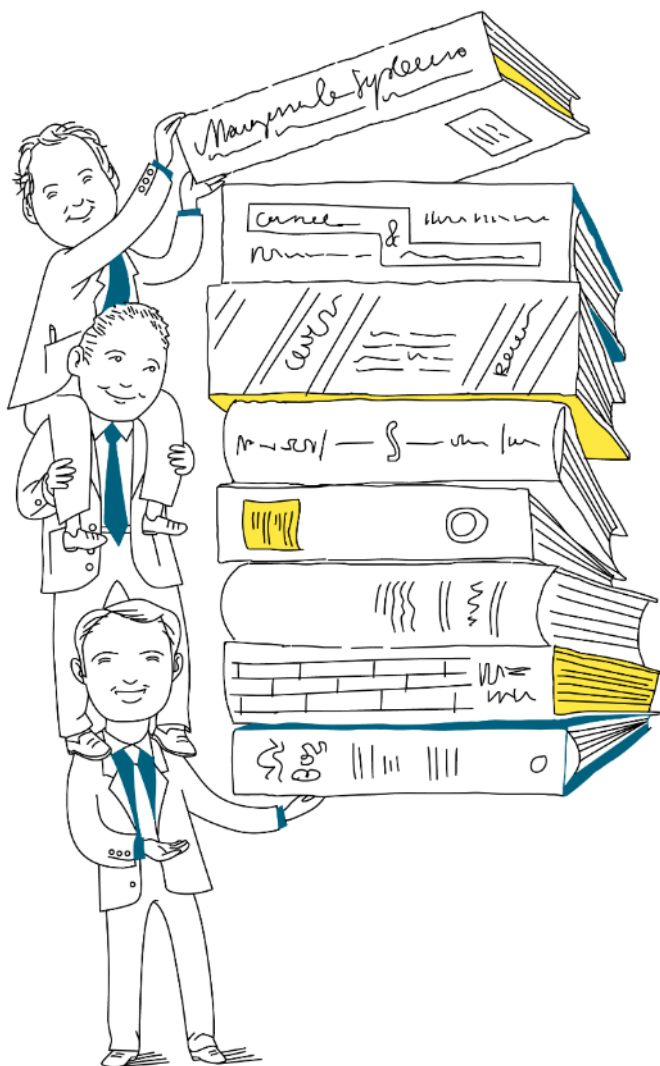


Corporate carbon footprint Scope 1&2

for Mikropakk Ltd.





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1. Executive summary

Mikropakk places great emphasis on environmental sustainability issues, and therefore asked denkstatt Hungary Kft. to calculate the carbon footprint of its activities.

During the project, we have determined the direct greenhouse gas (GHG) emissions (Scope 1) of Mikropakk from its own activities (which they directly influence) and the indirect emissions (Scope 2) from purchased energy for the year 2021. The calculations were performed following the GHG Protocol guidelines.

Based on the calculations, in 2021, the **direct emissions** from the activities of Mikropakk (**Scope 1**) were **192.08 tonnes of CO₂ eq**, the **indirect emissions from purchased energy (Scope 2)** were **2876.68 tonnes of CO₂ eq**, while considering indirect emissions related to the whole value chain operation, the **total GHG emissions from Scopes 1 and 2 were 3068.76 tonnes of CO₂ eq**. In the light of the results, the largest part of the carbon footprint, 93.74%, is due to indirect emissions (Scope 2).

2. Introduction

Nowadays, there are increasingly strong societal expectations regarding sustainability and political and legal regulations, directives (e.g. European Green Deal, EU Taxonomy) that aim to achieve this. As a result of these increasing expectations, it is essential for a responsible company to focus on sustainability aspects, and one of the first steps is to address its own greenhouse gas emissions and plan its future strategy accordingly.

Mikropakk has taken the first step on this path: contracting denkstatt, to determine their carbon footprint from their own emissions. The current objective of Mikropakk is to understand the magnitude of its carbon footprint in 2021, which can serve as a basis for defining a GHG emission reduction strategy.

3. Calculation and estimation process, methodology

In the calculation of the carbon footprint of Mikropakk, we determined the GHG emissions from its own activities (Scope 1), and the emissions from purchased energy (Scope 2). The data used for the calculation are for the calendar year 2021 and include emissions related to the operation of Mikropakk at Jászberényi út 82, Budapest, and Salgótarján sites.

Footprint calculation period: 01.01.2021- 31.12.2021

The carbon footprint was determined based on the Greenhouse Gas Protocol standards (Corporate Standard).

For the footprint calculation, we have considered the carbon sources recommended by the GHG Protocol, which are shown in Table 1. Company-specific activity data were provided by Mikropakk. For the calculation, the emission factors that best approximate reality were used from international databases (DEFRA¹ , National Inventory Report (Hungary), International Energy Agency).

The carbon sources considered and the uncertainty in the calculation are summarised in the following table:

Table 1. Carbon sources considered in the calculation and their associated uncertainty levels

Scope	Carbon source name	Level of uncertainty
Scope I	<ul style="list-style-type: none"> Energy sources burnt locally by the company Refrigerants leaked during operation Emissions from the use of vehicles owned or operated by the company, including on-site material handling 	low
Scope II	<ul style="list-style-type: none"> Electricity purchased by the company 	low

¹ Department for Environment Food & Rural Affairs, Department for Business, Energy & Industrial Strategy - UK Government GHG Conversion Factors for Company Reporting

4. Results

4.1. Presentation of the results

The results are reported in tonnes of carbon dioxide equivalent (CO₂ eq), which is one metric tonne of carbon dioxide (CO₂), or an amount of greenhouse gas ((carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆)) with a global warming potential equivalent to the former.

The magnitude and percentage distribution of the carbon footprints determined for the activities considered in the calculations are shown in the following table.

Table 2. Magnitude and distribution of the carbon footprint in 2021

Scope	Category	Emissions (t CO ₂ eq) 2021	%
Sc1	Locally burnt energy sources	0,77	0,02%
Sc1	Use of air conditioning fluids, refrigerants	111,15	3,62%
Sc1	Vehicles owned or operated by a company	61,21	1,99%
Sc1	Material handling on site	18,95	0,62%
Sc2	Purchased energy	2876,68	93,74%
	Total	3068,76	100,00%

The results for 2021 are illustrated in the figure below:

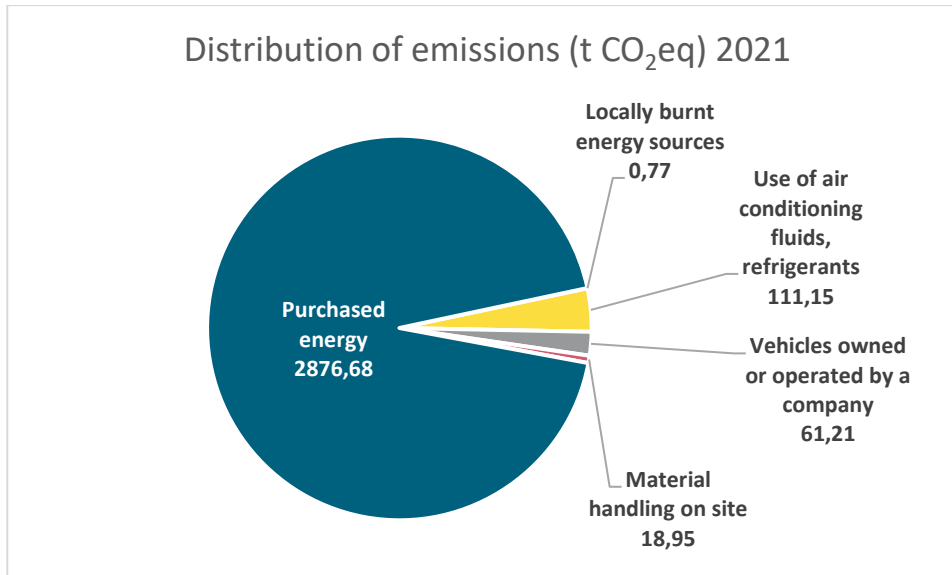


Figure 1. Distribution of the 2021 corporate carbon footprint of Mikropakk by category (tonnes CO₂ eq)

4.2. Interpretation and analysis of results

Mikropakk's total carbon footprint for 2021, including indirect emissions was **3068,76 tonnes CO₂ eq.**

**Direct release
(Scope 1):
192.08 t CO₂ eq (~6.26%)**

Direct emissions, i.e., Scope 1 emissions over which the company has more influence, **amounted to only 192.08 tonnes CO₂ eq in 2021.** This is about 0.43% of the result considering all direct and indirect emissions along the value chain. The source of this is mainly the leakage of air conditioning fluids used in Mikropakk's plants and emissions from vehicles owned or operated by Mikropakk. The company has eliminated its gas boiler from the Budapest site earlier.

**Indirect emissions
(Scope 2): 2 876.68 t CO₂
eq (~93.74%)**

A significant share of the GHG emissions associated with Mikropakk's 2021 operations **were caused by indirect emissions**, i.e., emissions over which the company has only indirect control. Of these, Scope 2 emissions in 2021 **amounted to 2,876.68 tonnes of CO₂ eq.**

4.3. The results by site

Mikropakk's carbon footprint for 2021 was split between two sites, one in Budapest and one in Salgótarján. The distribution of emissions between the sites is shown in the table below:

Table 3: Breakdown of emissions from Mikropakk between the two sites

Scope	Category	Budapest (t CO ₂ eq) 2021	Salgótarján (t CO ₂ eq) 2021
Sc1	Locally burnt energy sources	0.00	0.77
Sc1	Use of air conditioning fluids, refrigerants	31.32	79.83
Sc1	Vehicles owned or operated by a company	50.33	10.89
Sc1	Material handling on site	8.20	10.75
Sc2	Purchased energy	938.46	1938.23
	Total	1028,30	2040,46

As the emission data for the individual sites show, most **of the company's total emissions** (3068.76 t CO₂ eq), **66.49%** (2040.46 t CO₂ eq), **are generated at the Salgótarján plant.** As with the company's aggregated emissions, **the largest share of the total emissions is from purchased energy.**

A smaller part of the carbon footprint is accounted for by Mikropakk's Budapest site (33.51%). **Emissions from purchased electricity is also the main source (91.26%).** The distribution of Mikropakk's emissions by site is illustrated in the figure below:

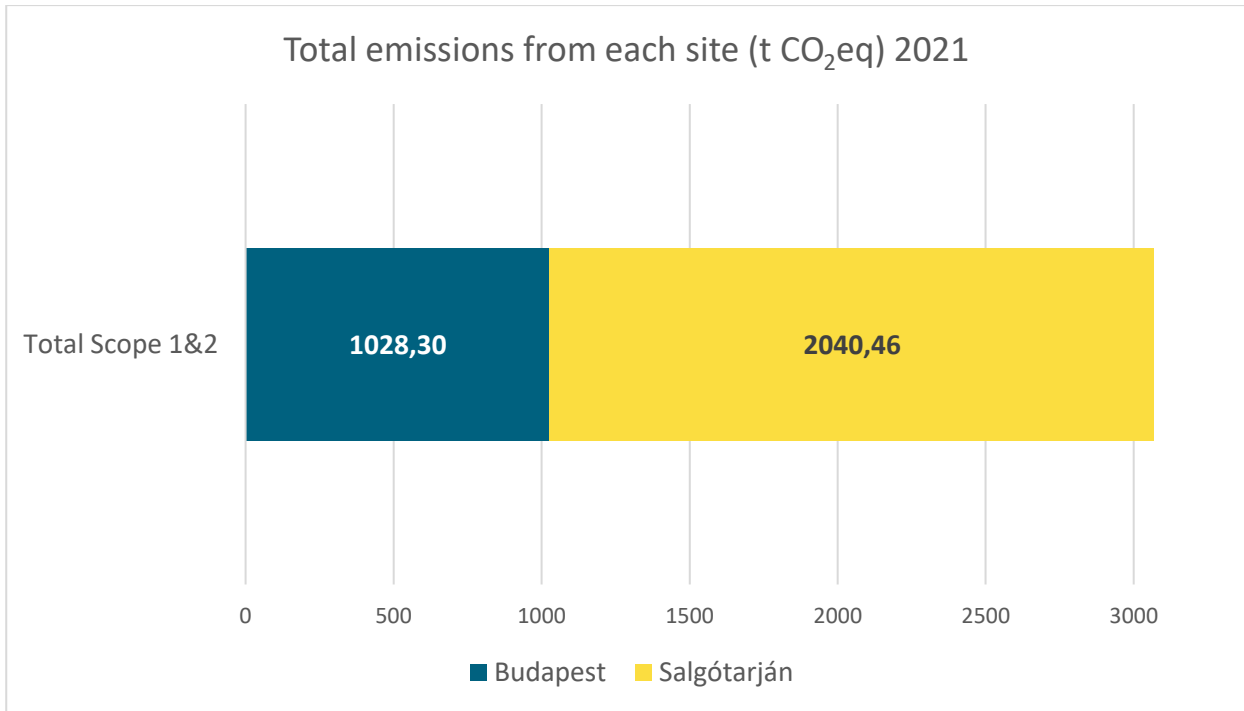


Figure 2: Comparison of emissions from the two sites

5. Annexes

5.1. Key data, descriptive information (as required by the Greenhouse Gas Protocol)

Type of information	Information
The name of Mikropakk	Mikropakk Plastic and Metal Processing Ltd.
A brief introduction to Mikropakk	<p>MIKROPAKK is a Hungarian manufacturer of injection moulded and injection blow moulded plastic closures and packaging systems. They are a well-established family business with more than 30 years of experience. MIKROPAKK SILVER, our state-of-the-art plant in Budapest, currently boasts a team of more than 170 people, producing more than 500 million pieces per year. MIKROPAKK BLACK is our second plant, located in Northern Hungary. This production unit with nearly 90 employees produces more than 850 million injection moulded plastic parts per year. They develop and manufacture to ISO 9001 and ISO 14001 standards 2015.</p> <p>While they are an expert partner for packaging systems for the pharmaceutical, cosmetics, food and household industries, they also develop and offer complex technical solutions for companies in the aerosol, construction and electronics segments.</p>
The consolidation approach chosen	operational control
Description of the business lines and activities within the organisational boundaries of Mikropakk	This carbon footprint covers all activities of Mikropakk Ltd. including the Budapest and Salgótarján sites.
The reporting period	2021.01.01.-2021.12.31.
List of Scope 3 activities included in the report	Irrelevant - excluded

Type of information	Information
List of Scope 1, 2 and 3 activities not included in the report or calculation, together with the reasons for their exclusion.	Scope 3 – client was asking for scope 1 and 2 calculation
The year chosen as the base year and the justification for the choice of the base year	irrelevant
Once the base year is defined, the emissions recalculation policy for the selected base year. If the base year emissions have been recalculated, a description of the background of the significant emission changes that triggered the recalculation	irrelevant

5.2. Description of methods and data used

Scope	Methods used to calculate or measure emissions, with reference to the calculation tools used
Scope 1	Scope 1 emissions include energy sources (natural gas) burnt on site at the Mikropakk site, vehicles owned and operated by the company and refrigerants leaked. The amount of natural gas burnt is broken down by month, while the consumption of cars and climate leaks are aggregated for the whole year 2021. Sources for emission factors are the National Inventory Report (Hungary), Ecoinvent and Defra databases.
Scope 2	The Scope 2 emissions activity data (primary data) includes the electricity purchased by Mikropakk, which is read from meters. The emission factor is a field factor based on the International Energy Agency (IEA) Hungarian energy mix.

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Environmental due-diligence related to the sale and purchase



Sustainable buildings (BREEAM, LEED) and urban development

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