# Corporate Carbon Footprint

Covering the initial period: June 2022- December 2022

# Introduction

MDC2 is committed to leading the change in the Polish warehousing market. With a strong commitment to sustainability and Environment, Social and Governance (ESG), the company is setting the standards in terms of client focused design and delivery.

Transparency is core to the culture and leadership ethos of MDC2. This document presents the findings of an initial baselining exercise covering the Greenhouse Gas (GHG) emissions of the organisation. It covers the first six months of active trading, during a year that was curtailed by the consequences of the Covid19 pandemic. The first full year report will cover the calendar year 2023 which is also in line with the financial reporting period for the company.

This exercise covers only the corporate activities of MDC2 and does not currently include the footprint of schemes that are under development or in design. This is due to a combination of development phase and the unavailability of data; issues that will be addressed in the forthcoming full year report.

This document is supported by a number of spreadsheets, most of which are directly appended. A separate spreadsheet covers the data relating to corporate air travel.

# Carbon baseline assessment scope

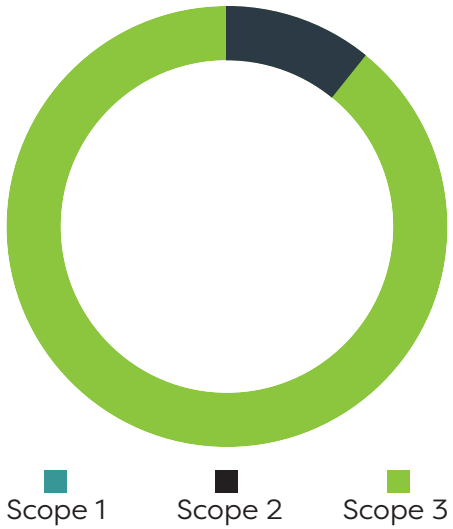
When establishing a carbon footprint for an organisation, it is important to group GHG emissions into their appropriate 'scopes'. Scopes create categories of emissions, and this helps us understand which activities contribute to impacts of the organisation. As is standard and to allow for consistency, this assessment reports on the basis of carbon dioxide equivalent or C02e.

There are three scopes and the emissions relating to MDC2 are set out to the right of this page.

Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the purchase and use of electricity, steam, heating and cooling. By using the energy, an organisation is indirectly responsible for the release of these GHG emissions. Scope 3 includes all other indirect emissions that occur in the upstream and downstream activities of an organisation.

**MDC2 Emissions by Scope**

| **Scope 1:** | **Scope 2:** | **Scope 3:** |
|---|---|---|
| Air conditioning | Electricity | Water consumption |
| Refrigeration | Heating & cooling | Employee commuting |
| | | Business travel |
| | | Waste |




**Carbon footprint overview**

| | |
|---|---|
| Scope 1 | 0.00 t.CO2e |
| Scope 2 | 5.98 t.CO2e |
| Scope 3 | 51.91 t.CO2e |
| **Total:** | **57.9 t.CO2e** |

The findings of this initial baselining exercise are that the majority of emissions are Scope 3 and derive from travel. Since this footprint covers only the operations of a modern, serviced office in the centre of Warsaw, this is in line with expectation. Scope 1 emissions relate only to refrigeration and are so limited as not to feature in this summary. Scope 2 emission pertain to the electricity and heat purchased from the network, noting that Polish electricity and heating grids are significantly more carbon intensive than the European average due to a high dependency on low quality coal.

# Operational CARBON FOOTPRINT

# Scope 1: fugitive emissions

## Air Conditioning

| | |
|---|---|
| Equipment Charge capacity kg | 0.102 |
| est. annual leakage rate | 3% |
| Refrigerant R134a | 1430 |
| kgCO2e | 2.1879 |
| t.CO2e | 0.0022 |
| % tenant share | 0.0002 |

The source of cooling in the building is a 2-circuit chiller with screw compressors type FRIGO CREW CLA 410 V2 manufactured by RC GROUP SpA. It is installed in the technical room - refrigeration engine room on level -3 (entrance to the room through the garage). The chiller contains 102kg of R134a refrigerant.
**Tenants Manual**

## Refrigeration

| Refrigerant type | Emission factor kg CO2e/ unit | Estimated annual leakage | kg CO2e (6 months) |
|---|---|---|---|
| R600a (Isobutane) | 3 | 0.000156 | 0.000234 |

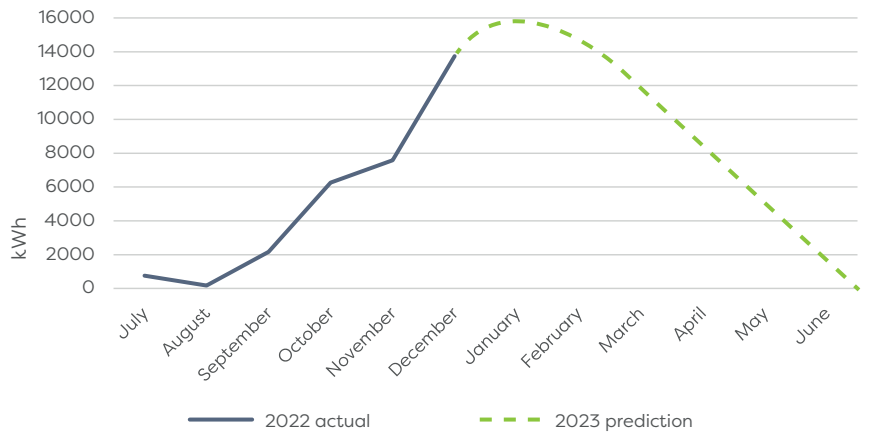

Fugitive emissions are the escapes of gas from industrial process, cooling systems and similar. Gases used for refrigeration (often called F-Gases) are particularly potent in terms of their global warming potential and, as such, it is important to include them. Where there has been no recorded leak or issue with equipment, an estimated 'fugitive' loss of gas is used, although this is typically a very low figure.

| Heating (kWh) | Emission Factor | kg CO2e | t.CO2e |
|---|---|---|---|
| 30669.7 | 0.17073 | 5236.24 | maj.24 |

| Electricity Consumption (kWh) | Emissions factor | kgCO2e | t.CO2e |
|---|---|---|---|
| 3841.4 | 0.19338 | 742.85 | 0.74 |

Here we see the impact of energy consumption for lighting, printing and other office based requirements alongside the heat procured from the Warsaw district heating system. The conversion factor used for heating is derived from generic European data, although this may be amended once system specific data has been calculated. The probability is that this will increase the carbon intensivity of heating for the 2023 footprint.

**Seasonal changes in heating kWh consumption**

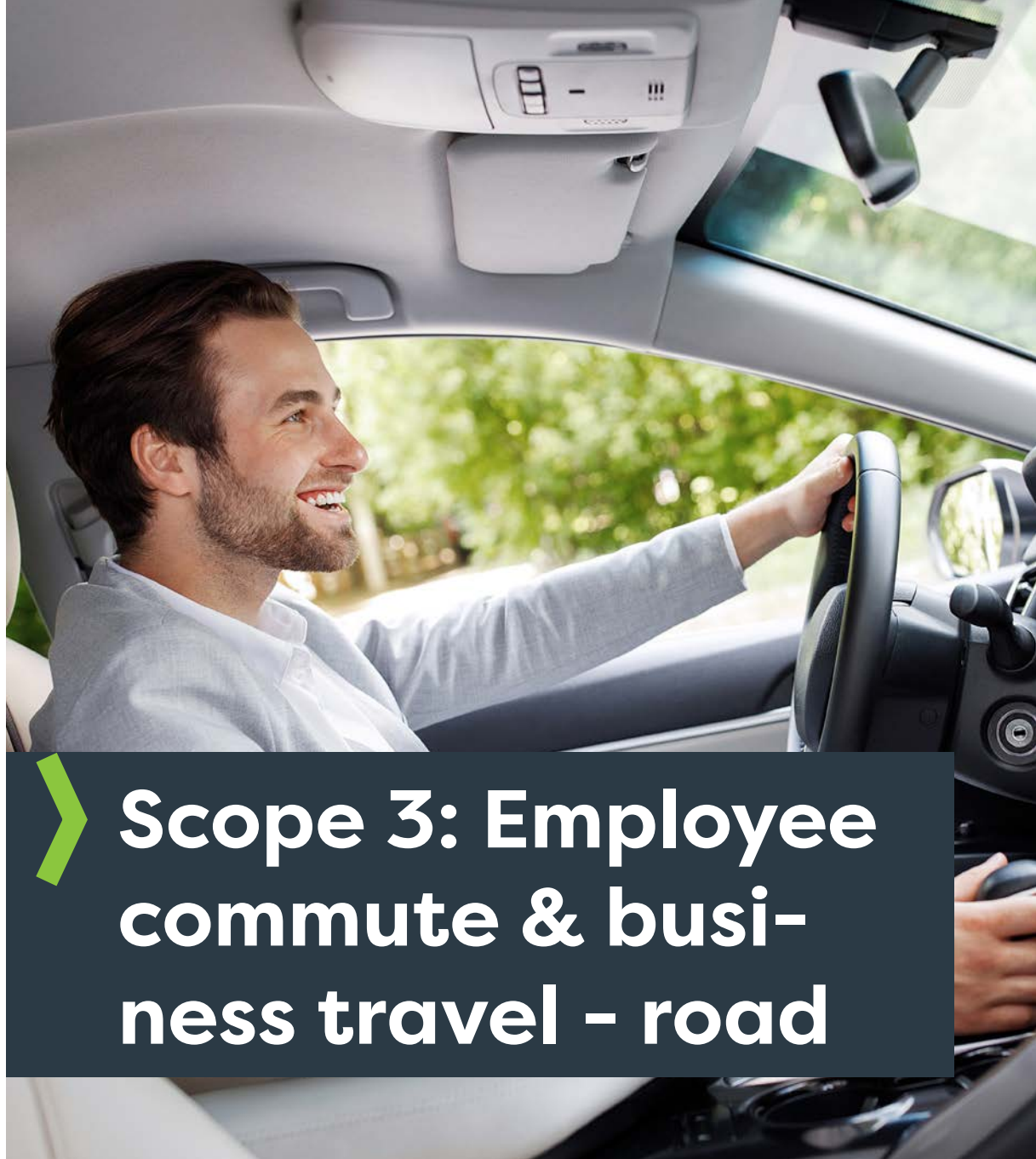



| Engine size | Mileage | Fuel type | number of km per month (business trips + commuting) | Emissions Factor (kg-CO2e/km) | kg CO2e |
|---|---|---|---|---|---|
| 3000 cm3 | 91000 | diesel | 2640 | 0.20953414 | 553.17013 |
| 2997 cm3 | 39 | diesel | 3000 | 0.20953414 | 628.60242 |
| 2987 cm3 | 117000 | diesel | 2500-3000 | 0.20953414 | 576.218885 |
| 1968 cm3 | 97500 | diesel | 2250 | 0.22514 | 506.565 |
| 2925 cm3 | 28000 | diesel | 3000 | 0.20953414 | 628.60242 |
| 2000 cm3 | 142000 | petrol | 2500 | 0.27639 | 690.975 |
| 2000 cm3 | 43000 | diesel | 2000-2500 | 0.20953414 | 471.451815 |
| 2998 cm3 | 107000 | petrol | 2000-3000 | 0.27639 | 690.975 |
| 1400 cm3 | 110000 | petrol | 720 | 0.1847 | 132.984 |
| 2000 cm3 | 31000 | diesel | 1500 | 0.20953414 | 314.30121 |
| 2995 cm3 | 20000 | petrol | 250 | 0.27639 | 69.0975 |
| 2000 cm3 | 55000 | petrol | 3900 | 0.27639 | 1077.921 |
| 2000 cm3 | 95000 | Benzyna | 600 | 0.2668 | 160.08 |
| 2000cm3 | 72000 | diesel | 130 | 0.20953414 | 27.2394382 |

| | |
|---|---|
| kgCO2e | 6528.18 |
| kgCO2e/ 6 month | 39169.10 |
| t.CO2e | 39.17 |

With a small but active team, The carbon footprint of MDC2 has a significant contribution from road transport. Because of the commitment to transparency, we have chosen to include the carbon associated with employee commuting since this provides a more complete picture of the organisation's impacts.

The average distance travelled per month in employee- owned cars is 1,850km. The carbon intensively of this travel is somewhat higher than would typically be expected due to the significant majority of vehicles having a large engine size (2000 cm3 or above).



# Scope 3: Employee commute & busi-ness travel - road

# Scope 3: business travel – flights & train

Flights: 9.22 t.CO2e
Train: 0.03 t.CO2e

Here we see the relative impact of flights and train travel.  During the six months, the amount of travel done by train was very limited although there were a significant number of short haul flights, primarily associated with the commuting of two Directors.  We have used standard conversion factors as provided by UK Defra for consistency and clarity.

# Scope 3: Employee commute - train

| Employee commute direction | km/week | Distance travelled (km) / month | Emissions factor | kgCO2e |
|---|---|---|---|---|
| Pilawa->Warszawa->Pilawa | every day 5x week x 120km = 600 | 4800 | 0.00446 | 21.kwi |
| Kraków->Warszawa->Kraków | 1x week x 293 km | 2344 | 0.00446 | 10.maj |
| Kraków->Warszawa->Kraków | 1x week x 293 km | 2344 | 0.00446 | 10.maj |
| | | | Total kg CO2e | 253.9 |
| | | | Total t.CO2e | 0.3 |

# Scope 3: waste

The issue of waste is one that will be addressed during the full year (2023) footprint. The figure reported for the first six months is derived from landlord data and is volumetric rather than weight based. The volume ascribed to MDC2 seems significantly higher than would have been expected and the conversion factor is 'notional' so this minor contribution to the overall footprint should be treated with a low level of confidence.

**Volume of waste based on tenants share***


Paper
Waste (non-recyclabe)
Green
Waste (recyclabe)
Waste (glass)
Food

# Observations & key findings

- This initial baseline covers the first six months of operations and is restricted to the ‘corporate’ centre.  It is does not account for the development sites where the most significant impacts will be associated. This is to be addressed in subsequent full year foot printing exercises.
- Scope 1 emissions are marginal and include fugitive emissions from air conditioning and an office fridge. There is no consumption of fuel in the shared office building and the company does not have a fleet of owned or leased vehicles.
- Scope 2 emissions include the consumption of electricity and emissions from heating and cooling.
- Scope 3 emissions contribute more than 85% to the overall corporate carbon footprint. Employee commuting is the greatest contributor within this Scope, followed by business travel. Work from home emissions have been calculated and included with Employee Commuting category.
- Emissions from waste require further definition due to conversion from volume to mass to CO2e

# Next Steps - Governance

MDC2 recognises that ESG excellence is built on good governance, hence the intention to adopt a governance first strategy. During the 2023 reporting period, the suite of policies, procedures and protocols applying to environment, social and wider governance will be reviewed and, where appropriate evolved. This will be structured around three phases of work, being:

1. A review of the existing governance structure and an associated gap analysis based on the context and materiality of MDC2 operations
2. The evolution of an appropriate suite of policies, procedures and protocols to ensure the MDC2 brand commitment is woven into the fabric of the organisation
3. A roll out process to support current and future colleagues in their understanding and implantation of the policies to support our transparent commitment to deliver on promises to clients and other stakeholders.

# Next steps – Including the developments


The primary purpose of MDC2 is to develop warehousing and logistics centres to the highest standardds on behalf of current and future clients. The impact of these developments are material to the overall footprint of the organisation and the process of data capture is underway to ensure that the full year 2023 footprint reflects this area of activity. Some of this data already exists as a consequence of the BREEAM process and related permitting. Other data will be sourced from contractors and suppliers and, as such, it is anticipated that data quality will improve over the 2023 – 2025 reporting periods.

# Appendicies: Supporting Data

## Summary June to Dec 2022

| | |
|---|---|
| Scope 1 | 0,0 |
| Scope 2 | 5,98 |
| Scope 3 | 51,91 |
| Total | 57,9 |
| | |
| **Scope 1** | 0,00 |
| Refrigerant emissions | 0,00 |
| A/C | |
| | |
| | |
| Total | |
| | |
| **Scope 2** | 0,74 |
| Electricity | 5,24 |
| Heating | |
| Cooling | |
| | |
| | |
| **Scope 3** | |
| | |
| **Goods and Services** | 0,00 |
| Water consumption | |
| | |

| | |
|---|---|
| **Waste** | 0,00 |
| Wastewater | 0,54 |
| Office waste | |
| | |
| **Business travel** | 9,22 |
| Flights | 0,03 |
| Train | |
| | |
| | |
| **Employee Commuting** | 39,17 |
| Car | 0,25 |
| Train | 1,37 |
| WFH | |
| | |
| **Fuel and energy related activities not included in Scope 1 or Scope 2** | |
| | 1,32 |
| Business Travel WTT - Air | 0,01 |
| Business Travel WTT - Rail | 0,01 |

## Fuel & Fugitive

| Node | Dataso-urce | Activity Name | liter/m3 | June 2022 | July 2022 | August 2022 | Septem-ber 2022 | October 2022 | November 2022 | December 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | Fuel - Natural Gas | Fuel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Warsaw | Fugitives | Fugitives | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Link: RTV EURO AGD - sklep internetowy

### Domestic Fridge

| | | | |
|---|---|---|---|
| Equipment charge capacity kg | | 0,052 | |
| Est.annual leakage rate | | 0,30% | |
| | | | |
| Estimated annual leakage (kg) | | 0,000156 | 0,000234 |
| | | | |
| Refrigerant | | R600A | |
| 600A Isobutane | No emissions factor available "Zero ozone depleting and very low GWP" | | |
| Emissions including only non-Kyoto Products (kgCO2e per unit) | | 3 | |
| t.CO2e | | 0 | |

Equipment charge capacity: defined as mass of refrige-rant used in refrigerator

Time used during reporting period (years)

Annual leakage rate %

GWP of refrigerant

**4.2 REFRIGERATION ENGINE ROOM**
The source of cooling in the building is a 2-circuit chiller with screw compressors type FRIGO CREW CLA 410 V2 manufactured by RC GROUP SpA. It is installed in the technical room - refrigeration engine room on level -3 (entrance to the room through the garage). The chiller contains 102kg of R134a refrigerant.

### Number of units* equipment charge capa-city* time used in reporting period* annual leakage rate * GWP

| | |
|---|---|
| **Equipment Charge capacity kg** | 0,102 |
| | |
| **est. annual leakage rate** | 3% |
| | |
| **Refrigerant R134a** | 1430 |
| | |
| **kgCO2e** | 2,1879 |
| **t.CO2e** | 0,0022 |
| **% tenant share** | 0,0002 |

## Heat

| Date | Warm (GJ) | CO+ventilation (MW) | net amount in PLN | gross amount in PLN |
|---|---|---|---|---|
| July | 2,72 | 0,1030 | 426,21 | 447,52 |
| August | 0,61 | 0,1030 | 361,44 | 379,51 |
| September | 7,8 | 0,1030 | 583,25 | 612,42 |
| October | 22,54 | 0,2061 | 1048,26 | 1100,67 |
| November | 27,29 | 0,1545 | 1212,15 | 1272,76 |
| December | 49,45 | 0,1030 | 2378,18 | 2 497,09 |
| **Total** | **110,41** | **0,7726** | **6009,49** | **6309,97** |

Heating company : VEOLIA Energia Warszawa S.A.

## GHG Protocol methodology heating and cooling

| Emissions factor | kgco2e/kwh |
|---|---|
| District Heat and Steam | 0,17073 |
| | |
| 1 GJ: kWh | 277,78 |
| | |
| kwh for heating | 30669,44444 |
| | |
| kg co2e | 5236,19425 |
| t.CO2e | 5,23619425 |

## Electricity

| Month | Consumption(kWh) | net amount in PLN | EURO amount |
|---|---|---|---|
| June | 175,7 | 105,04 | 114,6 |
| July | 310 | 143,07 | 150,21 |
| Agust | 175,7 | 105,04 | 114,6 |
| Agust for the common part | 390 | 212,28 | 228,71 |
| September | 500 | 307,45 | 336,63 |
| October | 570 | 349,42 | 382,43 |
| October for the common part | 390 | 212,28 | 228,71 |
| November | 650 | 403,85 | 442,74 |
| December | 680 | 419,83 | 459,9 |
| | | | |
| **Total:** | **3841,4** | **2258,26** | **6099,66** |

Company: ENEA S.A.

| UK Emissions Factor | kgCO2e/kwh |
|---|---|
| | 0,19338 |
| | |
| kgCO2e | 742,849932 |
| t.CO2e | 0,742849932 |
| June to Dec'22 | |

## Waste & Water

| Node | Data-source | Activity Name | liter/m3 | June 2022 | July 2022 | August 2022 | September 2022 | October 2022 | November 2022 | December 2022 | | TOTAL | Conversion | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warsaw | Paper | Paper Consumption | l | 2 725,25 | 2 398,22 | 2 943,27 | 2 725,25 | 2 725,25 | 2 943,27 | 3 052,28 | based on the tenant's share | **19 512,79** | 1 L = 1.2 kg | 23415,348 |
| Warsaw | Waste | Waste (Non-recyclable) | l | 3 161,29 | 3 270,30 | 3 270,30 | 2 943,27 | 3 379,31 | 3 052,28 | 2 834,26 | based on the tenant's share | **21 911,01** | 1 L =0.48 kg | 10517,2848 |
| Warsaw | k | Green | l | 35,68 | 0,00 | 0,00 | 11,89 | 23,78 | 11,89 | 763,07 | based on the tenant's share | **846,314** | 1 L =0.033 kg | 27,928362 |
| Warsaw | Waste | Waste (Recyclable) | l | 1 090,10 | 1 308,12 | 763,07 | 1 090,10 | 654,06 | 436,04 | 0,00 | based on the tenant's share | **5341,49** | 1L = 0.027kg | 144,22023 |
| Warsaw | Waste | Waste (Glass) | l | 309,19 | 237,84 | 309,19 | 237,84 | 356,76 | 214,06 | 1 199,11 | based on the tenant's share | **2863,99** | 1L =0.25 kg | 715,9975 |
| Warsaw | Waste | Food | l | 11,89 | 11,89 | 11,89 | 11,89 | 35,68 | 11,89 | 23,78 | based on the tenant's share | **118,92** | 1L =0.25 kg | 29,73 |
| Warsaw | Water | Water | m3 | 13,51 | 11,51 | 9,13 | 16,09 | 13,47 | 12,43 | 10,80 | based on the tenant's share | **86,93** | m3 | 86,93 |

Waste company : BYŚ
Water & sewerage company: Miejskie Przedsiębiorstwo Wodociągów i Kanalizacji

Landfills remain the predominant waste management method in Poland, with over 60% of waste destined for one of the country's 800 landfills.

| Emissions factors | t.CO2e | Assumptions |
|---|---|---|
| 21,2801938 | 0,0494 | Assumed recycled |
| 467,0083844 | 0,4867 | Assumed landfill |
| 587,325666 | 0,0016 | Green (foodwaste & garden waste EF) landfill |
| 21,2801938 | 0,0003 | Assumed recycled |
| 21,2801938 | 0,0015 | Assumed recycled |
| 587,325666 | 0,0017 | Assumed landfill |
| **Total (t.CO2e)** | **0,541295414** | |

| | m3 | emissions factor | kgCO2e | t.CO2e |
|---|---|---|---|---|
| Water consumption | 8,614814532 | 0,149 | 1,283607365 | 0,001283607 |
| Water treatment | 8,184073805 | 0,272 | 2,226068075 | 0,002226068 |

https://www.trade.gov/country-commercial-guides/poland-environmental-technologies

# Contact details

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