



GREEN ACCOUNTING 2023



Table of contents

Table of contents	1
1 Boards statement	2
2 Auditor's statement	3
3 General information	4
3.1 About Málmaendurvinnslan ehf.	4
3.2 About the scrap reception and sorting centers of Málmaendurvinnslan 5	
3.2.1 Málmaendurvinnslan Mosfellsbæ	5
3.2.2 Málmaendurvinnslan Akranes	6
3.3 Period covered by green accounting	6
4 Environmental policy	7
5 Environmental aspects of Málmaendurvinnslan's activities	8
5.1 Sorted metals, energy and water use	8
5.1.1 Reception and sorting of metals	8
5.1.2 Energy and water	11
5.1.3 Materials and packaging	12
5.2 Emissions from operations	12
5.2.1 Wastes from Málmaendurvinnslan's operations	12
5.2.2 Noise	13
5.2.3 Emissions to drainage system	13
5.2.4 Air emissions	13
6 Environmental goals	15

1 Boards statement



This report details the most critical parts of Málmaendurvinnslan's impact on the environment. It details Málmaendurvinnslan's operations and sheds a light on how they affect the circularity of scrap metal. Energy use is quantified along with wastes, to support the calculation of the company's carbon footprint. For the time being waste is the only part of scope 3 carbon footprint which is calculated. Noise is also addressed. The members of Málmaendurvinnslan's board are Johan Bernardus Krommenhoek, Lutzen Brink and Högni Auðunsson.

Reykjavík 26th of April 2024

Johan Bernardus Krommenhoek

Lutzen Brink

Högni Auðunsson

Lutzen Brink
J.B. Krommenhoek
Högni Auðunsson

2 Auditor's statement

The green accounting is published by the management of Málmaendurvinnslan ehf.. The undersigned has audited the operations of Málmaendurvinnslan ehf., reviewed their financial data and based the company's green accounting for 2023 on the provided information in accordance with the regulation on green accounting nr. 851/2002.

Reykjavík, 26th of April 2024

ReSource International ehf.

Hafliði Eiríkur Guðmundsson

Hafliði Eiríkur Guðmundsson

Environmental consultant

3 General information

Málmaendurvinnslan ehf.
Flugumýri 12
270 Mosfellsbær
Phone number: +354 519 9819
Kennitala (ID number): 690519-0540

3.1 About Málmaendurvinnslan ehf.

The company was founded in 2019 by Högni Auðunsson, Bas Krommenhoek, Lützen Brink and Henry Oudshoorn. Högni Auðunsson had previous experience in scrap metal recycling in Iceland and knew the market well. In October 2021 the company moved its scrap collection and sorting center to Flugumýri 12, by the northern slope of Úlfarsfell in Mosfellsbær.

At the end of 2022, the company was owned 49% by Högni Auðunsson and 51% by Metal Investment Group B.V., the latter based in the Netherlands.

The company continued to grow in 2023. More machinery was added, along with more containers as the amount of metals which Málmaendurvinnslan was sorting, continued to increase. Málmaendurvinnslan's goal has been to acquire new machinery designed to have a minimal environmental impact using for example new sources of energy. However, due to the scarcity of new machinery, the company has usually resorted to buy older, used machinery instead.

The company ships scrap metal to Europe for recycling on a regular basis, both from the harbors in Akranes and Reykjavík. Non ferrous metals are exported to end users in the EU where the recyclables are used as a secondary raw material for the production of new metal. Steel scrap is shipped out to large export terminals in Europe, from where it is exported to steel plants and ends up in a

variety of steel products, for instance rebars. Steel scrap is also used as a secondary raw material.

3.2 About the scrap reception and sorting centers of Málmaendurvinnslan

Málmaendurvinnslan is based in Mosfellsbær and Akranes. The headquarters are located in Mosfellsbær along with the scrap reception and sorting center, while in Akranes, the scrap yard is part of the premises of Terra in the area.

3.2.1 Málmaendurvinnslan Mosfellsbæ

At Flugumýri, Málmaendurvinnslan have good facilities indoors for customers to dispose of scrap metal, which facilitates the customer's experience in the ever-changing weather. The scrap reception and sorting center has a certified scale with a maximum capacity of 8 tons.

Permit

In Mosfellsbær, Málmaendurvinnslan are authorised to receive and transport further waste. The permit was released by Heilbrigðisnefnd Garðabæjar, Hafnarfjarðar, Kópavogs,



Mosfellsbæjar og Seltjarnarness on the 9th of September 2021 and is valid till the 8th of September 2033.

3.2.2 Málmaendurvinnslan Akranes

Customers can also visit the scrap yard in Akranes which is within the operational area of another local waste management company called Terra umhverfisþjónusta hf. (Terra). The scrap yard has a weighbridge which ensures that trucks can register properly and unload metals.

Permit

The permit of Terra in Akranes was updated to encompass the operations of Málmaendurvinnslan within their facilities.

3.3 Period covered by green accounting

The green accounting (IS - „Grænt Bókhald“) presented in this document covers the period from 1st of January till the 31st of December 2023.



4 Environmental policy

Málmaendurvinnslan's environmental policy includes the following objectives:

- Minimize as much as possible negative environmental impacts of Málmaendurvinnslan on ecosystems, human health and finite resources.
- Improve positive environmental impacts of waste processing.
- Protect staff health, with a focus on environmental factors which can impact staff health.

Málmaendurvinnslan chooses yearly goals based on the environmental policy. These goals are stated at the end of this report.

5 Environmental aspects of Málmaendurvinnslan's activities

The green accounting of Málmaendurvinnslan reports on the most critical aspects of the company's interactions with the environment:

- Received and exported waste metals and car batteries
- Use of energy and water
- The company's waste (not bought or sold by company)
- Noise
- Emissions to drainage system
- Air emissions

No accidents or equipment failures happened in 2023 which caused excess emissions.

By sorting metals and exporting them to companies abroad capable of more refined sorting through economy of scale, Málmaendurvinnslan participate in lessening the need for mining. Málmaendurvinnslan is able to provide downstream statements (waste transfer notes) of metal streams, such as what kind of recycling or reuse they ended up being processed in.

Main adverse environmental impact of Málmaendurvinnslan's operations is its use of fossil fuels and the resulting carbon footprint, particle matter generation and other impacts on the

environment. Málmaendurvinnslan use diesel for trucks and heavy machinery, and gasoline for smaller company cars.

Some of the impact and resource consumption also comes from district heating. The company needs to keep the sorting center accessible by vehicles while simultaneously warm enough for the staff. This results in the use of a large amount of district heating water during the coldest months. Even though the district heating is about 2% of the carbon footprint of the company, geothermal water is becoming a scarce resource during winter in the southwest of Iceland and consumption should be kept in mind.

Waste fractions generated are also a contributor to the carbon footprint. Most of the waste is received alongside metals, but some of it stems directly from Málmaendurvinnslan's operations.

5.1 Sorted metals, energy and water use

The following pages contain information about received and exported metal wastes along with details on energy and water use.

5.1.1 Reception and sorting of metals

Málmaendurvinnslan received 8,820.2 tons of metals in 2023. The company hasn't processed hazardous waste so far, but plans to do so in 2024. For this reason, customers are required to make sure the metals they hand in do not include any hazardous materials. For instance, all oils must be emptied from transformers and other metal objects before they are handed in. If traces of hazardous material are left, they are emptied into an IBC.

Table 1. Received metals 2023 (thousand separator is „“, decimal separator is“.”)

	2023
	Amount (t)
Alloy wheels	37.4
Aluminum	230.3
Aluminum cables	34.6
Brass	51.9
Cables	151.9
Car batteries	75.5
Catalytic converters	1.8
Copper	60.1
Copper, millberry	33.9
Electric motors	96.1
Heat exchangers	16.1
Iron (from cars)	141.7
Iron (other sources)	7,454.8
Lead	13.1
Lead wheel weights	1.8
Mixed metals	102.5
Stainless steel	295.1
Other	21.7
Total:	8,820.2

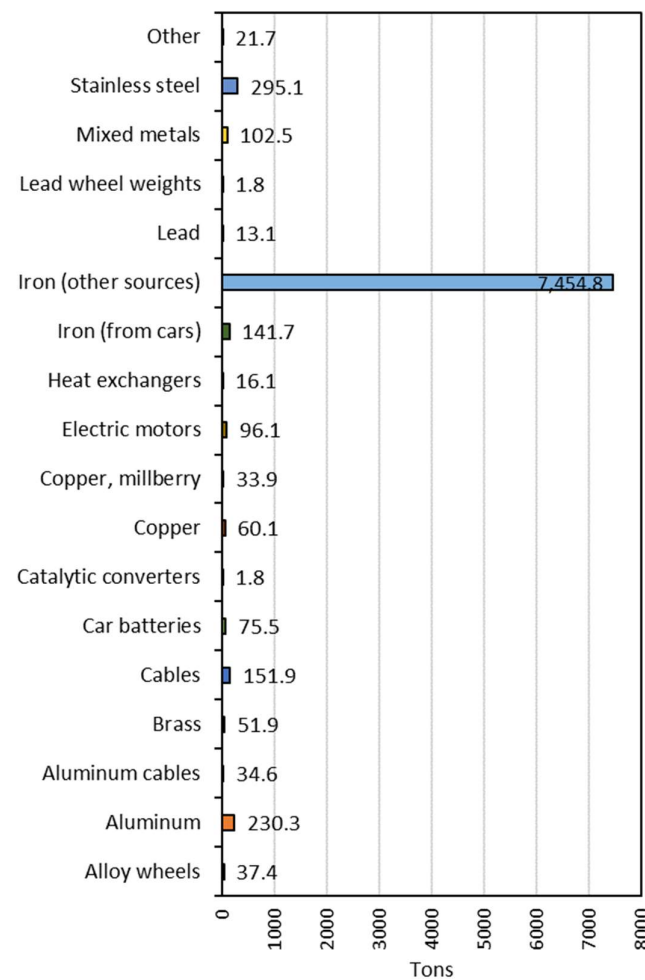


Figure 1. Received metals in 2023

The vast majority of metals which Málmaendurvinnslan receives are transported to Europe for recycling. Nonferrous metals are shipped abroad in open-top containers 1-2 times a week from the port of Reykjavík. Iron scrap is collected in the company's yard in Akranes and shipped out 3-4 times a year in bulk ships, with 1,700 to 3,300 ton loads at a time. As more tonnes of material are imported to Iceland than exported¹, Málmaendurvinnslan can easily find bulk ships which would have otherwise returned empty to Europe after having imported goods to Iceland. Málmaendurvinnslan hands in a certificate to their customers on request which specifies the exact use of the metal they disposed of. However, sometimes people have been allowed to buy metal straight from Málmaendurvinnslan, for instance artisans and artists which work with metals. The amount of metals which are sold this way is limited, mainly by lack of demand, but also to some extent by the aforementioned downstream statements (waste transfer notes). The downflow statements are still vital for ensuring that waste is processed appropriately. Tires and End of Life vehicles included in shipments of waste are sent for reuse or recycling in Iceland by certified waste processors.

Table 2. Export of metals 2023

	2023
	Amount (t)
Alloy wheels	22.7
Aluminum	320.6
Brass	55.0
Cables	125.7
Catalytic converters	2.4
Copper	102.8
Copper, millberry	17.8
Electric motors	101.4
Heat exchangers	14.3
Iron (from cars)	449.9
Iron (other sources)	8,202.7
Lead	15.4
Mixed metals	53.3
Stainless steel	331.5
Other	22.3
Total:	9,837.8

¹ Hagstofa Íslands, 'Material Flow: Material Flow Accounts (MFA)', Statistics Iceland, 19 June 2023,

<https://www.statice.is/statistics/environment/material-flow/material-flow-accounts>.

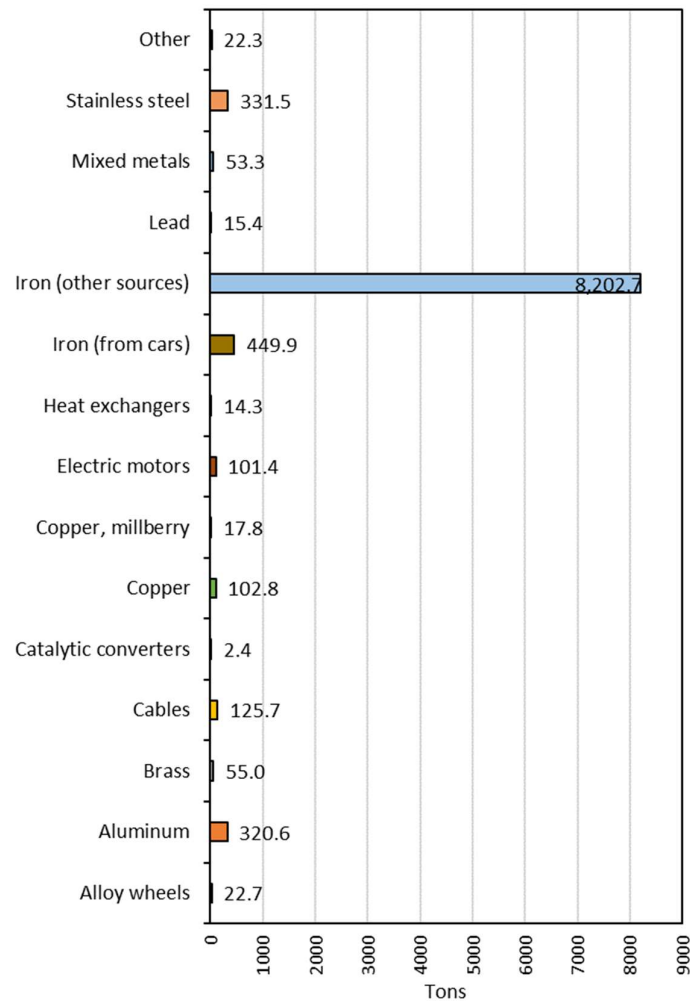


Figure 2 Exported metals 2023

5.1.2 Energy and water

Málmaendurvinnslan use the following energy sources:

- diesel for trucks, outdoor forklift, material handlers and hydraulic shears,
- gasoline for cars,
- propane in combination with oxygen for cutting torches,
- district heating (geothermal) to heat the premises in Mosfellsbær and
- electricity for hybrid cars, indoor forklifts and similar equipment, and for the office.

Málmaendurvinnslan uses cold water for it's office, as well as cleaning cars and equipment. The amount of cold water used was not known due to the type of rental contract Málmaendurvinnslan has, therefore, cold water use was estimated based on the cold water bills from their previous place. The estimate only uses price per m³, deliberately disregarding different parts of the set price per year and price per m². The amount of cold water is for this reason most likely overestimated.

Table 3. Energy and water use, 2023

Energy and water use	2023
	Amount
Electricity (kWst)	61,671
Warm water (m ³)	7,736
Cold water (m ³)	682
Gasoline (l)	1,546
Diesel, dyed (l)	1,402
Diesel (l)	55,995
Propane (kg)	154

5.1.3 [Materials and packaging](#)

The processing of the scrap metal requires cleaning agents for cleaning premises, auto-fluids and machinery fluids. The company opts for environmentally labelled options when available.

There's no real packaging used by Málmaendurvinnslan's export. They reuse IBCs from customers for their waste sorting, and the metals are exported in open-top containers.

5.2 Emissions from operations

5.2.1 [Wastes from Málmaendurvinnslan's operations](#)

All wastes from Málmaendurvinnslan's operations, that is other than metals sold, are sorted and removed by the waste management companies Íslenska gámafélagið and Sorpa. Much of the waste is transport packaging of metals received, such as wooden pallets.

About 20 tons of pallets and other untreated wood were sent to waste treatment.

The table below shows the wastes in order of amount of largest waste in each category.

Table 4. Waste in 2023

Wastes	2023
	Amount (t)
WOOD AND PAPER	
Wood, untreated	20.105
Paper and cardboard, mixed	0.680
WASTE FOR INCINERATION	
Mixed waste for incineration with energy recovery	3.855
Waste for incineration without energy recovery	0.752
E-WASTE	
Screens	0.185
Fridges	0.025
Small telecommunication devices	0.020
Batteries	0.005
OTHER	
Unsorted waste	2.315
Plastic, mixed packaging	0.240
Animal by-products	0.180
Contaminated liquid	0.169

Málmaendurvinnslan collect hazardous waste in a designated IBC. The company however didn't need to empty it in 2023 as not enough waste had been collected.

5.2.2 [Noise](#)

The health inspection measured the amount of noise from Málmaendurvinnslan's operations in Mosfellsbær. The noise was well below limits. Processing of metals is only done between 9 and 17 on weekdays and never during the weekends.

5.2.3 [Emissions to drainage system](#)

Málmaendurvinnslan ehf. have a grease trap in the premises in Mosfellsbær. The grease trap was emptied on the 13th of May by Skipaþjónusta Íslands.

5.2.4 [Air emissions](#)

Table 5 shows the carbon footprint of Málmaendurvinnslan in 2023. It includes scope 1, 2 and waste from scope 3.

Table 5 Carbon footprint in 2023, scope 1, 2, and waste from scope 3

Carbon footprint (kg CO ₂ e) ²	
Source	kg CO ₂ e
Scope 1	
Diesel oil	148,332
Gasoline	3,617.2
Gas (propane)	460.5
Scope 2	
Hot water (mainly for heating)	3,357.4
Electricity	526.7
Scope 3	
Mixed waste for incineration with energy recovery	2,636.8
Unsorted waste, for landfilling	2,555.8
Mixed waste for incineration without energy recovery	514.4
Animal by-products, for landfilling	198.7
Wood, untreated, for incineration with energy recovery	81.0
Paper and cardboard, for recycling	0.0
Plastic, for recycling	0.0
Screens, for recycling	0.0
Total kg CO₂e	162,280.3

Figure 3 shows the contribution of different factors to the carbon footprint of Málmaendurvinnslan.

² Emission factors: Gasoline: 2.34 kg CO₂e/l. Diesel: 2.72 kg CO₂e/l. Biodiesel: 0.0066 Gas: 2.99 kg CO₂e/kg. Electricity: 0.00854 kg CO₂e/kWh. Hot water: 0.434 kg CO₂e/m³. Preceding emission factors from Umhverfisstofnun, see

<https://ust.is/loft/losun-grodurhusaloftegunda/losunarstudlar/> Untreated wood, incineration: 0.00403 kg CO₂e. Preceding emission factor from Ecoinvent.

Scope 1 is 93.9% of the total carbon footprint, that is carbon footprint stemming from fuels burned directly by Málmaendurvinnslan. 91.4% of the carbon footprint stems from diesel, which is used by

- trucks, ie when picking up containers and boxes containing scrap metal,
- the outdoor forklift,
- material handlers and
- hydraulic shears.

2.44% of diesel used is dyed, which is for use on heavy machinery, the other 97.6% are non-dyed diesel, which is used for road transportation. Emissions from diesel use are forecast to increase in 2024.

2.23% stems from gasoline.

2.39% stems from scope 2, that is electricity and hot water which Málmaendurvinnslan bought. 2.07% stems from hot water, mainly from district heating.

3.69% stems from scope 3, which in this case only includes waste. Wastes which mainly come with metals received by Málmaendurvinnslan, but also to some extent directly from Málmaendurvinnslan’s operations. 1.62% stems from incineration of mixed waste with energy recovery, and 1.57% stems from unsorted waste for landfilling.

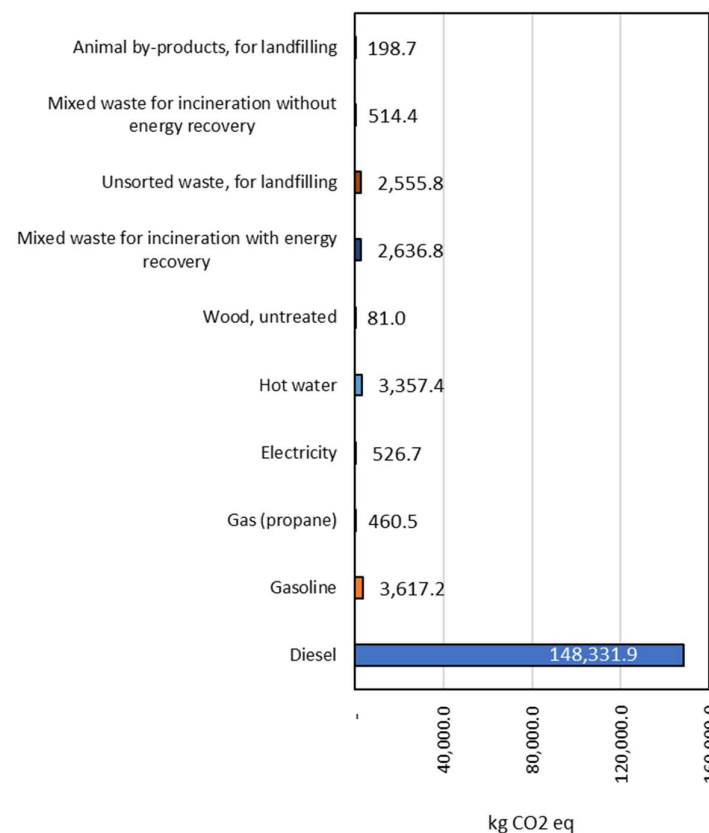


Figure 3. Carbon footprint of Málmaendurvinnslan, scope 1, 2 and waste from scope 3.

6 Environmental goals

Málmaendurvinnslan's goals for 2024 are:

- Accounting and reporting environmental impacts of the company in order to keep track of changes and identify where improvements can be made.
- Investigate the market for re-use of memory cards and CPU's which is a better use of resources and energy than recycling.
- Set up a notification (in other words fill in paperwork for waste export in accordance with EU regulations) for car batteries to a EU recycling plant.
- Set up a notification for e-scrap to a certified organization in the Netherlands.
- Setting up a new grease trap for the facilities in Mosfellsbær.
- Finish implementing ISO 9001.
- When possible, buy heavy machinery with a low carbon footprint, otherwise acquire used machinery to negate the impact of manufacturing.
- Minimize use of consumables. Choose products with environmental labels when available.
- Plant more trees around the scrap yard in Akranes. Improve the conditions and landscaping of the surrounding area.
- Continue work on electronic data interchange, sorting of wastes, and tidying of premises.