Knorr-Bremse x carbmee

Supplier Training - Scope 3.1 Collaboration

Q1 2025

Agenda

- **Introduction to the collaboration**
  - Knorr-Bremse's objectives
  - Introduction to carbmee
  - About the collaboration
  - Becoming market ready as a supplier
- **Importance of collecting primary data**
  - GHG Scopes of emissions
  - Objective of Primary Data Collection
  - Overview of Data Requirements
- **Data collection**
  - Your journey as a supplier
  - Overview and an example item
  - Important steps using the carbmee solution
- **Support, FAQ's and time for live Q&A's**

Introduction
to the collaboration

KNORR-BREMSE

Knorr-Bremse
Decarbonization Objectives

“Our ‘BOOST 2026’ strategy stands for profitable company growth. Knorr-Bremse’s determined focus on sustainability will be a key factor of success in this. With technological excellence, our product range, our processes, and our committed employees, we are a reliable paver of the way for ESG and our customers’ sustainable mobility. As such, we are also supporting our innovation and long-term business success.”

—Marc Llistosella, Chief Executive Officer, Knorr-Bremse

KNORR-BREMSE carbmee

25%
reduction in scope 3 by 2030

75%
reduction in Scopes 1 and 2 by 2030

Increase
renewable energy

Net-zero
operations by 2050

Who is carbmee?

carbmee is an enterprise software company, specialising in supply chain carbon management.

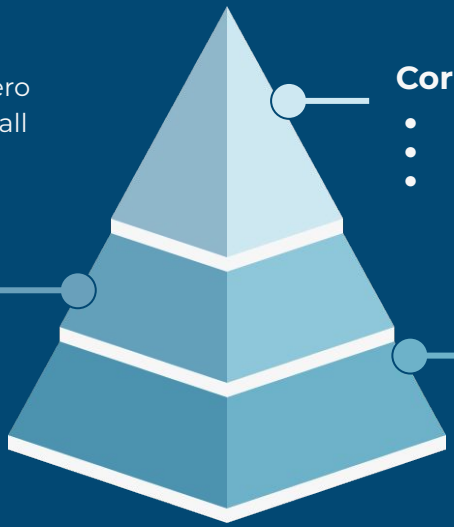
carbmee's **Environmental Intelligence System (EIS™)** is a carbon management platform for automated and holistic calculation of CO2 footprints on product, company, and supply chain level.

Our platform is purpose-built for companies with complex supply chains to collaborate with their suppliers and unlock CO2 reduction potential.

Industrial Expertise for Carbon Management

carbmee EIS™

The end-to-end solution for realizing your net-zero strategy. A holistic carbon footprint software for all emission & footprint calculations



Corporate Carbon Footprint (CCF)

- Corporate Emissions on a transactional level
- Emission calculation for your CSRD Report
- Operationalize your decarbonization strategy to uncover emissions hotspots and reduction potential

Product Carbon Footprint (PCF)

- Eco-Friendly Product Design
- Automated PCF Calculation
- LCA-Modelling Services
- Connect LCA with Carbon Accounting and supply chain emission reduction

Supplier Carbon Footprints (SCF)

- Scope 3 emission calculation
- Supplier Reduction Recommendations
- Supplier Engagement Service
- Carbon Border Adjustment Mechanism (CBAM)
- Report Generation
- Service Support

Module:
Carbon Accounting

carbmee EIS™ guarantees highly accurate, scalable carbon accounting for your CSRD or SBTi Reporting

Module:
Product Carbon Footprint

Calculate the emissions of your products in compliance with GRI Standard, GHG Protocol and ISO 14067

Module:
Supply Chain Emissions

Identify and prioritize your most relevant emissions hotspots with automated calculations

Module:
CBAM

Identify CBAM relevant suppliers, generate and upload the report to authorities

Meet your **team**

END-TO-END GUIDANCE
Benefit from in-platform guidance, webinars, and information-rich resources. We're here to support you at every step of your journey.

IN-HOUSE EXPERTISE
Tap into our diverse in-house expertise, spanning sustainability, carbon accounting, and supply chains.

ON-DEMAND SUPPORT
Tailored support, regardless of supplier maturity.

Meet your team

Leona Mrackova

Supplier Engagement Project Lead your primary point of contact and responsible for delivery of engagement and general sustainability guidance.

Uddhav Chitre

Technical Supplier Engagement Manager your key contact for technical guidance.

Key aspects for you as a supplier

Data availability

- For this collaboration to be successful your data availability is an important part. If your data is not available, gathering calculated values for example for your electricity consumption is still recommended.

Communication

- During this project both Knorr-Bremse and carbmee will be in **regular communication** with you
- Few examples might be, invitation to a **training webinar**, distribution of **training materials**, timeline updates and additional **meetings** if needed
- We will need **timely responses** from your team to ensure **effective communication and to keep the timeline**

Data upload

- Within this training you will learn how to **provide data** to carbmee in the correct manner.
- You will be kindly asked to check pre-calculated emissions in the carbmee platform and upload your data as part of this collaboration.

Becoming **market ready**

COMPLIMENTARY PRODUCT CARBON FOOTPRINT
Build your free Product Carbon Footprint (PCF) of the items you produce

GAIN A COMPETITIVE ADVANTAGE
Gain a competitive advantage by setting yourself apart as an environmentally conscious supplier.

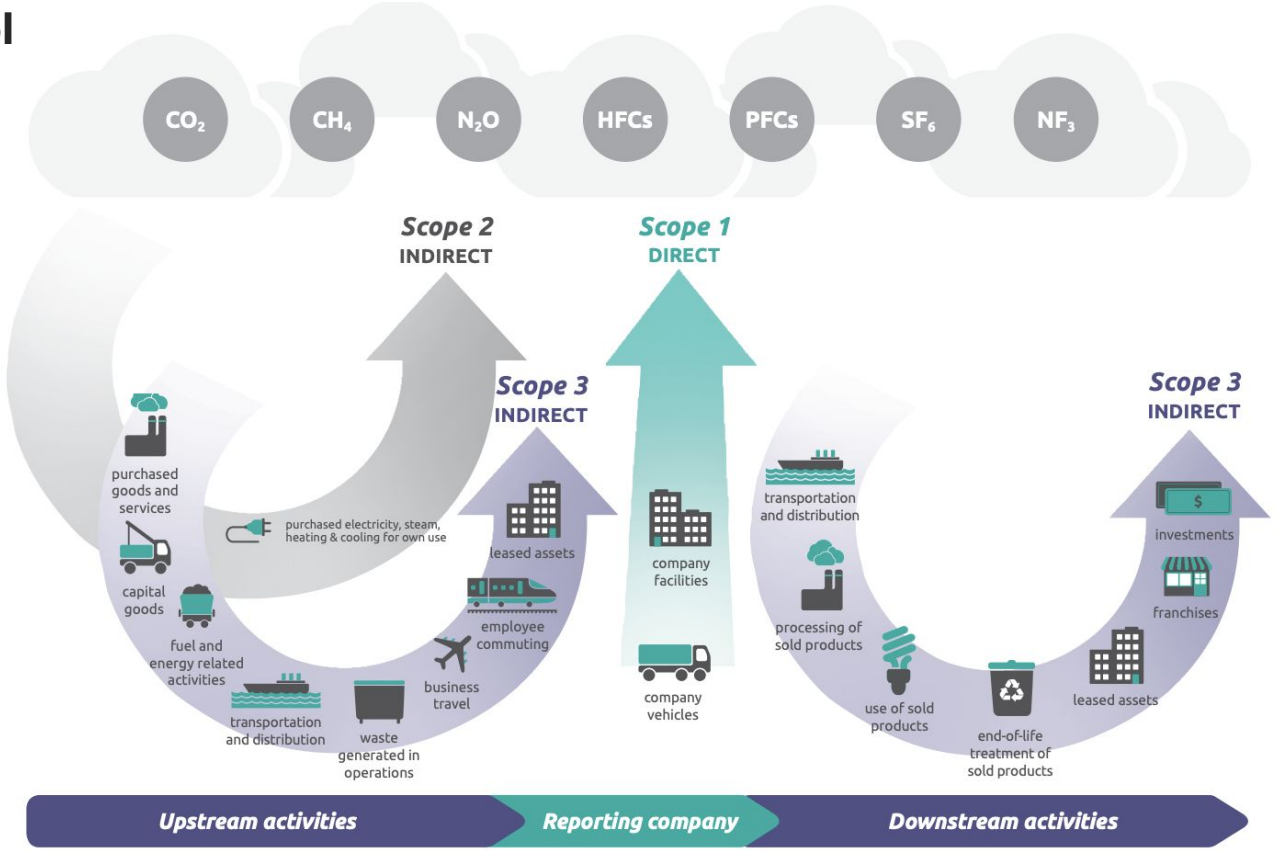
GET AHEAD OF REGULATIONS
Creating transparency on your product emissions will help you stay ahead of emerging regulations and policies.

"The decarbonizing of the global economy is going to create the greatest investment opportunity of our lifetime"

Larry Fink
CEO Black Rock

Importance of **collecting primary data**

GHG Protocol



Data collection

Secondary data

As a starting point, we are using secondary data to estimate your emissions related to your production processes (materials and energy). Our secondary data is provided by Ecoinvent. Ecoinvent is comprehensive Life Cycle Assessment Tool (LCA) that provides extensive global coverage of emission factors from cradle to-grave. This allows us to build open modules to introduce you to data collection.

Primary data

Our objective of this collaboration is to get more **accurate data, which is your primary data**. Primary data allows us to get activity-based information on your actual production processes (materials and energy). This allows for more accurate understanding of your data and Knorr-Bremse's scope 3 emissions.

To highlight, as part of primary data collection, calculated values of energy consumptions are recommended.

Objective of this collaboration

To better understand your production processes and collect your primary data.

Overview Data Requirements

Input Knorr-Bremse

Provided by Knorr-Bremse

- Weight of item (KB drawing)
- Name of item
- Supplier location
- Transaction amount

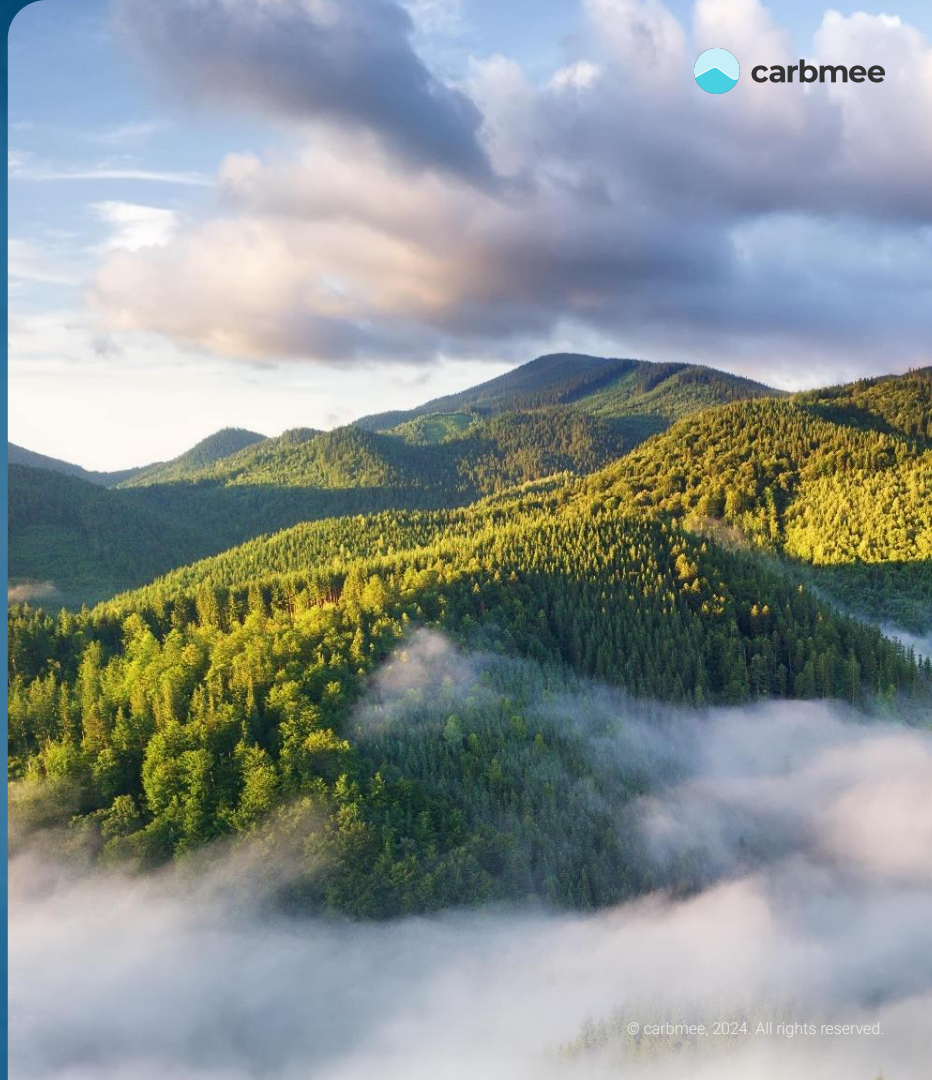
carbmee

- Material emitter match for each item
- Emissions calculations

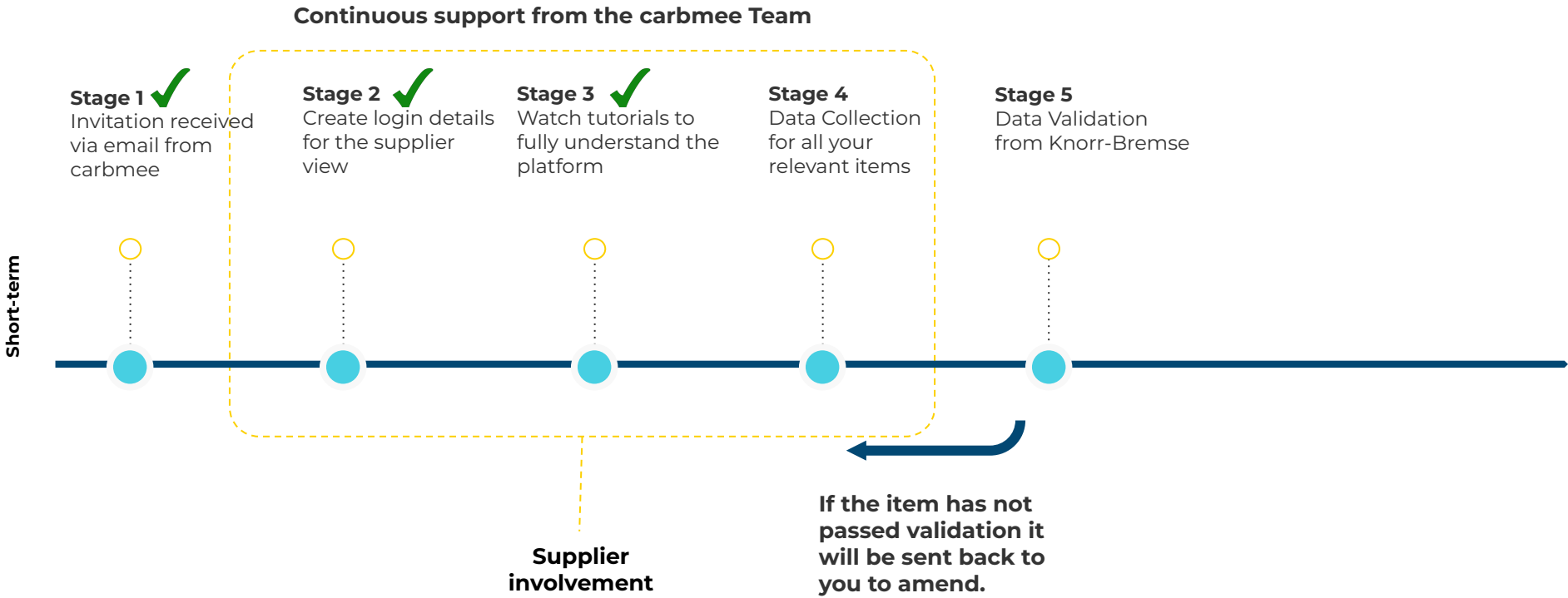
Primary Data from supplier

- Confirm or change unit amount per item
- Add Materia(s) and/or recycled/secondary content
- Add Energy (electricity)
- If applicable: add fuel and direct emissions

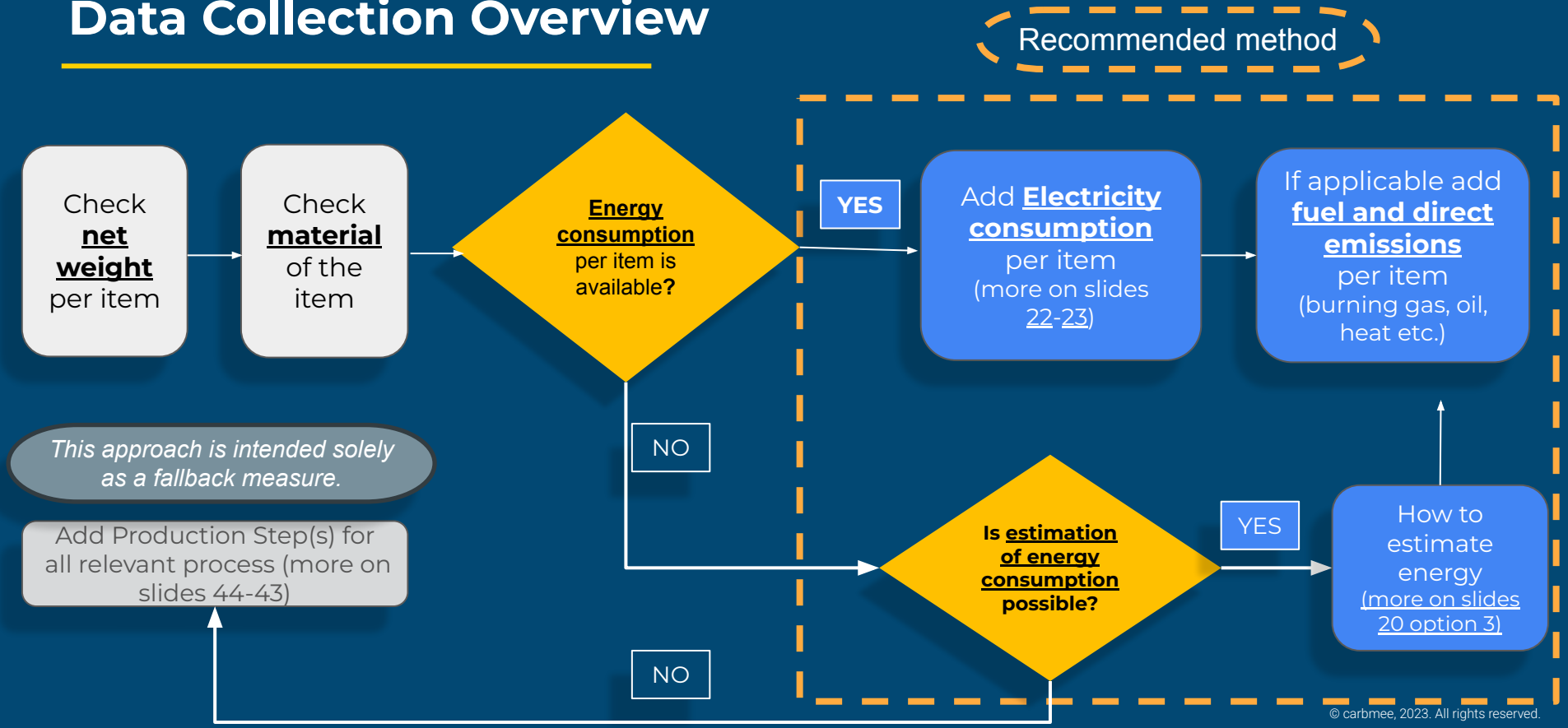
Data Collection
Guide to use carbmee EIS



Your journey with Knorr-Bremse and carbmee

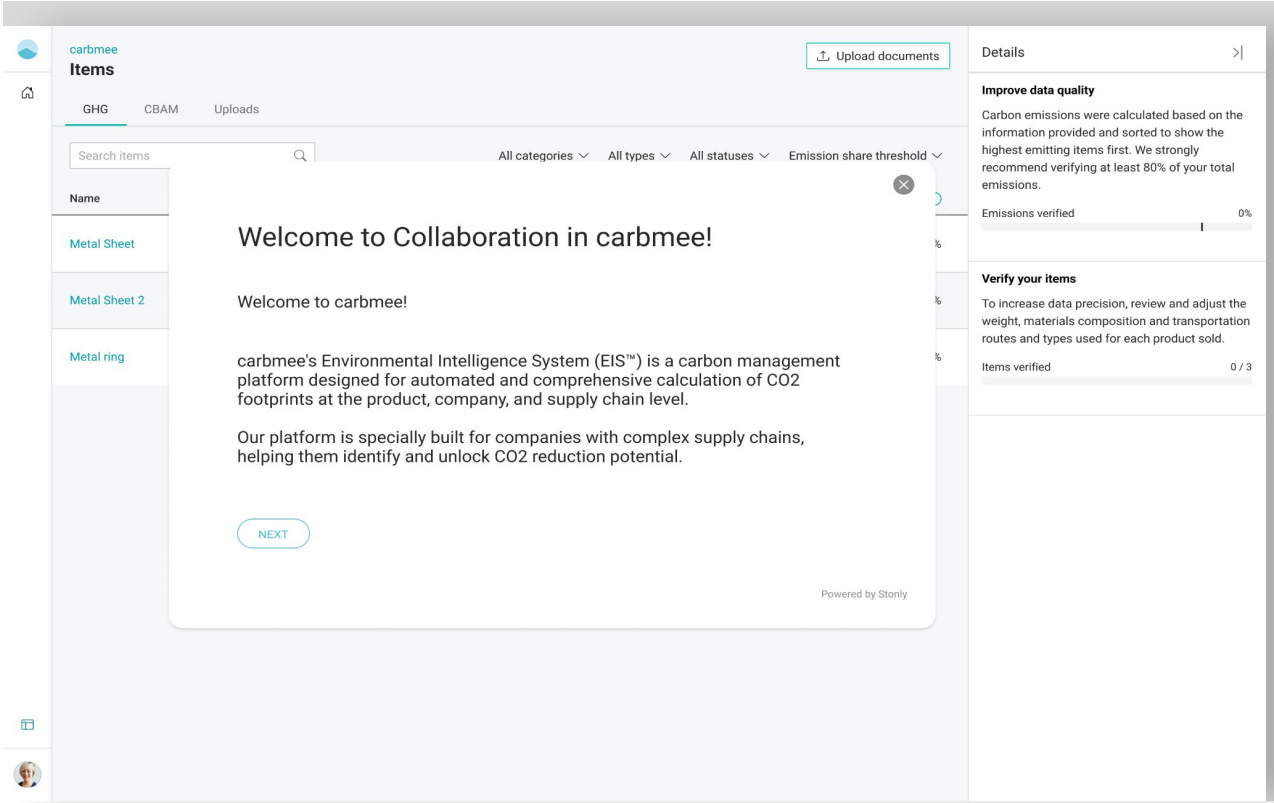


Data Collection Overview



Supplier View

Step 1: Complete the onboarding tutorial

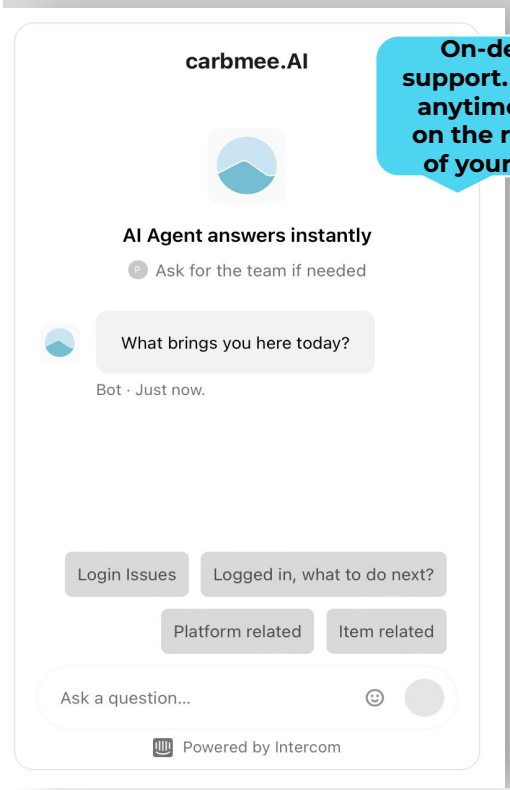


Use the tutorial in the platform to get started

Our platform offers a on-demand tutorials to help you get started and understand the functionality.. Explore our step-by-step guides to make the most of carbmee EIS.

Supplier View

Step 1: In-platform, On-demand support



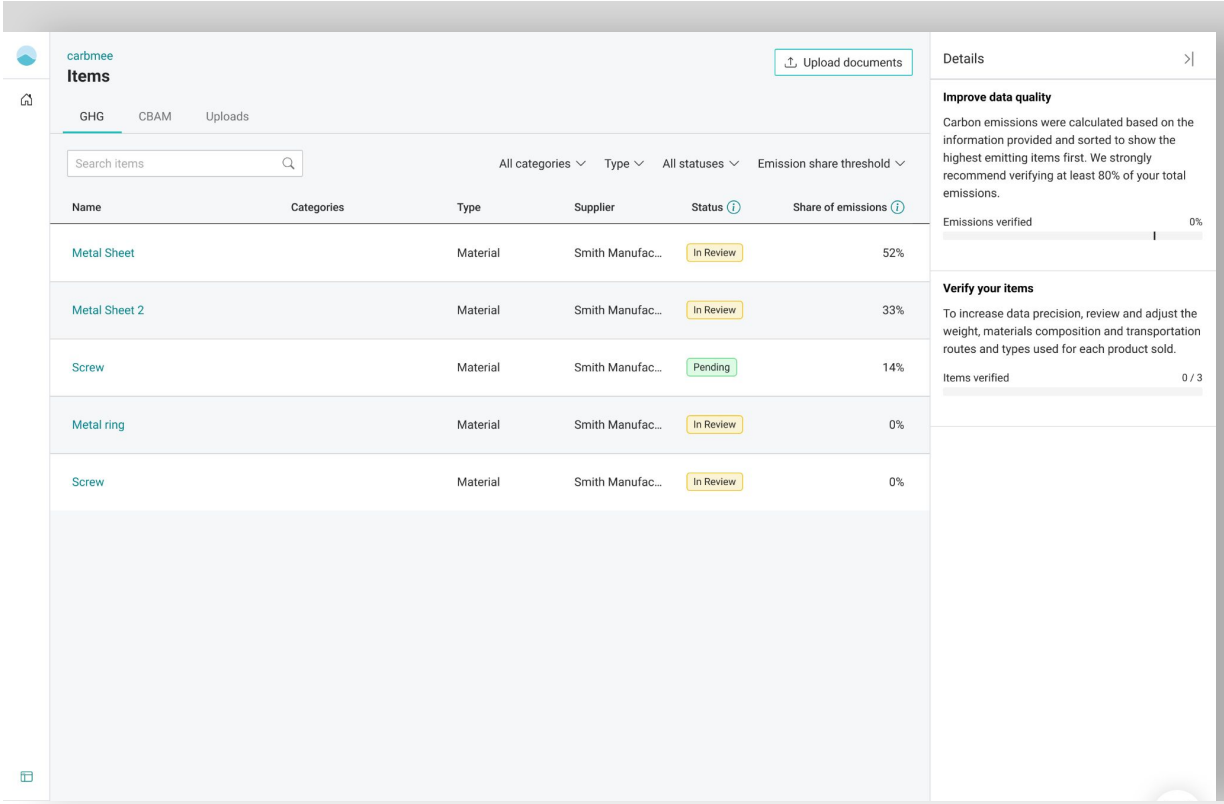
In-platform, on-demand ticket system

Our platform feature Intercom widget enables you to ask questions based on the suggestions given. We will recommend actions and articles, if we cannot solve your question in real time, it will create a ticket for you and we will respond within **3 working days.**

You will have also access to our comprehensive Help Center for detailed resources and solutions.

Supplier View

Step 1: Start with your high emissions items



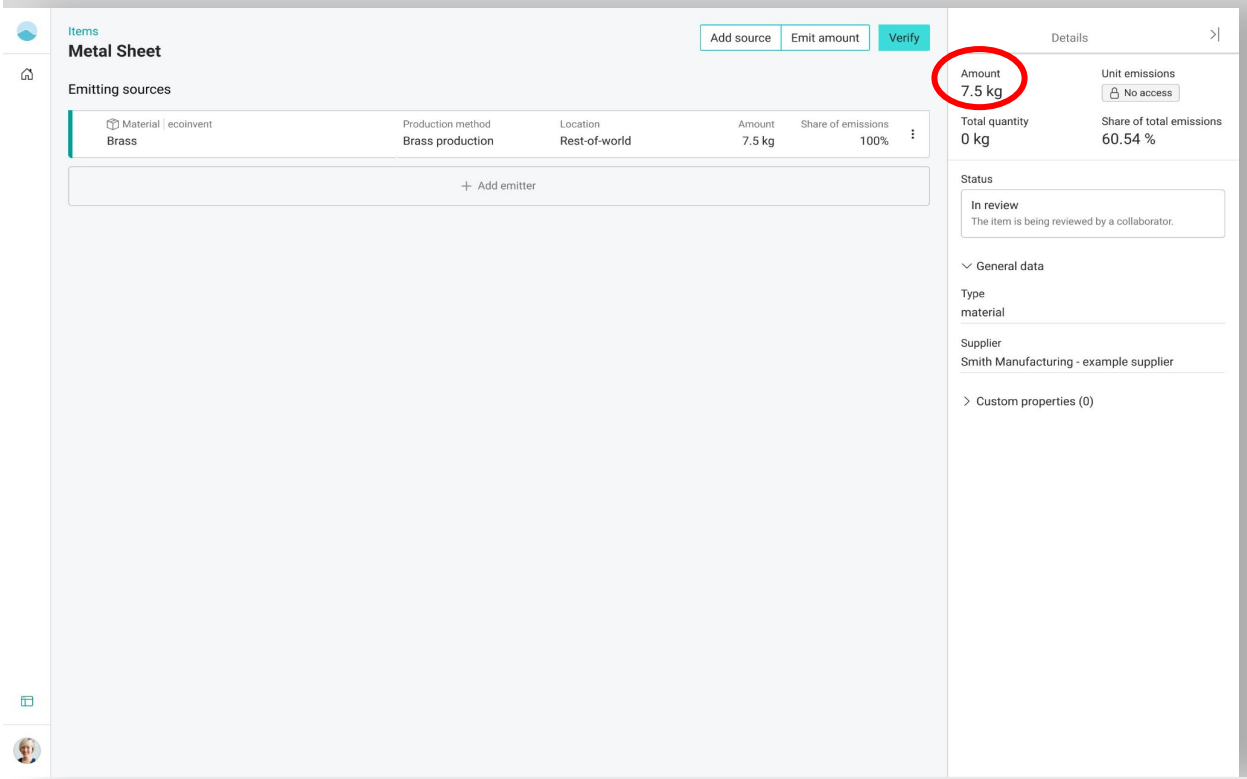
Start by working on your items from the top of your page to the bottom. All your items are organised from the highest emissions to the lowest.

Improve data quality:
See the percentage of items you've already verified.

Verify items:
See the number of items you've verified.

Supplier View

Step 2: Important: Check amount per item



Check amount per item

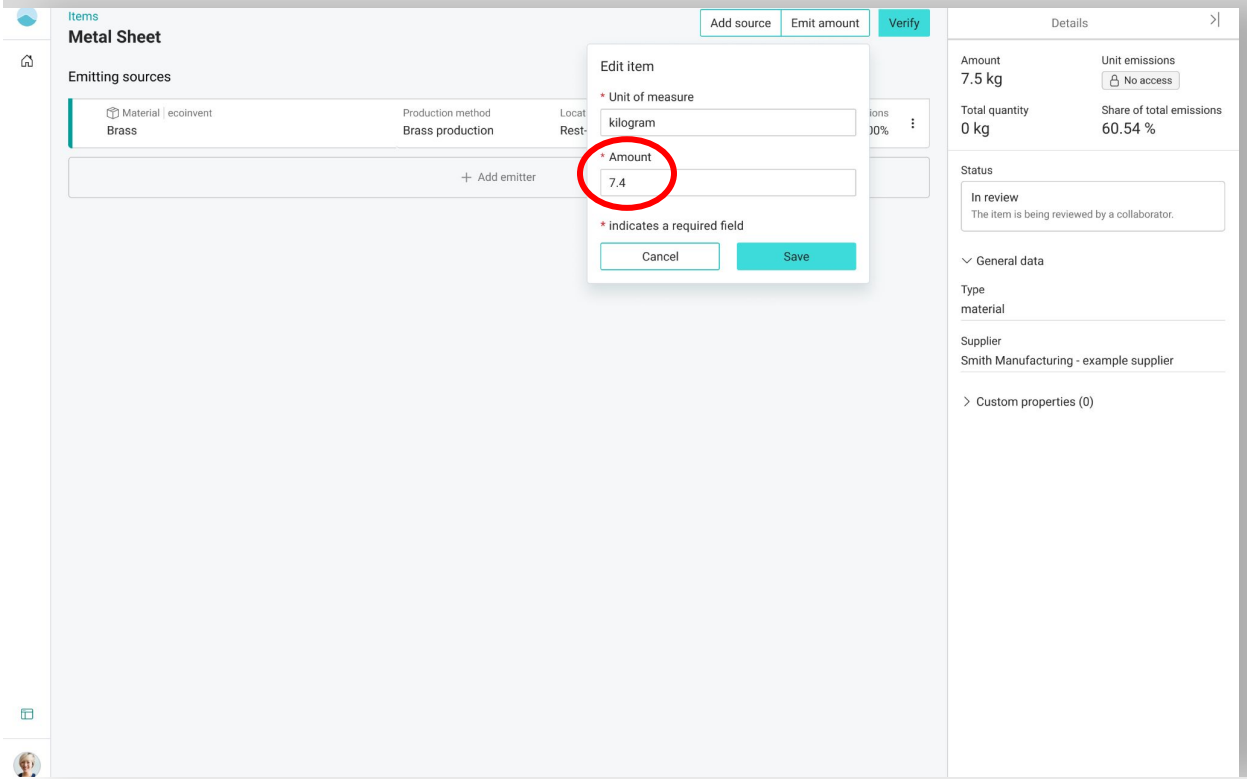
In each item, on the right hand side, you will see the amount.

Gross weight of the 'one unit of item' provided by Knorr-Bremse.

This figure should never be the total for all items sold. It's just total of **one unit of item.**

Supplier View

Step 2: Important: Check amount per item



Check amount per item

In each item, on the right hand side, you will see the amount.

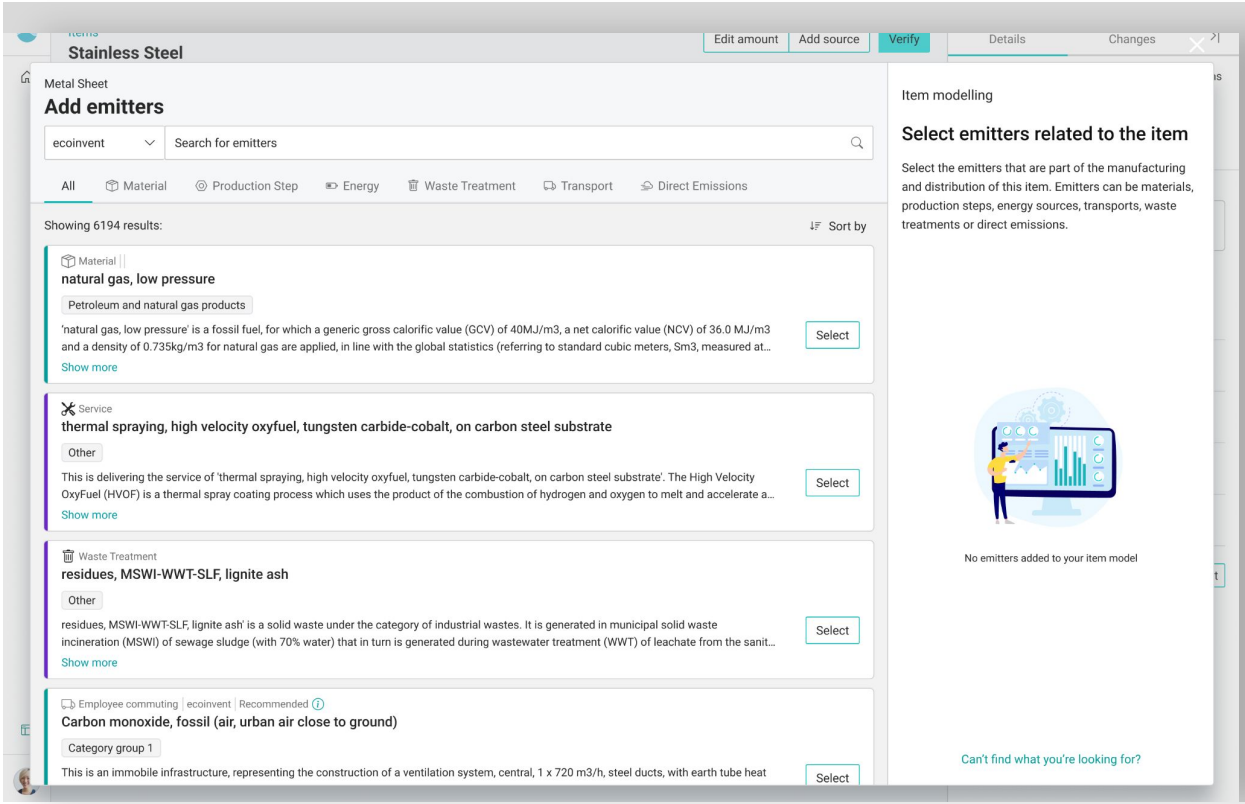
Gross weight of the 'one unit of item' provided by Knorr-Bremse.

If the weight differs to your actual item, then you can edit the values for one unit of item.

For example, the metal sheet is actually 7.4 KG.

Supplier View

Step 2: Search functionality



How to use the search functionality

You can search and filter on these **relevant categories:**

Search the name of the **Material/ Production Step/ Energy/ Waste Management/ Direct emission**

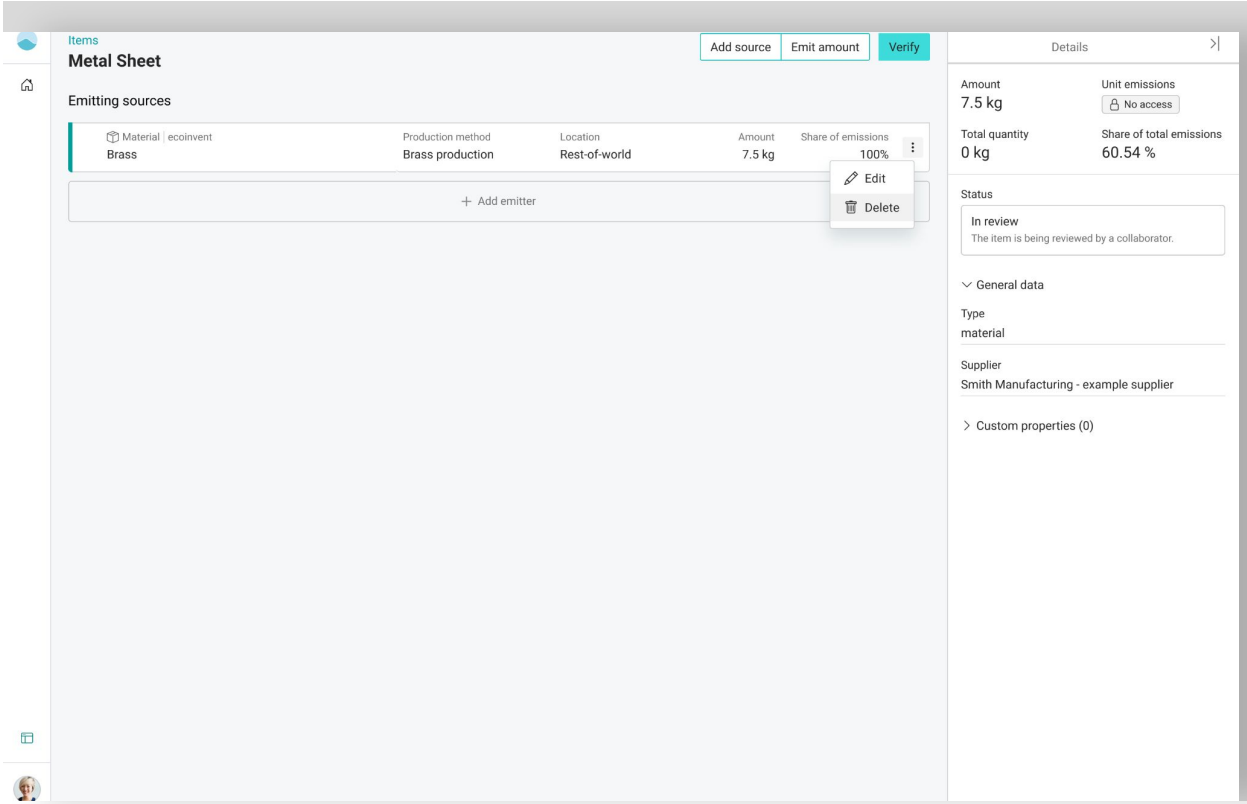
Available data sources:
1. Ecoinvent - default
2. carbmee database

When searching, select the category and add the simplest term of what you are looking for in the search function.

Tip: avoid adding the exact name of your for example material.

Supplier View

Step 3: Important: Needs to check: Material(s)



Review and/or add new materials:

Each item will be matched to a material. This is our suggestion.

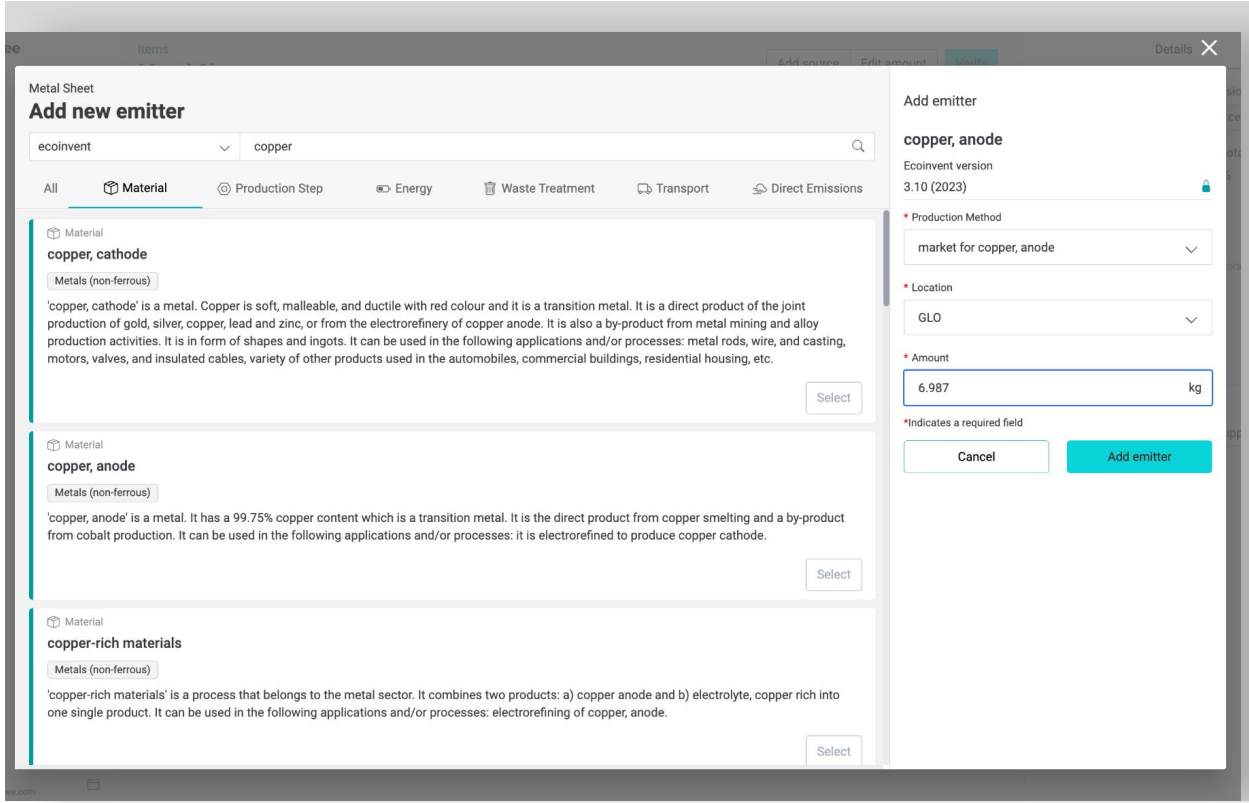
It's important that you review this material and if it's not a correct material, please remove it.

If its correct, please edit the weight.

To do so please click on the 3 dots to edit or delete it and add a different material(s) by selecting **+ Add emitter.**

Supplier View

Step 3: Adding emitters: Material(s)



Add new emitter: Additional information

Once you've found the nearest emitter to your Material.
You need to complete 3 data fields.

1. Production Method:
Select **market for** ''emitter name"

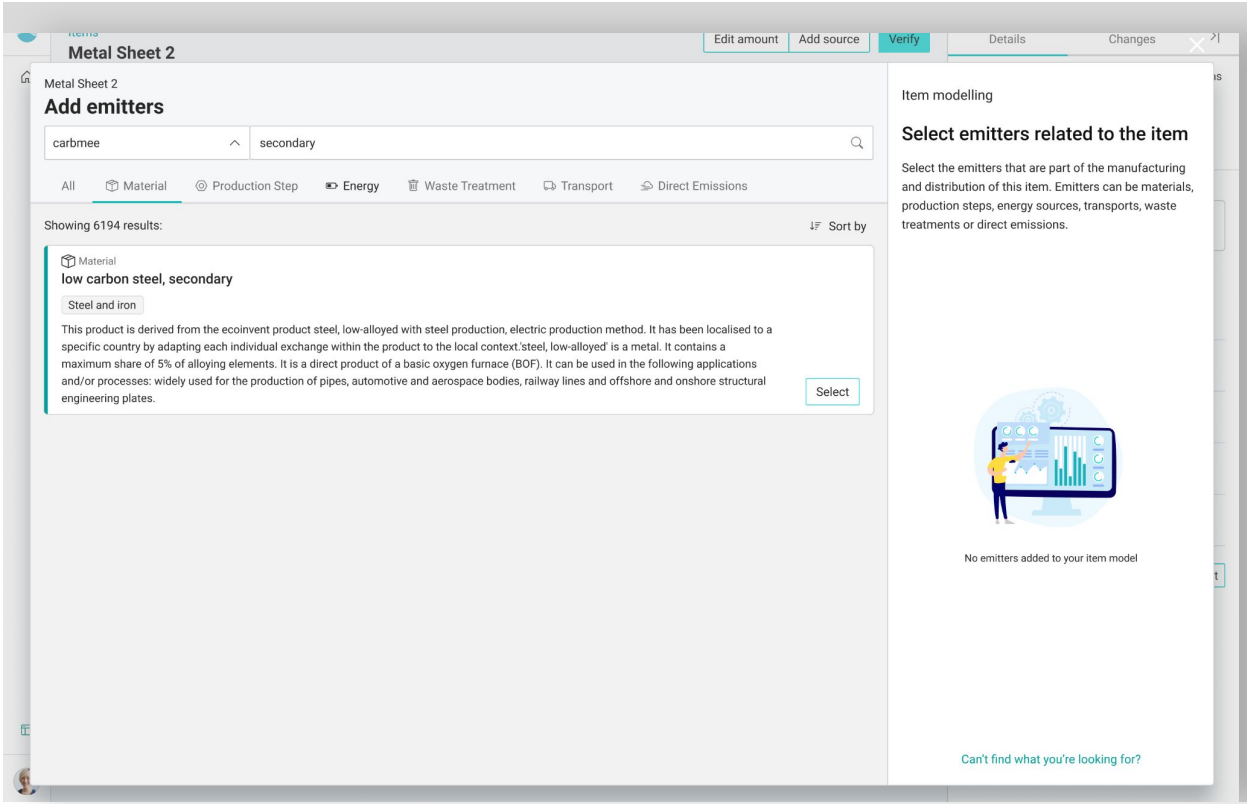
2. Location: Choose your location if available, if not please choose the nearest market:

- Europe : RER
- Asia: RAS
- GLO: Global
- RoW: Rest of the World

3. Amount: Needs to be added per unit for your item.

Supplier View

Emitter: Material - recycled (secondary)



Adding recycled material

Database: change to carbmee

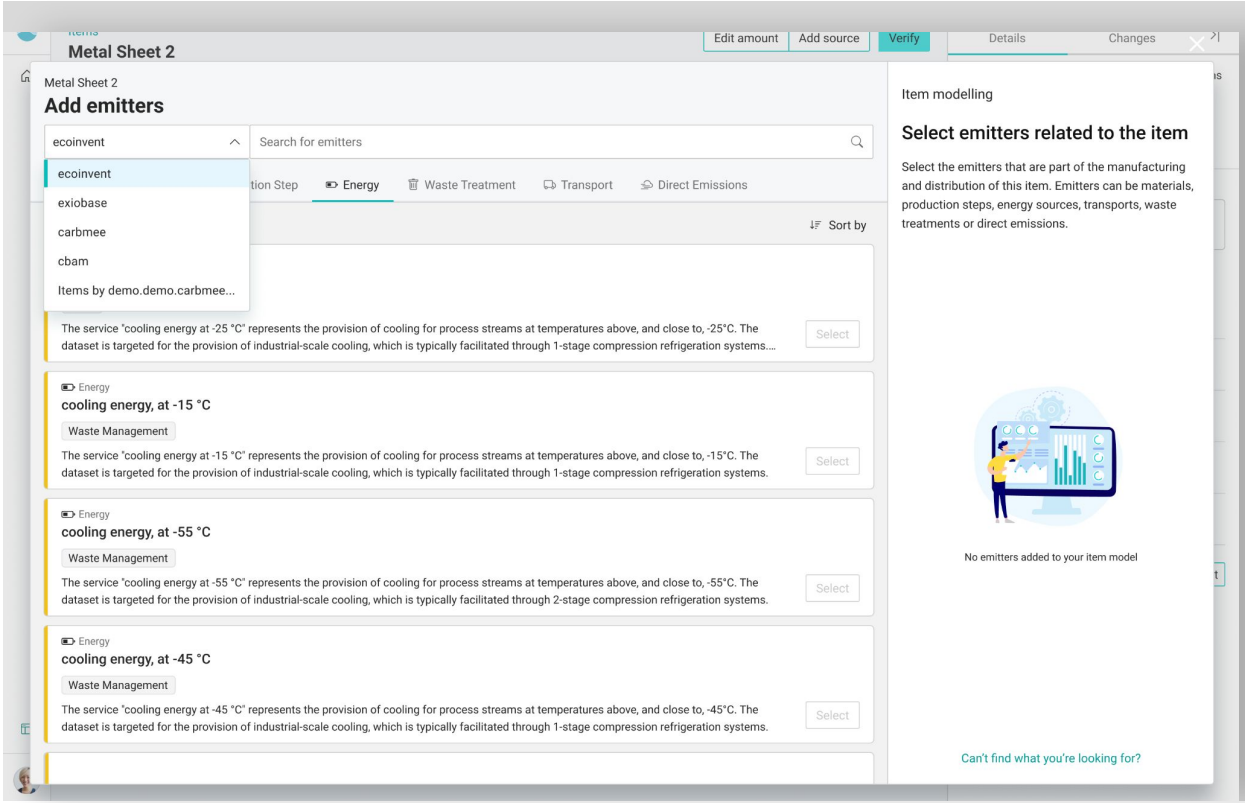
Search: Secondary

You will see our current secondary materials (which means recycled), you can add them as you would with any other material corresponding to the total item amount.

We are adding more recycled (secondary) materials every quarter.

Supplier View

Step 3: Adding emitters: Energy



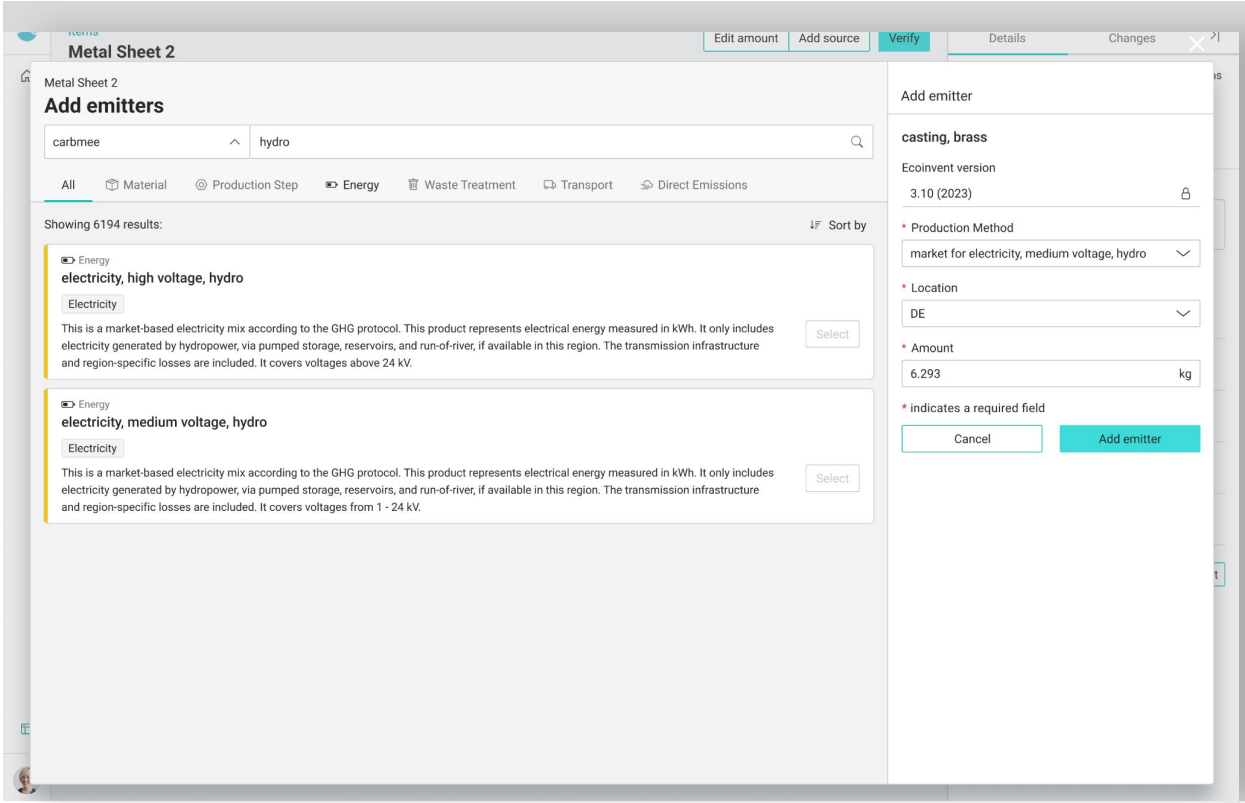
Energy: selecting the correct data sours

1. Default - Ecoinvent:
For most energy emitters

2. carbmee:
For renewable energy emitters

Supplier View

Step 3: Adding emitters: Energy



Add new emitter: Additional information

You need to complete 3 data fields.

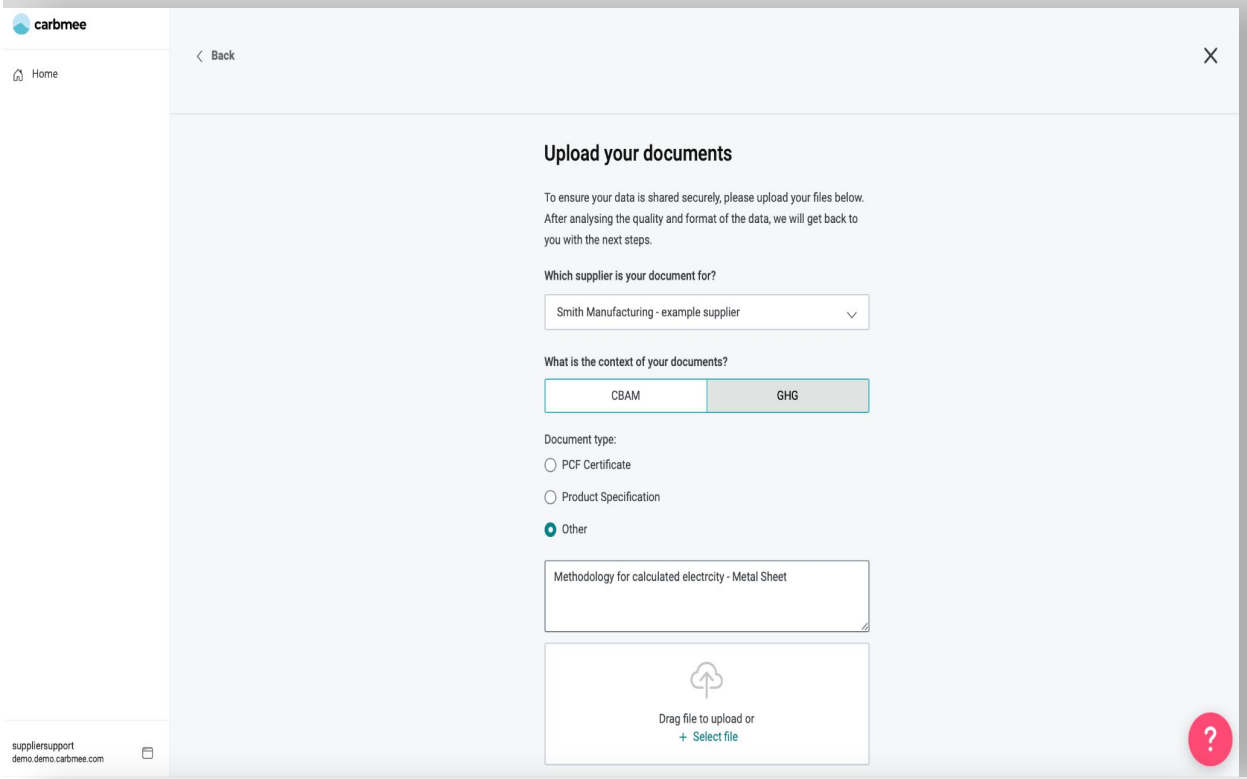
1. Production Method:
Select **market for** ‘‘emitter name”

2. Location:
Choose your location

3. Amount:
Total for this specific energy used to produce this unit of tem

Supplier View

Step 3: Energy: upload your methodology



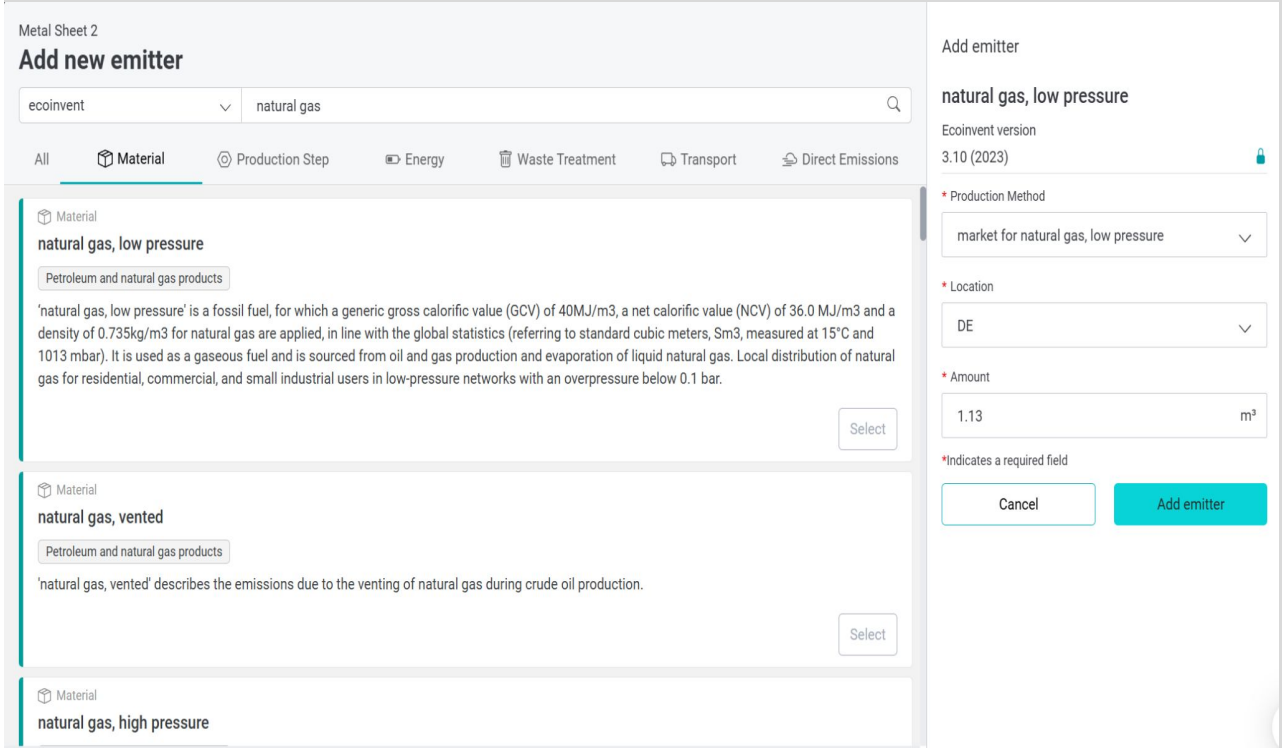
Energy:
Upload your methodology

If you've had to calculate your energy consumption for example from your energy bill.

Please upload the methodology in the **Uploads** sections. Simple Word

Supplier View

Step 3: Natural Gas: adding fuels



Energy: Natural Gas

Search appropriate fuel in material section

You need to complete 3 data fields.

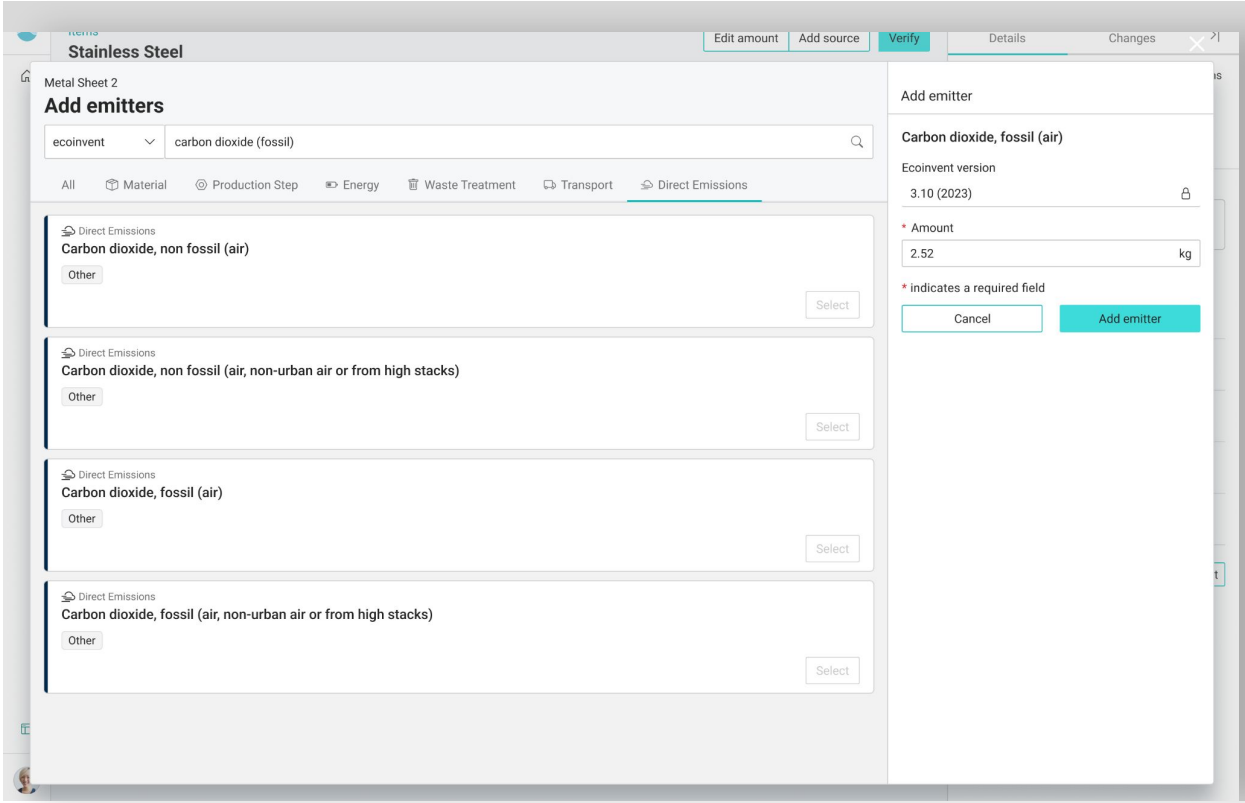
1. Production Method:
Select **market for** ‘‘emitter name”

2. Location:
Choose your location

3. Amount:
Total for this specific energy used to produce this unit of tem

Supplier View

Step 3: Adding emitters: Direct Emissions



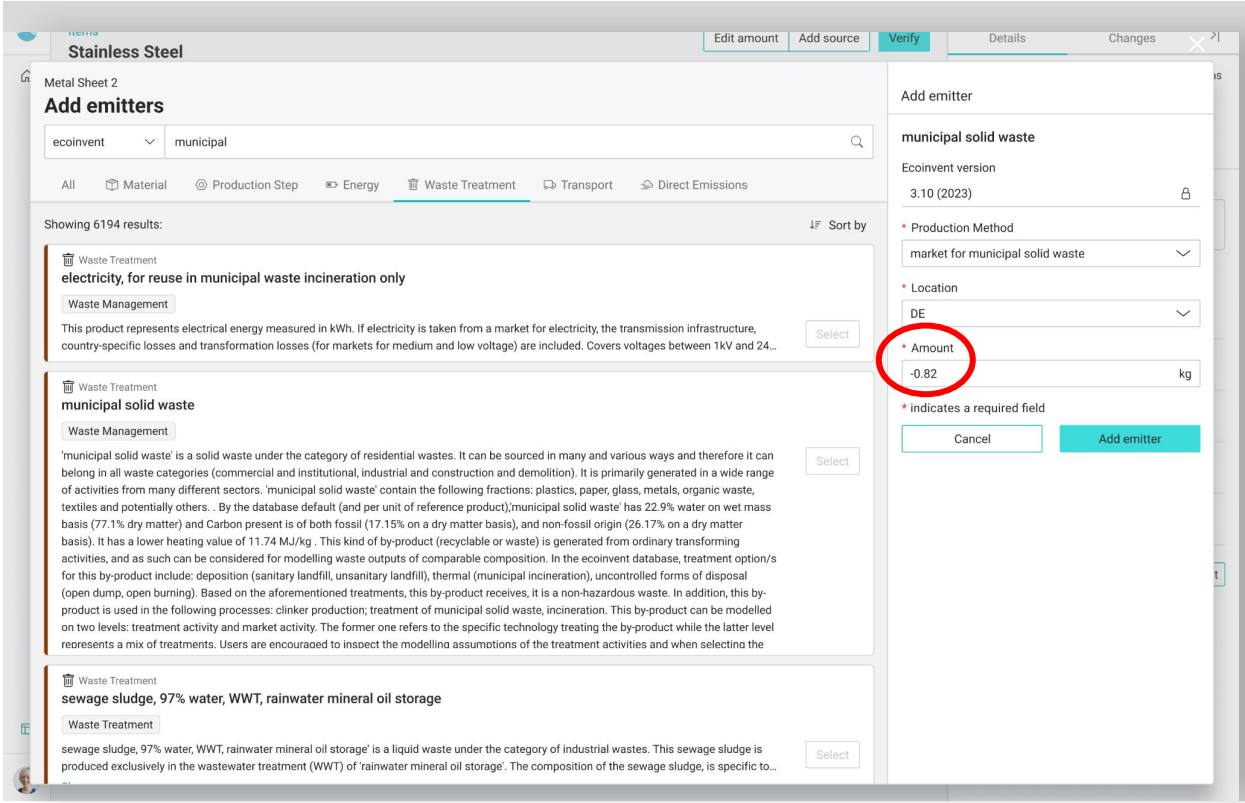
Add new emitter: Direct Emissions

Some production processes have direct emissions associated (for example emissions from using gas).

You can directly add emissions in the category **Direct Emissions,** search for the relevant emitter for example **Carbon dioxide, fossil (air)** and just add the total **kg.**

Supplier View

Step 3: Adding emitters: Waste Treatment (optional)



Add new emitter: Additional information

Only if waste generated is leaving the production site, then it can to be added as waste treatment.

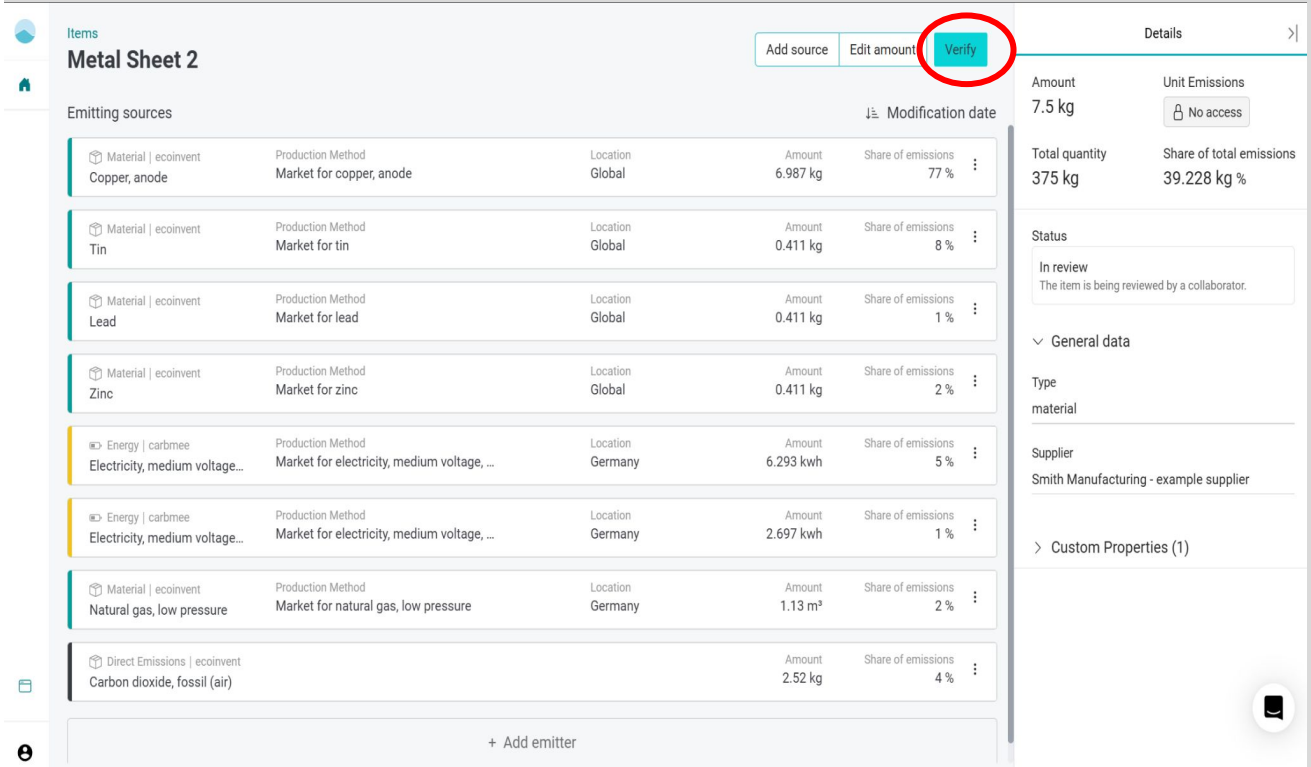
You need to complete 3 data fields.
1. Production Method:
Select **market for** ‘‘emitter name”

2. Location:
Choose your location

3. Amount:
Waste treat.is an **output and therefore needs to be negative figure** (for example -0.82). Please do not forget the - sign.

Supplier View

Last step: Check your item before you verify



Check your item

It's important to make sure all relevant emitters have been added.

Check list:

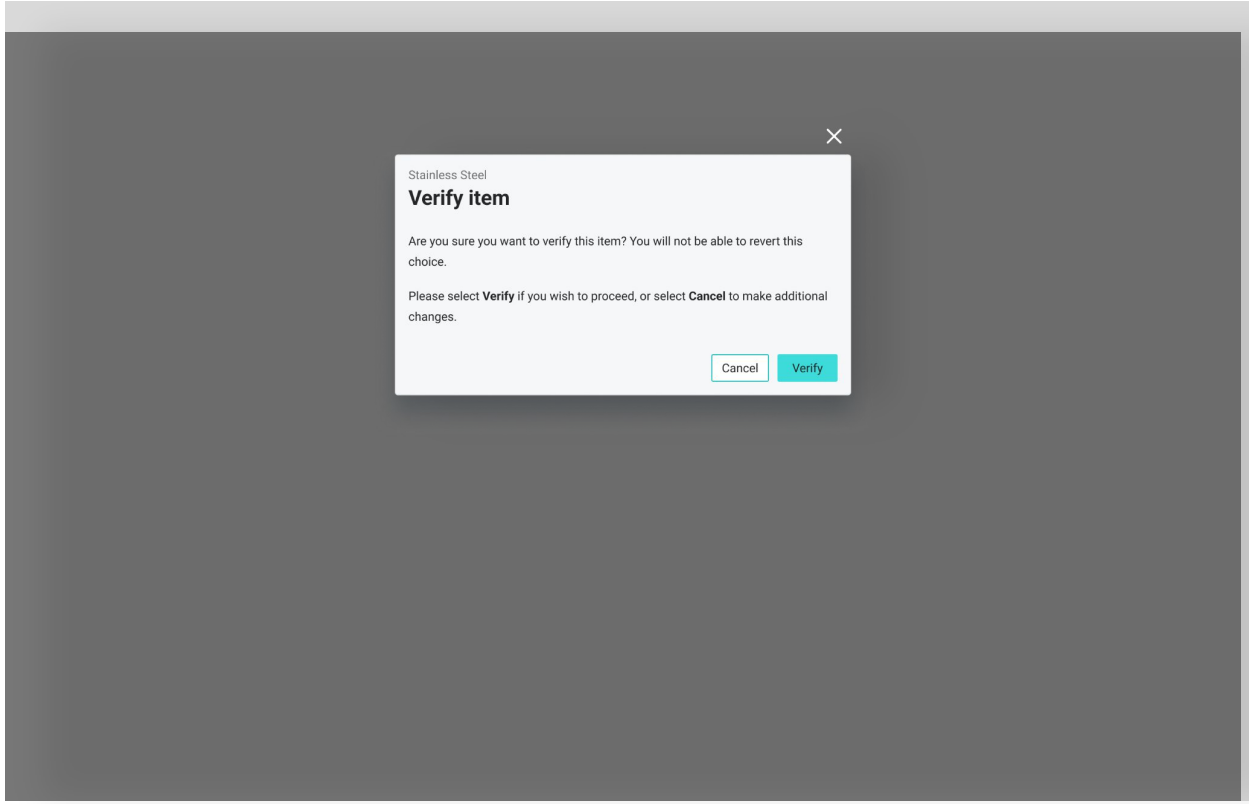
- Material(s)
- Energy

Once you are done, you can select **Verify** - this will lock your ability to edit more data, and Knorr-Bremse will review your item.

This means you are finish with your data collection. THANK YOU!

Supplier View

Last step: Verify your item

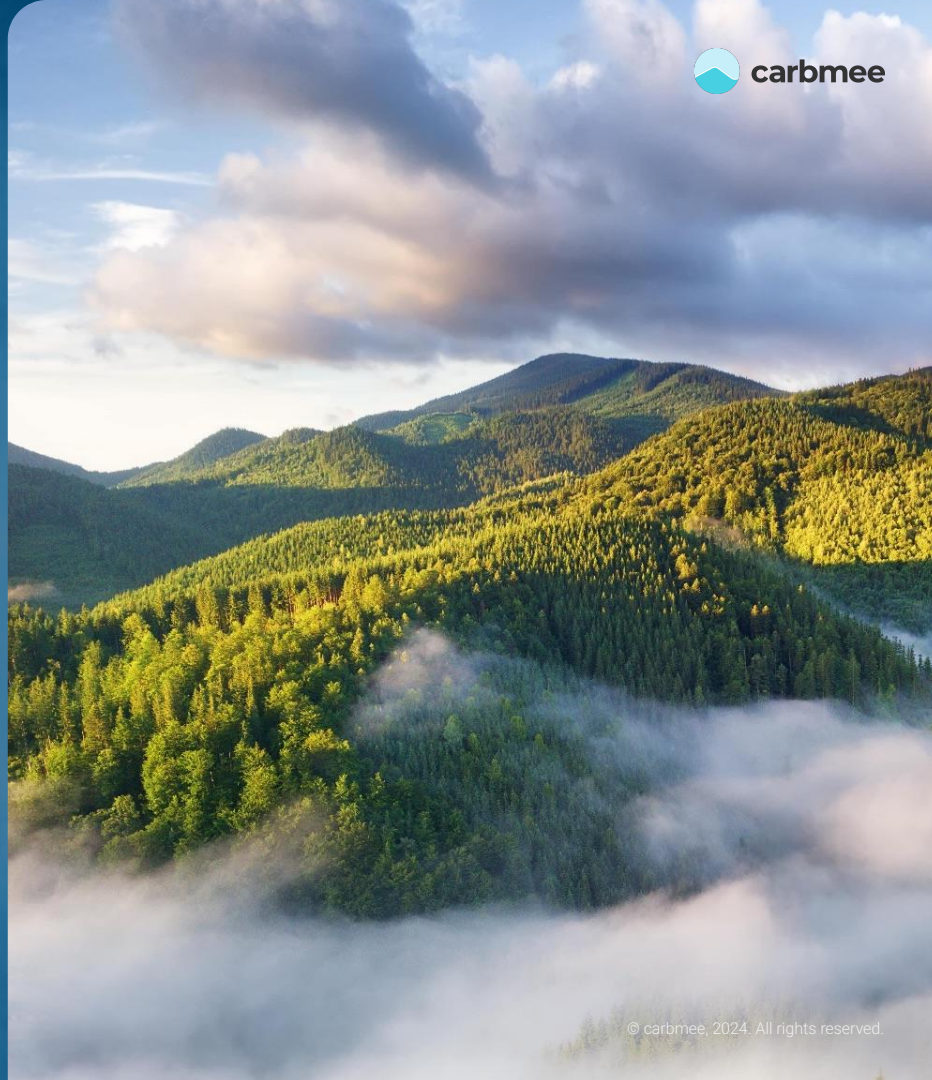


Once you verify, you cannot edit your item.

If you've checked your item, please select verify.

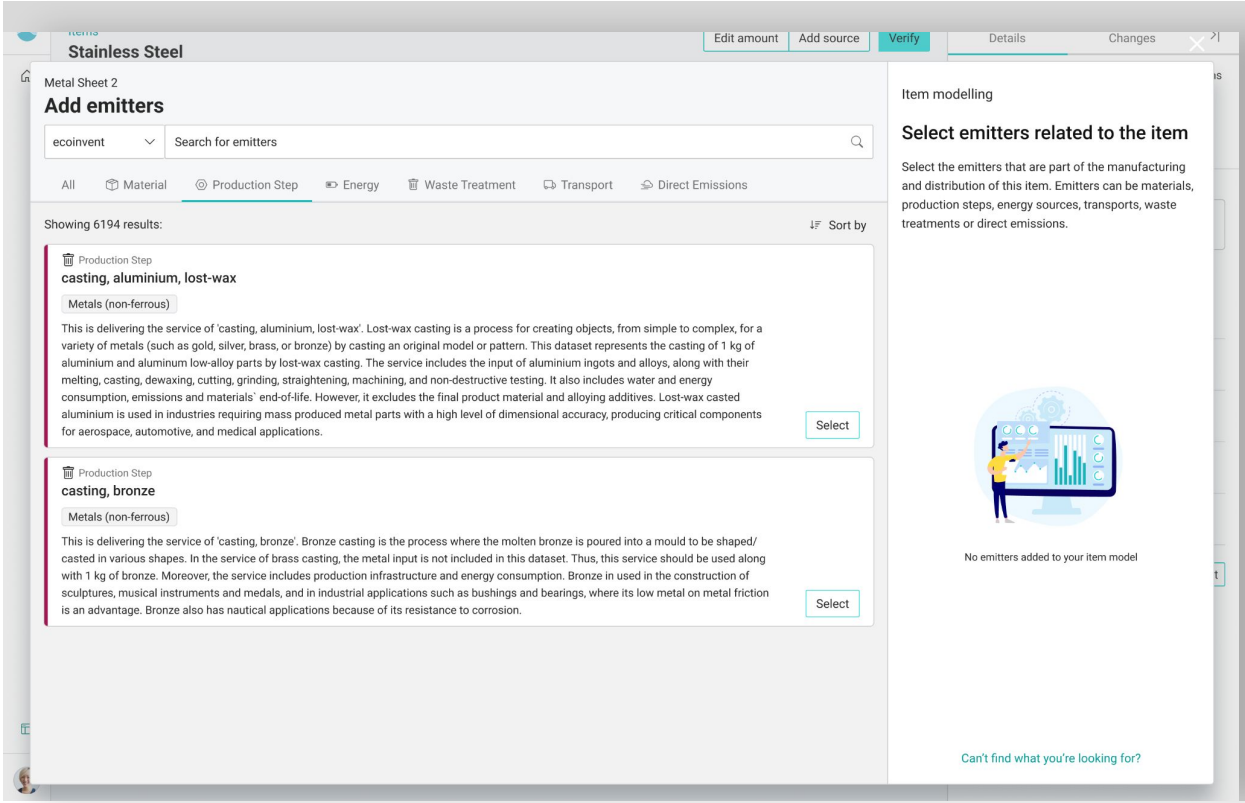
This means Knorr-Bremse will review it and get back to you via the platform if more information is needed.

Data Collection **Alternative method**



Supplier View

If energy data is not available: production steps



Alternative method: Adding Production steps

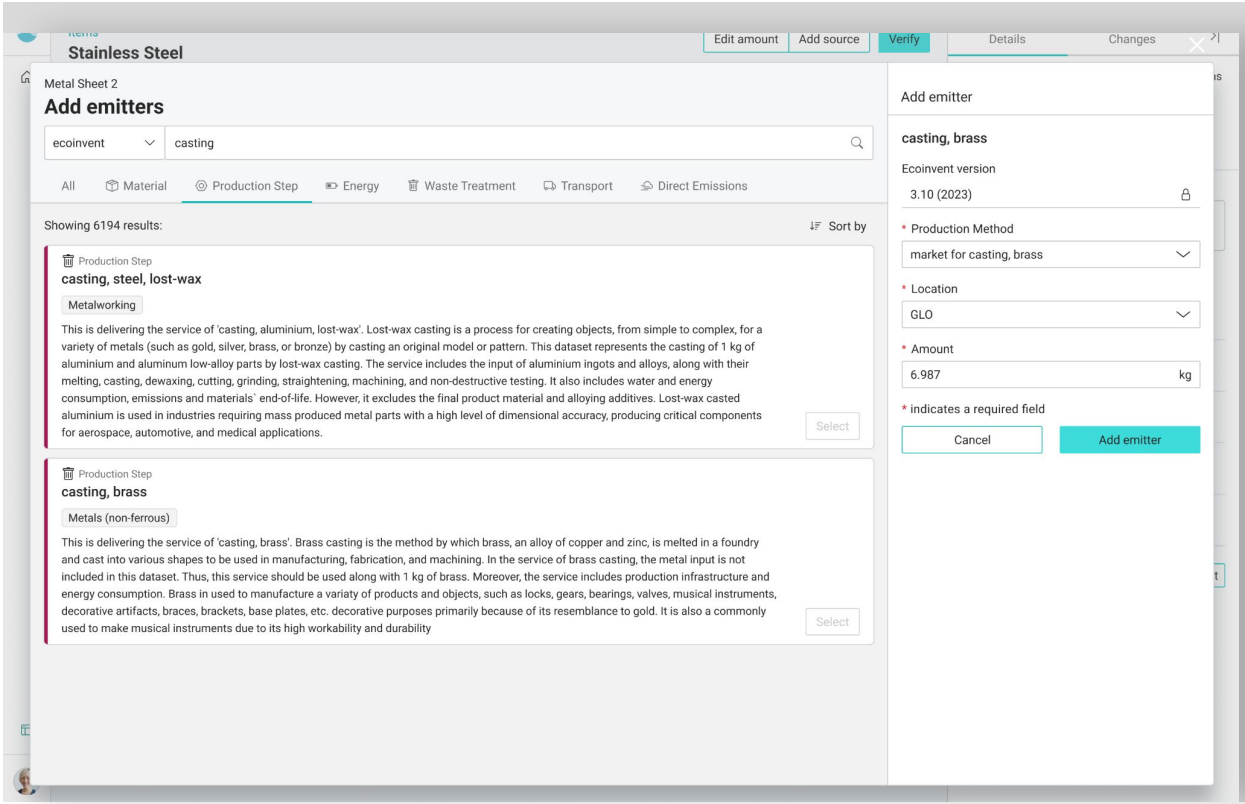
Introduction to Production Step:

If you do not have energy available (even estimates), **the 2nd option will be to add production steps.** Adding production steps allows us to estimate your production steps.

Only add production step(s) if you have not added energy for the same production process to avoid double counting.

Supplier View

Add relevant Production Step(s)



Adding emitters: Production steps

1. Find the closest emitter to your production process

2. Add **Production Method** as market for ''name of the emitter''

3. Select appropriate **Location**

4. Add the **Amount** again to correspond to the unit amount of your item.

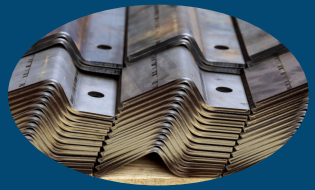
Data **collection**
Example

Example Item

Example of a metal sheet as an item

Example Item: Metal Sheet - **7.4KG per unit**

Your item



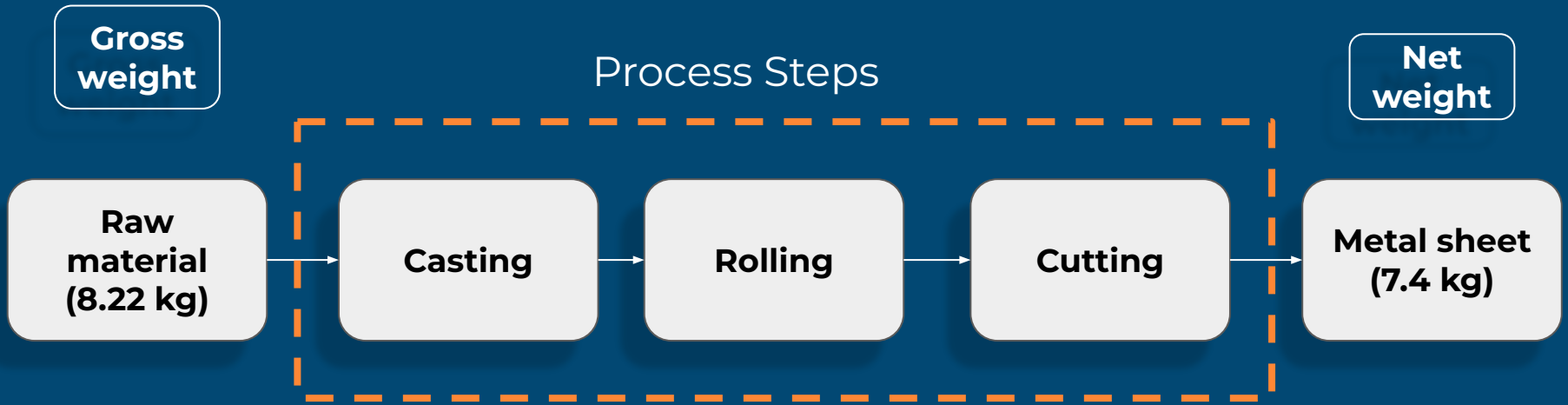
Inputs

Material(s) + Energy

Example Item

Metal sheet production: process flow chart

Example Item: Metal Sheet - **7.4KG per unit**



Example Item

Material(s): What you need to add for each item

Material(s) | Process steps | Waste Treatment

Example Item: Metal Sheet - **7.4KG per unit**

Example Item

3 options to calculate energy per item

You know your energy consumption for each process step > just sum up and put in the total value

Option 1

Casting

- Electricity (kWh)
- Natural gas (m^3)

Rolling

- Electricity (kWh)
- Natural gas (m^3)

Cutting

- Electricity (kWh)

You know your total energy consumption of the complete process that is producing the item > just put in the total value / item

Option 2

Item: Metal Sheet

- Electricity (kWh)
- Natural gas (m^3)

You just know your annual energy consumption for the plant producing the item and your total production volume > break it down to item level

Option 3

Annual Electricity Consumption of Plant:
200,000 kWh

Annual Production Volume:
150 t (150,000 kg)

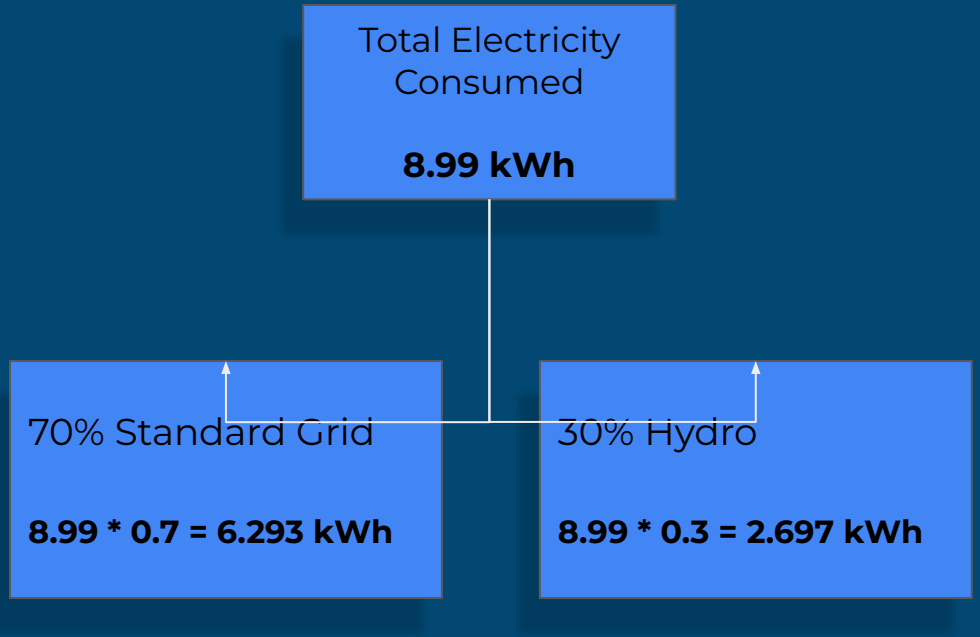
Electricity Consumption per kg of Product
200,000 kWh / 150,000 kg = 1.33 kWh/kg

Electricity Consumption per Product
1.33 kWh/kg × 7.4 kg
=
9.842 kWh

Example Item

Adding different types of electricity

Example Item: Metal Sheet - **7.4KG per unit**



Example Item

Calculating direct emissions

Calculate direct emissions if applicable. For example when burning gas, there are associated carbon emissions that need to be accounted for separately.

Example Item: Metal Sheet - **7.4KG per unit**

Known Values	Calculated Values
Burning gas releases CO_2 emissions. We assume emission factor 2.231 $kgCO_2e/m^3$	2.231 $kgCO2_e/m^3$ * 1.13 m^3 = 2.52 kg CO_2

Other examples

Fuel	Emission factor	Unit
LPG	1.47	$kgCO_2e$/litre
Light fuel oil	2.93	$kgCO_2e$/litre
Heavy fuel oil	3.02	$kgCO_2e$/litre
Hard coal	2.64	$kgCO_2e$/kg
Lignite	1.21	$kgCO_2e$/kg

Time for questions

Frequently Asked Questions by suppliers:

Question	Answer
I have already calculated a PCF without carbmee, can I submit that instead?	Yes, If you have already calculated your product carbon footprint (PCF) with a certified body, you have the option to upload the pre-calculated emissions without modelling. You have detailed guidance of exactly how to do this inside the product.
How does carbmee protect my data?	carbmee follows a series of policies to protect your data and prevent any risks associated with information security, including cloud hosting European servers, using SSO and being ISO 27001 compliant. Only you and your customer will have access to the data you provide. It will be kept in an isolated and secure location in order to protect privacy.
I can only share data after signing an NDA, is it possible to sign one?	Yes, if an NDA is required, please contact our team afterwards in order to set up an NDA before starting.
What databases does carbmee use?	carbmee's EIS is a multi-database platform that uses Ecoinvent (activity-based), Exiobase (spend-based) and our extensive proprietary database.
What should I do if I can't find an emissions factor in carbmee?	If you can't find the emissions factor you are looking for, please contact the carbmee support team using THIS LINK.
What if I receive material directly from KB, do I need to include it into carbmee?	No, if you receive your material from Knorr-Bremse. Only add your production steps or energy into the platform. As the material is already captured.

Meet your team, that is here to support YOU

END-TO-END GUIDANCE
Benefit from in-platform guidance, webinars, and information-rich resources. We're here to support you at every step of your journey.

IN-HOUSE EXPERTISE
Tap into our diverse in-house expertise, spanning sustainability, carbon accounting, and supply chains.

ON-DEMAND SUPPORT
Tailored support, regardless of supplier maturity.

Meet your team

Leona Mrackova

Supplier Engagement Project Lead your primary point of contact and responsible for delivery of engagement and general sustainability guidance.

CLICK HERE TO REQUEST SUPPORT FROM CARBMEE

Thanks for your attention

carbmee Team

Please contact our Supplier Engagement Team on:
suppliersupport@carbmee.com

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