological development and adoption is a priority at VASI.

C. CARBON FOOTPRINT RESULTS

ISO 14064 – 1 GHG INVENTORY REPORT 2019

15/08/2020 v.4

General Information

Company:	VASI GROUP COMPANIES
Address:	Osmangazi Mahallesi, 3140 Sokak, No 7, Esenyurt/Turkey
Website:	www.vasi.com.tr

Goal:	Quantification and reporting of greenhouse gas (GHG) emissions at the organization level.		
Scope:	Direct Greenhouse Gas Emission Energy Indirect Greenhouse Gas Emission Other Indirect Greenhouse Gas Emission	Locations within the scope:	VASI and DONSA-Istanbul

System boundary:	Operational Control	Base Year:	2018
Industry per IPCC 2006:	Production	Report Year:	2019
Revenue of the reporting year:	N.A.	Period for which the report is valid:	2
Data collection:	Annual	Frequency of the report	1
Number of employees:	329	Number of Interns:	3
Working days:	294	Area:	9800 m ²

GHG Emission Results			
Direct Greenhouse Gas Emission:	711.76	GHG emission intensity per turnover:	0
Energy Indirect Greenhouse Gas Emission:	2,044.84	Change to previous reporting year:	1,222,508,324.36
Other Indirect Greenhouse Gas Emission:	11.01		

Description of The Reporting Organization
VASI GROUP COMPANIES; Design, develop, manufacture and export socks, since 1987.

Persons Responsible			
Number	Name	Title	Details
1	Samet Çetin	Corporate Sustainability Executive	+90212 886 2810 samet.cetin@vasi.com.tr

GHG Quantification Methodology

Standard:	EN ISO 14064-1:2012: Greenhouse gases – Specifications with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
Allocation:	No allocation conducted.
Units:	Considered as 'kg' or 'kWh'. See Appendix 2 for the density factor per DEFRA.
Combustion of biomass:	No biomass combustion.
Activities to reduce GHG emissions:	No activity to be in place within the reporting period.
Quantification methodology per IPCC 2006:	Tier 1
Quantification equation:	Individual GHG emission amount (CO ₂ e) = (Consumption Amount) x (Emission Factor)
GWP values:	IPCC 5th Assessment Report
Reporting method:	ISO 14064-1:2012; Section 7.3 GHG report content

Refrigerant Leakage Assumptions

Type of Technology	Leakage Percent	Reference
Domestic Refrigeration	%0.1	IPCC (2006), Vol 3, Chapter 7, Table 7.9
Chillers	%2	IPCC (2006), Vol 3, Chapter 7, Table 7.9
Residential and Commercial A/C, including Heat Pumps	%1	IPCC (2006), Vol 3, Chapter 7, Table 7.9
Fire extinguisher	%0.4	IPCC/TEAP Special Report: Safeguarding the Ozone Layer and the Global Climate System, Volume 9, Fire Protection

Emission Factors

Emission Factors		
Stationary Combustion	IPCC 2006 Vol 2, Chapter 2 Table 2.3	$EF (kWh) = \frac{Default\ EF\ (per\ IPCC\ 2006)\ \frac{kg}{Tj}}{277777,78\ kWh/Tj}$ $EF\ (kg) = \frac{Default\ EF\ (per\ IPCC\ 2006)\ \frac{kg}{Tj}) \times (NCV\ \frac{Tj}{Gg})}{1000000kg/Gg}$
Mobile Combustion – On Road	IPCC 2006 Vol 2, Chapter 3, Table 3.2.1 and 3.2.2	
Mobile Combustion – Off Road	IPCC 2006 Vol 2, Chapter 3, Table 3.3.1	
CO2 equivalents	$CO2\ e = (CO2 \times 1) + (CH4 \times 28) + (N2O \times 265)$	
Electricity EF:	Electricity for Turkey : 0.59 kg CO2e/kWh	Ecoinvent v.3.2
Refrigerants GWPs:	DEFRA, 2017 Emission Factors DEFRA, 2017 Emission Factors DEFRA, 2017 Emission Factors	
Net Calorific Value (NCV):	IPCC 2006 Vol 2, Chapter 1 Table 1.2	

Uncertainty of the Accounting

Confidence level:	95%	Reference: IPCC, Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
Uncertainty quantification per:	GHG Uncertainty Tool	
Uncertainty of the study:	3.90	
Level of Assurance:	Reasonable	

GHG Emissions							
Direct Greenhouse Gas Emissions							
Source Description	GHG Source	Activity Data	Unit	GHG Emission Factor	Unit	CO2 emissions in metric tonnes	GHG Emission Factor Reference
Stationary Combustion	Gas/Diesel Oil	1,632.150000	kg	3.20	kgCO2e / kg	5.217574	IPCC (2006), Vol 2, Chapter 2, Tablo 2.3
Stationary Combustion	Natural Gas	3,193,481.000000	kWh	0.00	kgCO2e / kWh	645.581467	IPCC (2006), Vol 2, Chapter 2, Tablo 2.3
Mobile Combustion – On Road	Gas / Diesel Oil	16,574.274000	kg	3.24	kgCO2e / kg	53.625004	IPCC (2006), Vol 2, Chapter 3, Tablo 3.2.1 ve Tablo 3.2.2
Refrigerant Leakage	HFC-134a	0.000701	kg	1,430.00	kgCO2e / kg	0.001002	DEFRA, 2017 Emission Factors
Refrigerant Leakage	R410A 2	2.750000	kg	2,088.00	kgCO2e / kg	5.742000	DEFRA, 2017 Emission Factors
Refrigerant Leakage	HCFC-22/R22 = chlorodifluoromethane	0.877000	kg	1,810.00	kgCO2e / kg	1.587370	DEFRA, 2017 Emission Factors
Refrigerant Leakage	CO2-carbondioxide	5.280000	kg	1.00	kgCO2e / kg	0.005280	DEFRA, 2017 Emission Factors
TOTAL						711.76	
Energy Indirect Greenhouse Gas Emission							
Purchased Energy: Electricity	Electricity for Turkey	3,471,716.00	kWh	0.59	kgCO2e / kWh	2,044.84	Ecoinvent v.3.2
TOTAL						2,044.84	
Other Indirect Greenhouse Gas Emission							
Travel	Business Travel (Airline)	84,684.00	km	0.13	kgCO2e /km	11.01	Ecoinvent v3.2
TOTAL						11.01	
TOTAL GHG EMISSIONS						2767.61	

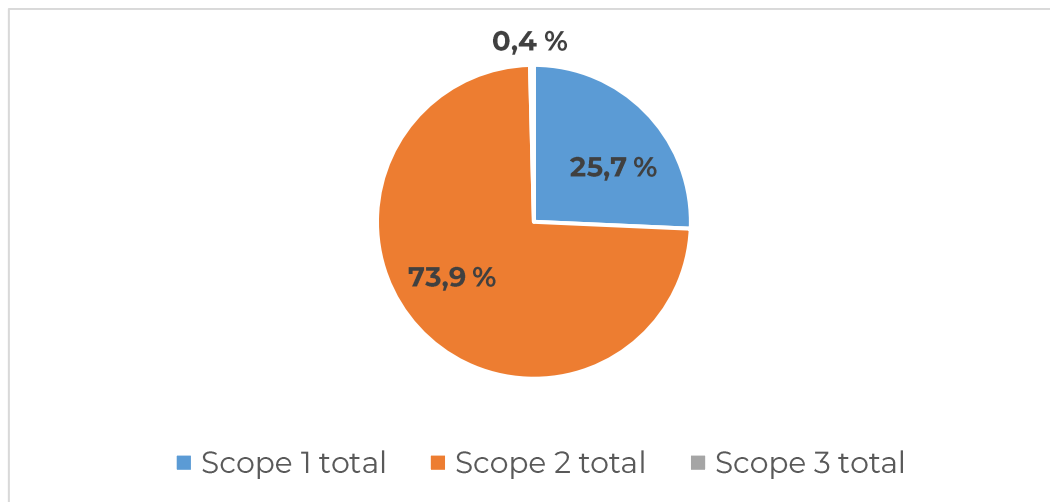
The fuel properties can be used to determine the typical calorific values/densities of most common fuels		
Commonly Used Fossil Fuels	Density kg/m ³	Density litres/tonne
Aviation Spirit	710,23	1.408
Aviation Turbine Fuel	798,08	1.253
Burning Oil	800,00	1.250
Coal (domestic)	850,00	1.176
Diesel (100% mineral diesel)	837,52	1.194
Diesel (average biofuel blend)	839,00	1.192
Fuel Oil	982,32	1.018
Gas Oil	851,06	1.175
LPG	512,87	1.950
Naphtha	676,13	1.479
Natural Gas	0,75	1.342.097
Other petroleum gas	366,30	2.730
Petrol (100% mineral petrol)	730,46	1.369
Petrol (average biofuel blend)	733,54	1.341
Other fuels		
Biodiesel (ME)	890,00	1.124
Biodiesel (BtL or HVO)	780,00	1.282
Bioethanol	794,00	1.259
BioETBE	750,00	1.333
Biogas	1,15	869.565
Biomethane	0,73	1.376.922
CNG	175,00	5.714
Grasses/Straw	160,00	6.250
Landfill Gas	1,30	769.231
LNG	452,49	2.210
Wood Chips	253,00	3.953
Wood Logs	425,00	2.353
Wood Pellets	650,00	1.538
Gases		
Methane (CH ₄)	0,72	1.394.700
Carbon Dioxide (CO ₂)	1,9770	505.817
References		
2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 2 http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf		
2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 Chapter 3 http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_3_Ch3_Uncertainties.pdf		
2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 3 Chapter 7 https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_7_Ch7_ODS_Substitutes.pdf		
DEFRA Greenhouse gas reporting: conversion factors 2017 https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017		
Ecoinvent, https://www.ecoinvent.org/about/organisation/organisation.html		
IPCC/TEAP Special Report: Safeguarding the Ozone Layer and the Global Climate System, Volume 9, Fire Protection https://www.ipcc.ch/pdf/special-reports/sroc/sroc09.pdf		
IPCC, Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories		
IPCC Climate Change 2013. The Physical Science Basis. Working Group I contribution to the Fifth Assessment Report of the IPCC. http://www.climatechange2013.org		
EN ISO 14064-1:2012: Greenhouse gases – Specifications with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.		

D. THE SUMMARY OF CARBON FOOTPRINT RESULTS

The calculation is based on the methodology of the GHG Protocol Standard and the ISO 14064-1 standard, and covers all relevant Scope 1, 2 and 3 emissions.

The estimated total Carbon Footprint amounts to 2767,61 t CO₂e (calendar year 2019).

Scope	Value	Unit
Scope 1 total	711,76	t CO ₂ e
Scope 2 total	2044,84	t CO ₂ e
Scope 3 total	11,01	t CO ₂ e
Total CF	2767,61	t CO ₂ e



How emissions changed in two report years;

The following chart indicates the relative emissions per employee and per pair socks for the years 2018 and 2019. All figures shown are including Scope 1, 2 and 3 emissions.

Figure	Value 2018	Value 2019	Unit	Change 2018 to 2019
Emissions per employee	8538	8412	kg CO ₂ e / employee	-1,4978
Emissions per pair socks	0,1195	0,1085	kg CO ₂ e / pair socks	-10,1382

It becomes apparent that the emissions in two sections within the last two years show a reduction despite the same process and amount of machines. This resulted from the lean manufacturing works in the factory during 2019.