CO_2-Footprint
Nagel Baustoff GmbH

Client: Nagel Baustoff GmbH
Name: Rolf Nagel

Jelmer Kort
De Duurzame Adviseurs

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de duurzame adviseurs

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1 | Introduction

This document presents the scope 1, 2 and 3 emissions of Nagel Baustoff GmbH. Preceding this is the CO_2-footprint in line with the ISO-14064-1 norms and the GHG-protocol.

Under the operational control approach, the following emissions are accounted for:

Scope 1: Direct GHG emissions: which account for emissions in the office and transport.

Scope 2: Energy indirect GHG emissions from operations over which the company has operational control, i.e: purchased electricity for the operation of all installed equipment.

Scope 3: Other indirect GHG emissions from the fuel that is consumed by hired or chartered boats and machinery.

1.1 Company description

Nagel Baustoff GmbH is a family-owned trading and shipping company which carries out transports along the Western European waterways especially the Mediterranean Sea, North Sea and Baltic Sea including inland waterways.

NAGEL Baustoff GmbH is direct importer of YALI® for the markets of the Netherlands and Federal Republic of Germany. Yali Trading & Shipping GmbH & Co. KG - a subsidiary of NAGEL Baustoff GmbH - delivers to markets of Malta, the United Arab Emirates and Qatar.

2 | CO_2-Footprint

The aim of this CO_2-footprint is to provide an overview of the CO_2-emissions resulting from the operations of Nagel Baustoff GmbH in 2019. The emissions for the office and transport have been calculated which account for scope 1 and 2 emissions. Alongside this, a calculation has been made of the external emissions caused by the collection and transport of pumice, this accounts for scope 3.

The underlying data and calculations can be found in the Excel document 'CO_2-Footprint & Progress'.

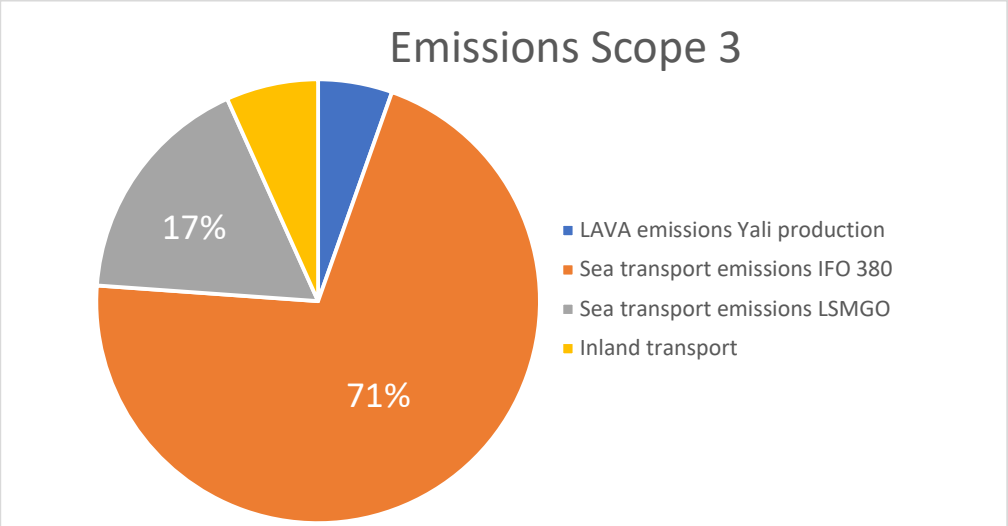
2.1 Control on inventory of emissions

An independent check of the emission-inventory has been conducted by a colleague of De Duurzame Adviseurs. This control had no corrections or changes as a result.

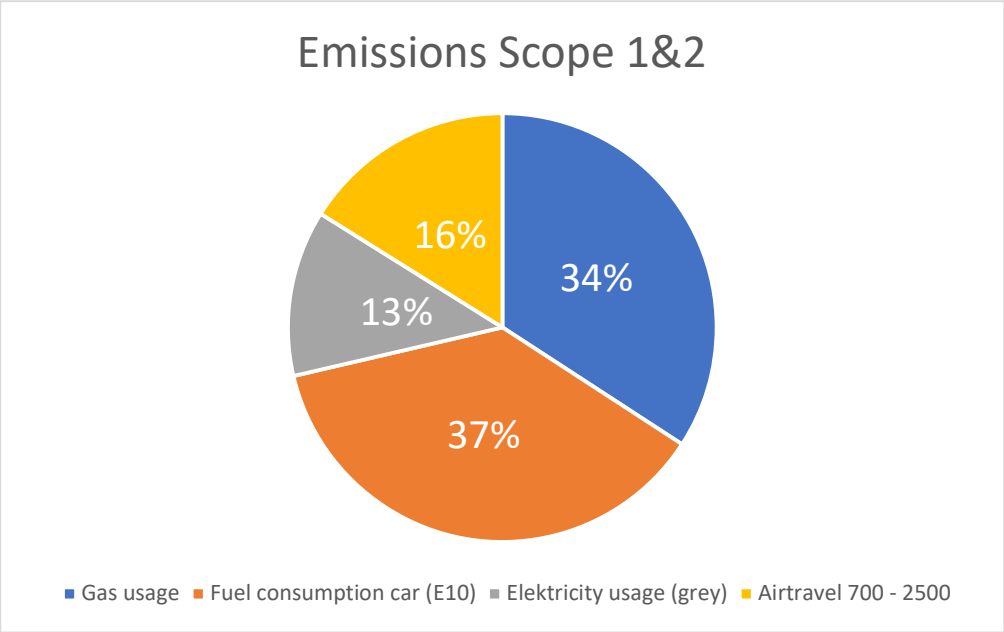
2.2 Identify the largest consumption sources

99% of the emissions fall under scope 3 emissions, they can be divided in:

- ✓ Production: 5,4%
- ✓ Sea transport: 87,8%
- ✓ Inland transport: 6,7%

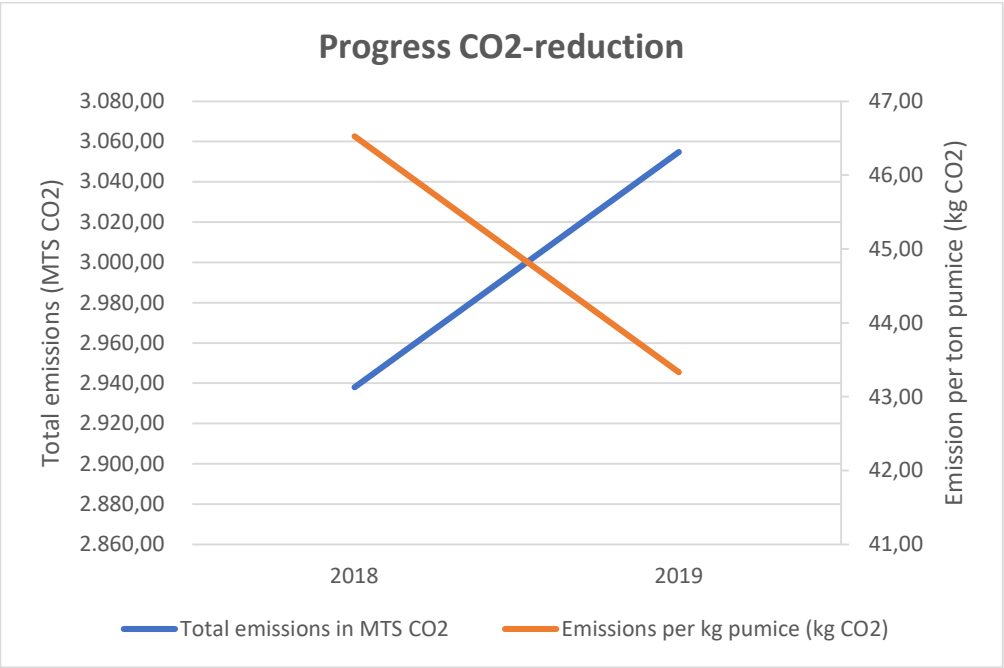


The scope 1&2 emissions are divided as follows:



2.3 Previous and future energy assessments

2019 is the second year that a CO2-footprint has been drawn up for Nagel Baustoff GmbH. This footprint can be compared to the previous year. A comparison between the footprint of 2018 and 2019 can be found in the figure below:



It can be observed that the total emissions have risen in in the past year. However, as the total amount of pumice transported also increased with 12%, the relative emission per ton of pumice decreased with 7%.

2.4 Potential improvements

Based on the findings of 2019 and the need for more detailed fuel data, a recommendation is made to acquire more information about the fuel usage

during sea transport. As this is the largest source of CO2-emissions, while also being the most uncertain source, there is a clear need for better insights.

2.5 Industry comparison

The data from this footprint can be compared with other companies operating in this industry. This can serve as a measure for Nagel Baustoff GmbH and its ambition to be competitive in this field based on CO_2-Emissions.

3 | Footprint calculations

3.1 Emission Factors

The emission factors of the CO_2-Performance ladder 3.0 have been used to assess the CO_2-emissions of Nagel Baustoff GmbH. As the emission factors are specifically calculated on a national level, the factors that have been used are very reliable for the conversion of the energy consumption into the related CO_2-emissions. The emission factors of Nagel Baustoff GmbH will adapt to all changes in future certification schemes or calculations. For the calculation of the CO_2-footprint for 2019 the emission factors of May 2020 have been used.

No "Removal factors" have been used.

3.2 Uncertainties

The presented results are an estimate of the actual values. Almost all the data used for the calculation of the CO_2 footprint is based on invoices or measured quantities. This keeps the uncertainty margin to minimum. However, there are opportunities for improvement. These are outlined below:

1. For two of the three sea transports there was no information on the fuel consumption, hence an estimation had to be made to determine the related emissions. This was based on the other sea transport and data from shipments in 2018 and 2020.

2. As IFO 380 and LSMGO are measured in metric tons and the conversion factor is linked to litres, a calculation had to be made. While the temperature has a big influence on the density of these fuels a temperature of 15° as baseline is used.

3.3 Exclusion

According to ISO 14064-1; direct or indirect CO_2 sources that are immaterial or whose quantification would not be technically feasible or cost effective, are excluded from quantification. For Nagel Baustoff GmbH this counts for the unloading of the ships in the harbour of Rotterdam. Some fuel is used in the process of unloading the ships, yet this amount is so small that it can be disregarded in the calculations.

Appendix

CO2-footprint 2019

Scope 1	amount	unit	conversion factor	ton CO_2
Gas usage	1.760	m3	1884	3,3
Fuel consumption car (E10)	1.290	litres	2800	3,6
			Total scope 1	**6,9**

Scope 2	amount	unit	conversion factor	ton CO_2
Elektricity usage (green)	4.194	kWh	0	-
Elektricity usage (grey)	2.187	kWh	556	1,2
Airtravel < 700	-	km's	297	-
Airtravel 700 - 2500	7.814	km's	200	1,6
Airtravel > 2500	-	km's	147	-
			Total scope 2	**2,8**

Scope 3	amount	unit	conversion factor	ton CO_2
LAVA emissions Yali production	70.500	ton	2340	165,0
Sea transport emissions IFO 380	651.438	litres	3310	2.156,3
Sea transport emissions LSMGO	149.794	litres	3490	522,8
Inland transport	204.738	CO2	1000	204,7
			Total scope 3	**3.048,7**

Total scope 1, 2 and 3	**3.058,5**

Average Emissions per ton Pumice (kg CO2)	**43,4**

Source conversion factors: www.co2emissiefactoren.nl from June 2020

Progress CO2-emissions

Scope 1	2018	2019
Gas usage	1,35	3,32
Fuel consumption car (E10)	1,68	3,61
Scope 2		
Elektricity usage (grey)	3,14	1,22
Elektricity usage (green)	-	-
Airtravel 700 - 2500	0,73	1,56
Scope 3		
LAVA emissions Yali production	135,14	164,97
Sea transport emissions IFO 380	2.111,28	2.156,26
Sea transport emissions LSMGO	520,01	522,78
Inland transport	164,79	204,74
Total emissions in MTS CO2	**2.938,11**	**3.058,45**

Total amount of pumice transported	63.150,00	70.500,00
Emissions per ton pumice (kg CO2)	46,53	43,38
Relative progress:	**100%**	**93%**

Colophon

Author(s)	Jelmer Kort
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Responsible manager	Rolf Nagel

Signature authorised responsible manager:
