Sustainability report **2021**

KME GROUP

Mansfeld

Sustainability report **2021**

KME GROUP Mansfeld

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KME Mansfeld GmbH

An integrated system of the **copper industry** in **Europe**

Sales
213,829 t

Employees
1,064

Turnover
977 millions €

Strategic value for the **circular economy** and the European Green Deal

1 Report guidance

REPORT GUIDANCE

We live through difficult years. First, in 2020, the pandemic. Then, in this 2022, the war in Ukraine. The economic recovery that had characterised 2021 has been held back by international tensions. Industries operate in this difficult context. But this does not affect the process of evolution of the KME Sustainability Report, which rather sees this year the realisation of a new important milestone.

The KME Group Sustainability Reports
Now in its fifth edition, we are further broadening the scope of activities covered. The first report only covered the KME Italy plant in Fornaci di Barga, the second included the service centres in Besançon in France and Barcelona in Spain. In the third year it was joined by our report of KME Mansfeld GmbH and then, last year, that of the Osnabrück KME Germany plant. From this year, the sustainability reports will also extend to the Serravalle (Italy) and Stolberg (Germany) plants, while the Brescia service centre will also be included in the KME Italy report.

This is a further step towards extended reporting for the entire KME Group. For this reason, already from this edition the sustainability reports will be structured in a partially different way from previous years. Alongside the individual reports that account for the activities of the plants, there will also be a general document that provides an overview of the KME Group and the context in which it operates.

**Complete data can be found in the company's economic balance sheet*

An act of transparency and social responsibility
As already mentioned in previous editions, the decision to produce and publish the Sustainability Report is not a legal obligation for KME Mansfeld GmbH, but the expression of a precise strategic will to focus on corporate social responsibility (CSR) and ESG criteria, as well as a concrete commitment to the ecological transition and the circular economy.
KME Mansfeld GmbH present his sustainability report as a voluntary act of **transparency** and **social responsibility.**

Guidelines and indicators
The report has been prepared on the basis of the guidelines of the **Global Reporting Initiative** (GRI), an independent international organization recognized by the UN and the main reference for sustainability reporting activities worldwide.
The report uses four sets of indicators related to the GRI standards:
1. **informations** regarding the governance of the company;
2. **environmental indicators**, in particular concerning energy, materials, water, waste, emissions;
3. **social indicators**, concerning personnel, training, safety, equal opportunities, human rights, relations with the territory.
4. **economic indicators**, concerning the main economic results* and the added value distributed to the main stakeholders.

Circularity indicators
In order to further illustrate the company's activities and strategies, in addition to the reporting carried out on the basis of GRI guidelines and standards, a special chapter of the report also uses **circularity indicators** to measure the company's performance in relation to the objectives connected with the **transition to a circular economy**.

Reporting
This report covers the year 2021. Data for 2019 and 2020 are also reported to allow for an assessment of the performance of key indicators over the last three years.

Materiality matrix

The most relevant issues to be reported in the report were identified through discussion with management and key stakeholders (employees, shareholders, institutions, local community, trade associations, research bodies, etc.). The tool used to select the most interesting indicators is the "materiality matrix", which measures the degree of importance attributed to the various aspects subject to reporting*.

** Stakeholders and company management were asked to assign a priority level from a minimum of 0 (not relevant) to a maximum of 100 points(very relevant) to the various aspects being reported on. The evaluations make up the "materiality matrix".*

Materiality matrix

1 CORPORATE WELFARE

2 HEALTH PROTECTION AND SAFETY

3 ENHANCEMENT OF HUMAN CAPITAL AND THE ROLE OF WORKERS

4 CONTRIBUTION TO THE DEVELOPMENT OF THE TERRITORY AND RELATIONS WITH THE LOCAL COMMUNITY

5 SUSTAINABLE SUPPLY CHAIN MANAGEMENT

6 EQUAL OPPORTUNITIES FOR MEN AND WOMEN

7 PROTECTION OF HUMAN RIGHTS

8 WASTE RECOVERY

9 EFFICIENT USE OF RAW MATERIALS / CIRCULAR ECONOMY

10 EFFICIENT WATER USE: SAVING WATER AND REDUCING LOSSES

11 PROTECTION OF THE TERRITORY AND OF SURFACE AND GROUNDWATER

12 CLIMATE CHANGE: MITIGATION AND ADAPTATION ACTIONS

13 SAFEGUARDING BIODIVERSITY

14 AIR QUALITY: CONTAINMENT OF POLLUTING EMISSIONS INTO THE ATMOSPHERE

15 CONTAINMENT OF ODOUR EMISSIONS

16 ENERGY EFFICIENCY AND RENEWABLE ENERGIES

17 TRANSPORT, ACCESS TO COMPANY SITES

18 INTEGRATED VALUE CREATION (ECONOMIC, SOCIAL AND ENVIRONMENTAL)

19 ETHICS, RESPECT FOR RULES AND COMPLIANCE

20 DEVELOPMENT OF SYNERGIES WITH PUBLIC ACTORS AND PRIVATE PARTNERS

21 LISTENING, INVOLVEMENT AND AWARENESS OF STAKEHOLDERS AND RELATIONS WITH THE TERRITORY

22 INDUSTRIAL GROWTH FOCUSED ON INFRASTRUCTURE

23 REMUNERATION POLICY AND EVALUATION OF THE PERFORMANCE OF TOP MANAGEMENT

24 CONSOLIDATION OF THE ELEMENTS OF SUSTAINABILITY IN CORPORATE GOVERNANCE

25 MANAGEMENT OF RISKS RELATED TO SUSTAINABILITY

26 ELEMENTS IN REPORTS WITH THE FINANCIAL COMMUNITY VALORISATION OF ESG (SUSTAINABLE INVESTMENT APPROACH)

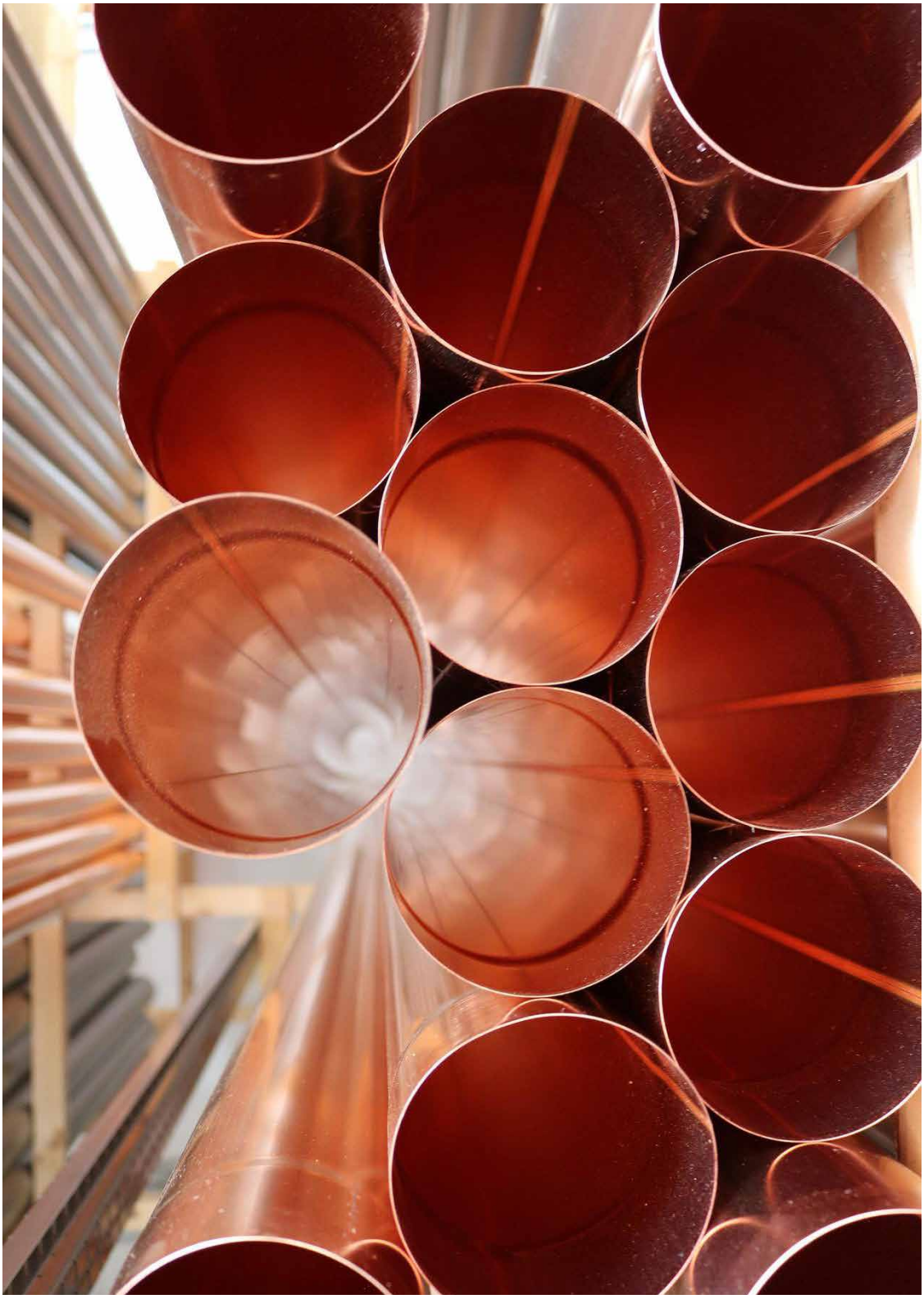
27 TECHNOLOGY AND INNOVATION ON INDUSTRIAL PROCESSES, INFRASTRUCTURES AND SERVICES

Sustainability goals
The company's activities and performances are reported by referring, through special icons, also to the sustainability goals of the United Nations 2030 Agenda.

Our **commitment**

As in the early 1900s, when the plant was one of the protagonists of electrification in industry, today, after more than 100 years of history, it will support the turn towards a sustainable economy characterized by renewable energies and circular economy.
Our copper products are made with a minimum of CO_2 and helps to reduce harmful carbon emissions in other fields.
Our factory is a responsible actor and strives to protect the environment through reducing emissions and overall environmental impact.
The idea of copper recycling has had a firm place in our economic activities since the beginning of copper production. So we work embedded in the European metal industry to establish copper cycles and to save resources. For years, our activities have focused on the circular economy as a pillar of sustainability in development. All copper-containing waste is recycled. All other waste is recycled or returned to other use.
KME makes a significant contribution to climate protection with sustainable corporate measures. The transformation of production methods and associated operational processes is in focus of the targeted development towards climate neutrality.
Copper is the basis of all entrepreneurial activities of KME. The handling of this sustainable material is a commitment to ecologically sensible action. Due to its outstanding technical and environmentally friendly properties, copper is indispensable for the energy transition and the generally envisaged transformation to climate neutrality. Above all, its unlimited recyclability makes the material particularly climate-friendly. Several important measures in this direction have already been taken and their implementation continued in 2021. Further measures are underway in 2022, and more are planned in the coming years.

2 The company



Our company has over a century of experience in processing copper. Since 2019 we have been part of the KME Group. We manufacture in the city of Hettstedt in the state of Saxony-Anhalt, Germany.

Each of our 1,064 employees is committed to the quality of our products and to innovation on a daily basis. We have customers in 60 countries all over the world. Over the past 20 years we have invested more than 400 million euros and continue to do so, looking to the future.

Today as part of the KME Group, KME Mansfeld GmbH is an important player in Europe in the production of copper strips and sheets but also famous for bars and high performance wires made of high grade copper.

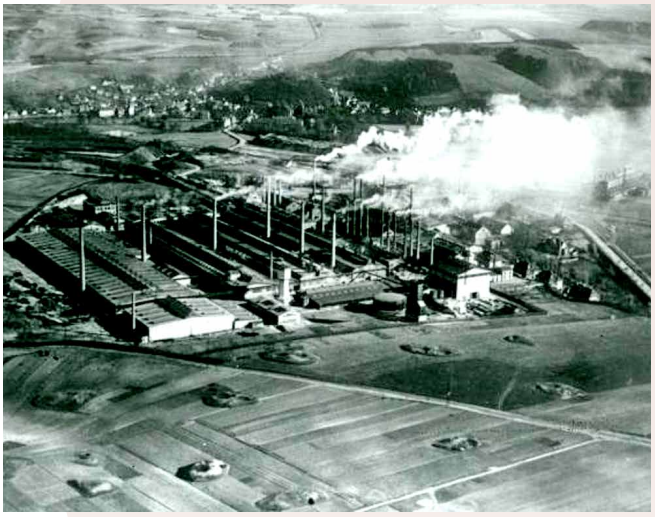
From 2019 part of the KME Group

In June 2019, MKM (Mansfelder Kupfer und Messing GmbH) officially assumed the name KME Mansfeld GmbH.The name change completed the process of formally integrating MKM GmbH into the KME Group. Under the new name KME Mansfeld GmbH, the Hettstedt plant is now one of the pillars of the KME Group. The merger of MKM and KME brings significant benefits not only to the Hettstedt site, but also to the KME Group's role in the copper products market. With integrated plants in a strong production, research and development network, and a global presence in all markets, the group of companies can play a leading role in international competition.

2.1 Our history

The plant in Hettstedt has a history of over 100 years. The location was chosen because of its proximity to copper smelting and production in the neighborhood. At the beginning of the 20th century, the mining complex "Mansfeldsche Kupferschiefer bauende Gewerkschaften" was the largest player in copper metallurgy in Europe and decided to found the Hettstedter Kupfer-und Messingwerke in 1907. As early as 1917, the plant with 2,200 employees was producing about 36,000 t of semi-finished products. The name of the company has changed several times over the years.

OUR **HISTORY**



1907
Resolution to found the Hettstedter Kupfer-und Messingwerke

1908
Installation of the first production plant at the site, a rolling mill for wires

1909
Installation of the wide hot-rolling mill for plates past today

1912
Start of a new rolling mill for copper sheets, a drawing plant for copper wire and a bar drawing plant

1916
Start of the rolling mill for strips

1935
Start of the production of aluminum extrusion products

1946
Conversion of Kupfer-und Messingwerk Hettstedt to Walzwerk für Buntmetalle der Sowj.A.G.

1953
Return to a german state owned company named VEB Walzwerk Hettstedt

1900 1910 1920 1930 1940 1950

KME Mansfeld GmbH north site

1970
Integration into the enterprise VEB Mansfeld Kombinat Wilhelm Pieck

1990
German Reunion, Privatisation by German Treuhand as Walzwerk Hettstedt AG

1993
Fusion of Walzwerk Hettstedt AG and Mansfeld AG to Mansfelder Kupfer und Messing GmbH

1995
Acquisition by the Belgian group Lamitref Industries

1998
Extensive new investments at site including installation of the world first continuous casting plant for copper strips, rolling mills for wide strips and treatment furnaces to produce copper strips, installation of a continuous casting plant for wire rod and an anode hut for the production of copper cathodes

2004
Acquisition by the Kazhak company Kazhakmys plc

2013
Acquisition by Copper 1909 Bidco GmbH

2014
2014 Installation of a new biological wastewater treatment plant

2015
Installation of the copper wire casting plant

2017
Enlargement of the copper wire casting plant

2019
Acquisition by the company KME SE

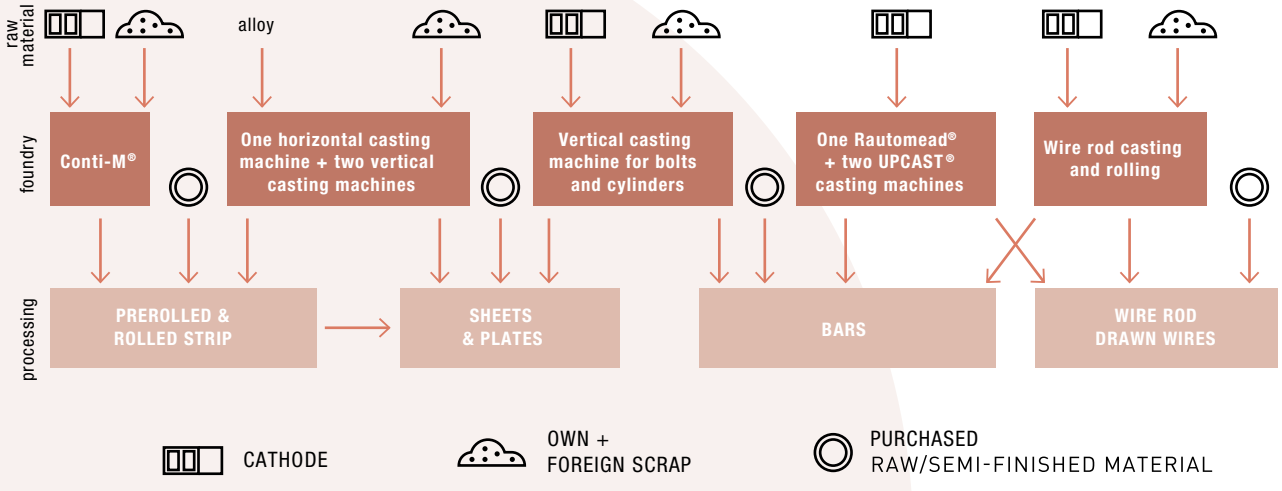
1970 1980 1990 2000 2010

2.2 The factory

KME Mansfeld manufactures **primary and semi-finished products** made of **copper** and **copper alloys**. In addition to offering a wide range of products, the company also specializes in customized solutions for industry. With state-of-the-art technologies, it is a strong global partner in growth markets such as **e-mobility, renewable energy** and **digital infrastructure**.

KME Mansfeld GmbH is owner of the buildings and land on the north part of the plant in Hettstedt. The buildings and land in the south part of the plant in Hettstedt is owned by a third party and KME Mansfeld may use these within the framework of a heritable building right.

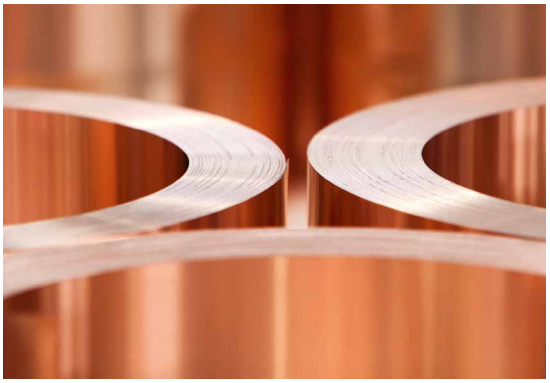
The plant in Hettstedt covers a total area of about 1.2 million m^2, approx. 190,780 m^2 of buildings.



Products

ROLLED

KME supplies pre-rolled strip, industrial strip, transformer strip, cable and HF cable strip and roofing strip. We manufacture all of our strip products using our Conti-M® technology which we developed in-house, using continuous casting technology to achieve a 24/7 process.



Main products:

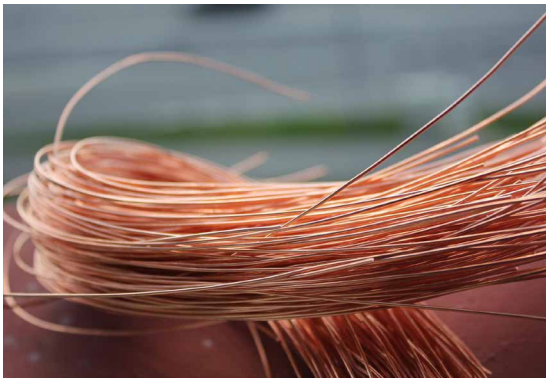
- Pre-rolled materials (Coils);
- Sheets made of rolled;
- Finished rolled products:
- Industrial strip - Transformer strip;
- Roofing (hook strip) - Cable tie;
- High frequency cable strip - Solar cells;
- Alloy strip.

Customers / Markets / Applications:
Sales in 59 countries with more than 600 customers of electrical, cable, solar technology or construction industry. Main markets are Europe, North America, East Asia, North Africa.

In the copper industry Conti-M®, with a twin belt caster as its core, is a unique production process. By combining melting, casting, homogenization, hot rolling and surface milling in one production line, we avoid additional cooling and re-heating phases. This leads to a highly efficient process in terms of energy usage, yield and throughput. Within KME Mansfeld GmbH, Conti-M® material is the source for all strip products.

WIRES

KME Mansfeld GmbH is one of only a few manufacturers of copper wires with an integrated production process. KME supplies the entire spectrum of wire rod, from thick, medium and fine wire to stranded wire and wire rope. Our fully integrated wire rod casting and rolling technology allows us to offer copper wire products and alloy wire products (plain and tinned) in a wide range of finishes.



Wire rod casting plant (wire rod casting and rolling technology)

- 130,000 t p.a.* for the external market;
- Plus 45,000 t p.a.* for our drawn wire production.

Drawn wire production with approx. 140 wire drawing and stranding / stranding machines

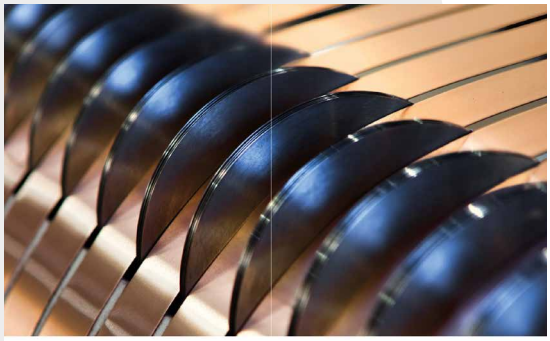
90% of all products are used as starting material for cables and wires.

- Power transmission;
- Automotive & mechanical engineering;
- Communication;
- Special cables.

Sales in 33 countries - main markets are Europe, Middle East, North Africa

Divestment of the Wire business
On 18 November 2021 KME Mansfeld GmbH signed an agreement with Elcowire Group AB to divest the Wires business. The transaction represents a further step towards the realisation of the Group's strategy. KME's objective is to further focus and strengthen the Wires business through the divestment of all non-core activities and the acquisition of new synergy activities. Elcowire's production facilities are located in Helsingborg (Sweden) and Hettstedt (Germany), next to those of KME Mansfeld GmbH. The divestment transaction was completed in March 2022.

** maxium system capacity*



SHEETS AND PLATES

KME offers sheets, plates and discs in a wide range of dimensions, to customer specific drawings on request. Our rolling mill is supplied by our own foundries. We serve a broad range of more than 50 alloys.

Production of copper, brass, bronze, special alloys.

Main products:

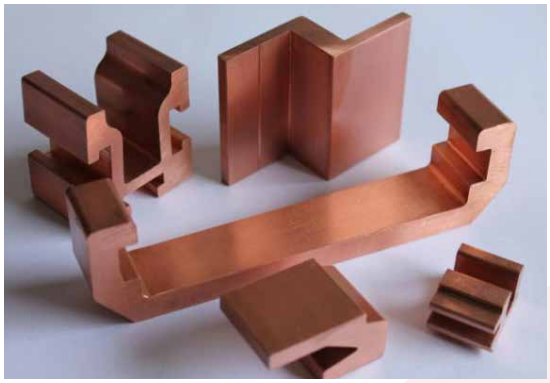
- Sheets (thickness < 5 mm) 20%;
- Plates (thickness > 5 mm) 70%;
- Other products 10%.

Customers / Markets / Applications:

- Sales in 41 countries.
- Main markets are Europe, North America, Middle- and East Asia.

Industrial Application:

- Chemical, Electronic, Energy technic, Drinking water production;
- Construction, architecture and decoration.



BARS AND PROFILES

KME is one of Europe's leading producers of copper bars and profiles. Our production range encompasses a wide range of sizes in various grades of copper. We also produce customised profiles based on technical drawings.

Main products:

- Bars;
- Flat bars;
- Round bars;
- Hexagonal bars;
- Profiles.

Markets / Applications:

Switchgear construction (low and medium voltage), power distribution systems (busbars), transformers / electrical components, electrical machine construction, wind power, automotives, shipbuilding, offshore-industry, system and apparatus engineering.

Main markets are Europe, North America, North Africa.

Successful **projects** for KME Mansfeld products

Every job is different, especially when it comes to custom solutions and special products made on behalf of clients. Many of these cannot be found anywhere else in the world, for example when it comes to special buildings, artwork and monuments.

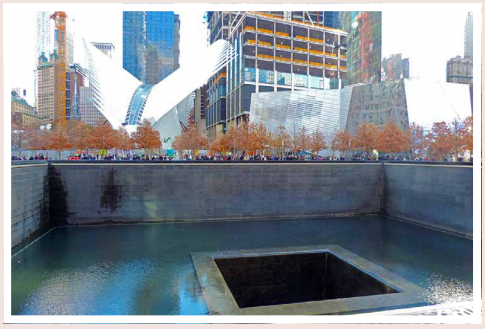
Here are some examples.

Axel Towers
240 t of brass sheet metal for a spectacular project in Copenhagen, Denmark.

Distillery of Dalmunach, United Kingdom

Off-shore
It takes up to 30 t of copper to connect an offshore wind turbine to the power grid.

Yanbu, Saudi-Arabia
The Yanbu 3 desalination plant use 450 tons copper-nickel plates for heat exchanger to transform seawater into drinking water.

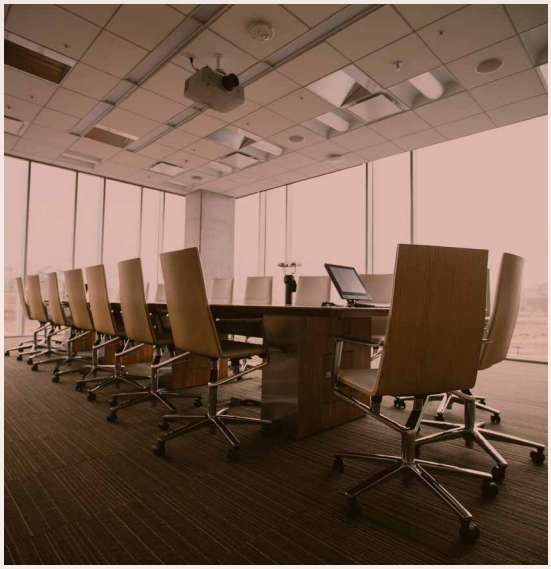


New York, United States of America - Ground Zero
125 t in memory of the victims of the terrorist attack of September 11, 2001.

2.3 Governance

As the legal form of a Limited Liability Company, KME Mansfeld GmbH is subject to the German Law on Limited Liability Companies (GmbHG). The regulations for large business corporations apply.
The Company is situated in Hettstedt, Lichtlöcherberg 40, and is entered in the commercial register of Stendal local court under HRB 207208.

The auditing firm for KME Mansfeld is Deloitte.



Supervisory Board

The supervisory board supervises the management and acts as its controlling body. It is responsible for overseeing the functioning and compliance with the model and reporting any critical issues to shareholder's meeting. In 2021, the supervisory board consisted of the following persons:

Employer representatives

- **Ms Diva Moriani** (Chairwoman)
Profession: Deputy chairwoman of executive board of Intek Group S.p.A.

- **Mr Marco Miniati** (Deputy chairman)
Profession: managing director, CPO KME SE

- **Mr Pierpaolo Di Fabio**
Profession: managing director, CFO KME SE

- **Mr Ulrich Becker** (until 12 October 2021)
Profession: managing director, CEO KME SE
(until 12 October 2021)

- **Ms Alessandra Pizzutti** (since 13 October 2021)
Profession: Lawyer KME Group

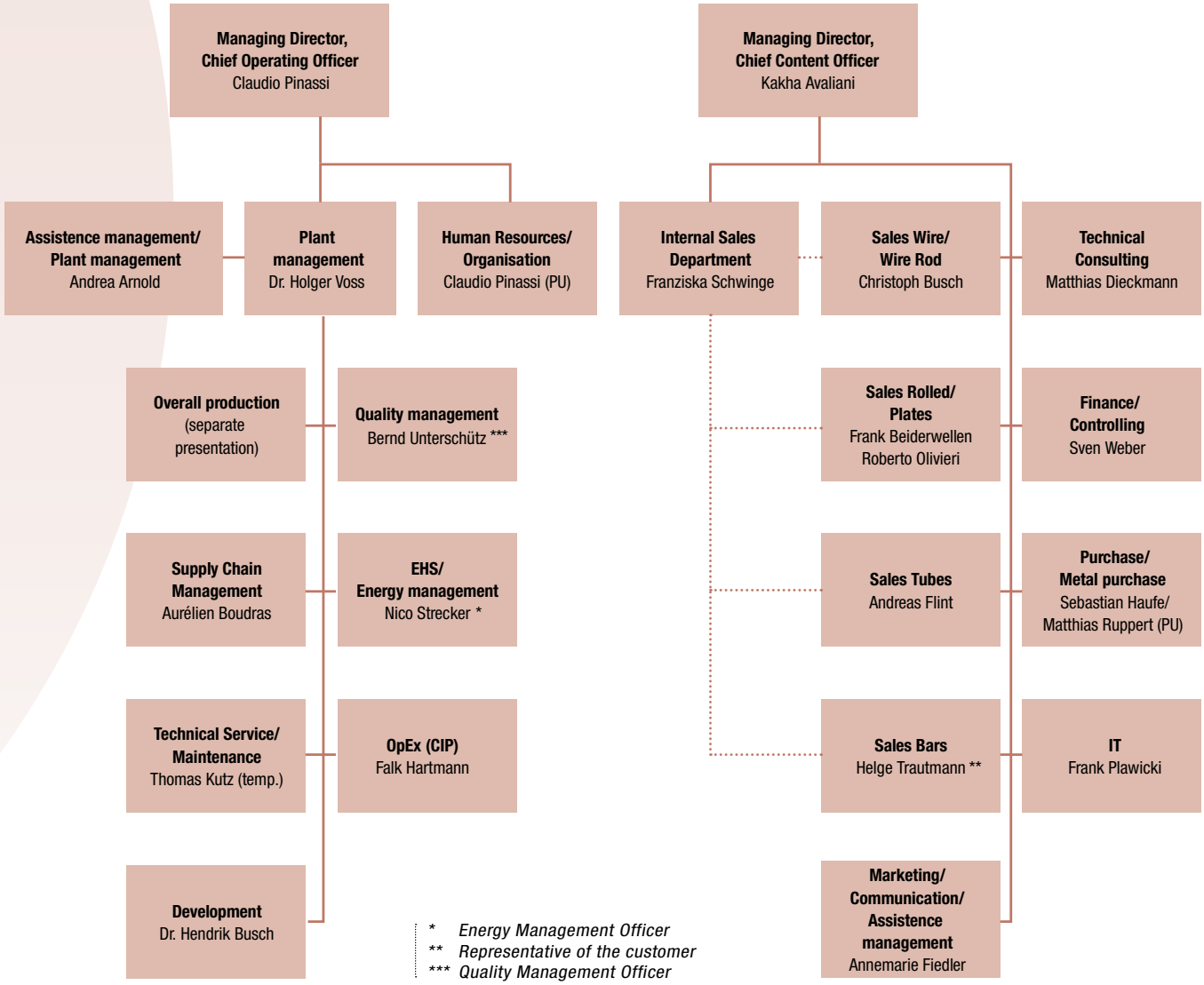
Employee representatives

- **Mr Ronny Wehling**
Profession: Paramedic

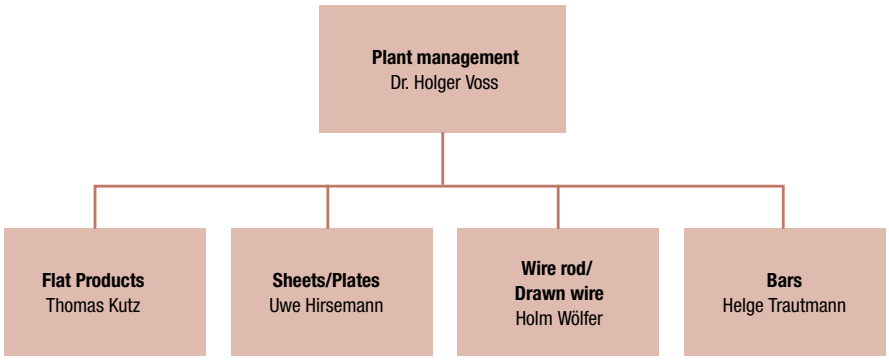
- **Mr Christian Klopfer**
Profession: Industry mechanics

Organizational model and main corporate functions

Overview KME Mansfeld GmbH



Overall production



2.4 Code of conduct

KME Mansfeld GmbH operates according to principles of social responsibility. It is aware of the consequences of its business decisions and actions in economic, technological, social, and environmental terms, based on its code of conduct.

KME voluntarily contributes to the long-term well-being and development of a global society at every possible point in the places where it operates. It is oriented towards ethical values and universal principles, in particular integrity, honesty and respect for human dignity. The code of conduct applies in all KME units, as well as at every possible point for its suppliers and other parts of the value chain.

KME actively works to ensure that the following core values for social responsibility are put into practice in business management and are respected.

The company operates in full compliance with the KME Group Code of Conduct, which is based on 3 fundamental principles:

- Legality
- Relationships with stakeholders marked by fairness, cooperation and loyalty;
- Working conditions that respect human dignity and safe working environments.

2.5 Certifications

The management system of KME Mansfeld GmbH is certified according to the following standards:

- ISO 9001:2015 (Quality management)
- IATF 16949:2016 (Additional certification for automotive)
- ISO 50001:2018 (Energy management)
- ISO 14001:2015 (Environmental Management)
  In 2021 KME Mansfeld obtained ISO 14001:2015 (Environmental Management) certification.

ISO 45001:2018 (Occupational health and safety management) certification is currently being implemented and is expected to be achievable in 2023.

Quality certification

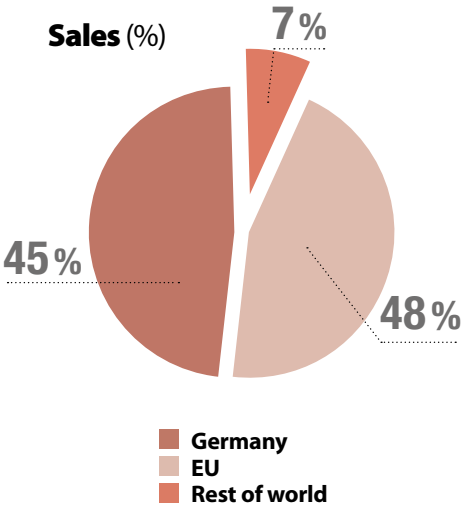
The IATF16949:2016 certification system guarantees the quality of our products. Our customers' requirements are met through a consistently high level of quality, from the inquiry stage to the finished product, right through to delivery at the customer's premises.
And, of course, we monitor the quality of our products during production and once completed. We use the latest testing equipment in manufacturing, chemical laboratory, mechanical materials testing, metallography and metal physics.

2.6 Sales

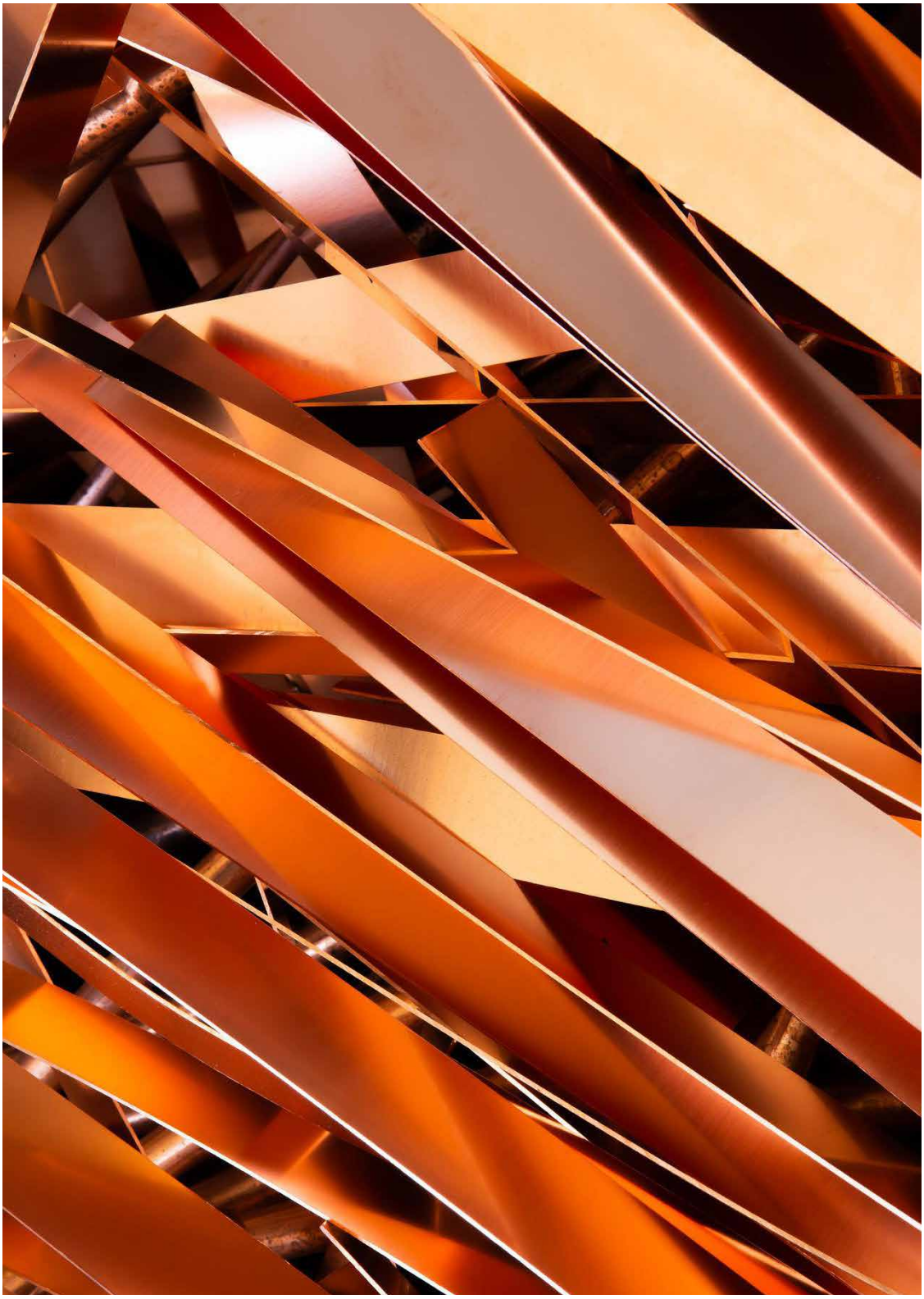
In 2021 sales amounted to **213,829 t**, of which:

- **45% in Germany**
- **48% in other EU countries**
- **7% in the rest of world**

SALES	2019	2020	2021
WIRE ROD	77,563	73,541	69,516
WIRE	30,179	30,597	30,753
STRIPS	83,959	84,648	83,168
SHEETS & PLATES	11,641	9,018	9,612
TUBES	10,150	4,328	0
BARS	26,323	22,810	20,743
BILLETS	1,193	517	36
TOTAL	241,008	225,459	213,829



3 Environmental sustainability



3.1 Environmental management system

As stated in the KME Group's Code of Conduct, protecting the environment is a priority for our business. The focus on environmental protection is also necessary because the main activities of KME Mansfeld GmbH have a major environmental aspect.
There are five assets in operation that require approval under German law. In addition, these assets are subject to the European Industrial Emissions Directive and are controlled by German authorities. The results of the inspections are made public. For years, these reports have confirmed that the company is operating in compliance with the European law.
Because of the obligation to continuously improve the management system, we have decided to strive for an external certification according to ISO 14001:2015. Starting in 2019, employees were trained in the basics of the environmental management system and a management team was installed to organize the transition to an integrated energy and environmental management system.
The installation of a certified management system includes the obligation of the top management to specify the energy and environmental policy and to have the necessary resources ready to activate procedures and processes that aim to bring about a continuous improvement in energy and environmental performance.
To this end, the energy and environmental performance is assessed, deficits identified and measures generated. Internal and external audits are carried out. Results will be reported to the management.

Environment and **energy** policy

The KME Mansfeld GmbH is one of the leading manufacturers of primary materials and pre-products made from copper and copper-based alloys. The manufacturing processes of our products require a high energy input. Melting, casting, pressing, pulling, rolling and cutting processes have a high impact on protected natural resources such as air, water, soil, humans, fauna and flora. This is why protection of the environment and energy efficiency are of such importance to us.

- *Our environment and energy policy is the framework for our annually defined objectives, which are in turn broken down to the individual departments. The objectives are continuously tracked and controlled. The derived measures from planning to implementation are fully aligned with protection of the environment and energy efficiency.*
- *Resource-saving usage of raw materials, consumables and fuels as well as the use of technical equipment up to current standards in regards to economical tenability are essential components to our actions. Our raw materials and intermediate goods can be recycled nearly completely and reintroduced into the economic flow.*
- *Sourcing focuses on high quality, environmentally friendly and energy efficient products and services. Contractors are briefed and advised to adhere to the applicable laws and our regulations and are chosen, accordingly.*
- *Sustainability of our processes as well as their ongoing advancement are very important to us. Saving drinking water, resource saving use of consumables, reduction of waste and all possibilities of saving energy are therefore expedited.*
- *We encourage the environmental and energy awareness of our employees on all levels. Possible effects on the environment and energy consumption are taken into consideration in advance of the acquisition of new machines or the implementation of process changes. The handling of hazardous substances, waste, wastewater and emissions are just as important as the use and consumption of energy on site.*

- *We cooperate closely with authorities and organizations. In addition, we inform the public and the community about the impact of our activities on the environment.*

Management provides all required resources and information for our activities.
The management as well as all employees oblige to all laws and other duties in order to continually improve the protection of the environment and our energy conservation performance as well as the prevention of environmental adverse effects through consistent improvement of our environment and energy management system.
This environment and energy policy is confirmed by the management and obligatory for all employees.

Hettstedt, 26.01.2021

Our **commitment** to high environmental standards

It is absolutely natural for us to maintain high environmental standards. The efficient use of resources makes ecological as well as economic sense. We aim to use resources as efficiently as possible and reduce the emissions and the waste we produce. We reduce our use of raw materials by recycling our own copper scraps and that of our business partners. We are working to minimize our use of fresh water by recycling wastewater from different production areas and reusing it. We are reducing our use of natural gas by using waste heat from our foundries and production systems, with the goal of protecting natural resources.

Environmentally friendly operating supplies
We strive to purchase environmentally friendly operating supplies so as to reduce the amount of hazardous waste we generate. We fully inform our customers about our products, enabling them to use them in an environmentally friendly manner.

Regular audit of KME Mansfeld and its suppliers
We work closely with local authorities during the implementation of new regulations and legal permits. We regularly assess and evaluate our environmental behavior as part of our annual environmental report. We also expect our suppliers and contractors to exhibit similarly positive environmental behavior and monitor this through appropriate certifications. In accordance with the new European chemical regulations - REACH - we ensure that only registered substances (metals) are contained in our products.

3.2. Energy

Reducing energy consumption is a very important objective for the copper industry. First of all from an environmental point of view, to contribute to the reduction of greenhouse gas emissions. But it is also important from an economic point of view to reduce production costs.

KME Mansfeld has therefore taken measures to increase energy efficiency and has an energy management system based on the international ISO 50001 standard. The certification was issued by Lloyd´s Register Deutschland GmbH, Cologne, Germany.

Energy efficiency to protect the climate

Copper is potentially climate friendly. According to calculations published by the Eco Institute in Freiburg, its **global warming potential** per kilogram of primary metal is 2 kg of CO_2 equivalent. In comparison, one kilogram of gold has a global warming potential of 18,000 kg of CO_2 equivalent. The cumulative energy consumption of gold per kg of primary metal is also 8,700 times that of copper. However, the energy expenditure in copper production is still high.

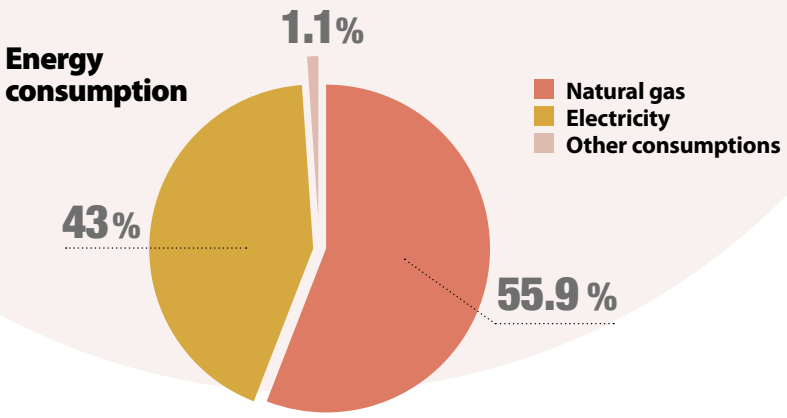
Because the energy used to obtain copper from recycled materials is up to 90% less than that required to obtain copper from ore, KME Mansfeld uses recycled copper in addition to copper from ore. And the company pays close attention to **energy conservation**, taking a wide range of measures to significantly increase its energy efficiency. KME Mansfeld has introduced an energy **management system** based on the international ISO 50001 standard, which it applies consistently and successfully.

We have already significantly improved the energy efficiency of our production by increasing the **percentage of recycled material** and integrating **heat recovery** into continuous manufacturing processes. In order to achieve lasting savings across the company, our energy management team regularly identifies other areas of potential and develops proposals on how to capitalize on them. Other important elements of the system include ongoing training and information for our employees.

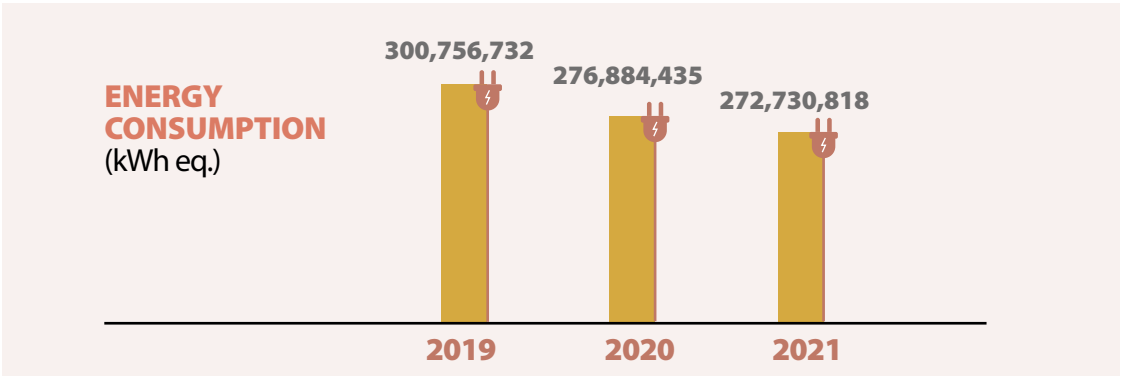
Energy consumption
KME Mansfeld uses **natural gas** and **electricity**. It also uses limited quantities of diesel, gasoline and extra-light fuel oil.
Electricity consumption amounted to **117,268,867 kWh**, while those of natural gas amounted to **152,469,901 kWh** eq. Other consumption (diesel, petrol, extra light fuel oil) amounted to **2,992,050 kWh eq.**

ENERGY CONSUMPTION (kWh eq.)

	2019	2020	2021	% 2021/2020
Natural gas	159,628,047	151,478,156	152,469,901	**+0.6%**
Electricity	137,333,502	122,356,698	117,268,867	**-4.2%**
Other consumption (diesel, petrol, extra light fuel oil)	3,795,182	3,049,581	2,992,050	**-1.9%**
TOTAL	**300,756,732**	**276,884,435**	**272,730,818**	**-1.5%**



Overall, in 2021 KME Mansfeld consumed **272,730,818 kWh eq.** Compared to 2020 there was a reduction of 1.5%.

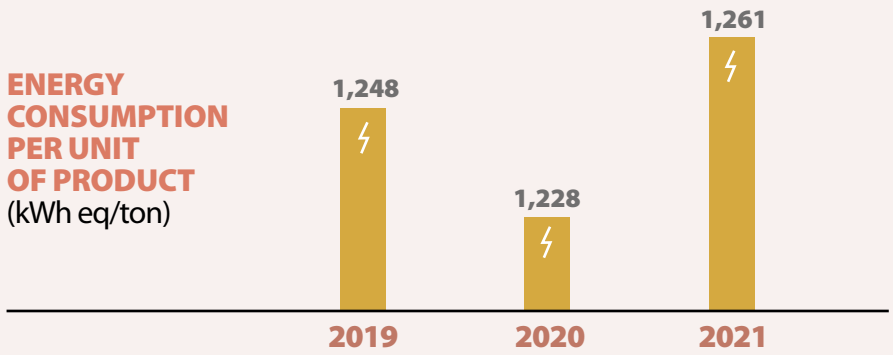


Energy intensity
However, the absolute value of consumption does not help to fully understand efficiency levels, because they obviously depend on the production volume.

The most significant figure for measuring efficiency is energy intensity, i.e. specific consumption per unit of product.
1,261 kWh eq. of energy (considering natural gas and electricity) was consumed per ton of product in 2021.

Methodological **note**

We operate a foundry for each production area (strip, sheets and plates, wire, bars and profiles) which converts copper cathodes and copper scrap into primary material for the subsequent production processes. Depending on the level and depth of production, these primary materials are refined in the subsequent processes to produce saleable semi-finished copper products. As part of the operating data acquisition and evaluations in the controlling and energy management area, the entire tonnages that are processed in our production facilities are recorded. These are simply added up for internal purposes.
Since, as described above, primary materials can run multiple times through different production facilities and production areas, depending on the production level and depth, the tonnage quantities are sometimes counted multiple times. The methodology used in this report, however, also for reasons of consistency with the other plants of the KME group, calculates the specific energy consumption as the ratio between energy consumption and the production output of the plant in the year.



3.3 Materials

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Efficiency in the use of material resources and the **use of recycled materials** are very important elements for the environmental sustainability of the industry. Those who produce copper and copper alloys, from this point of view, can leverage the fact that copper is a so-called "permanent" material, potentially infinitely recyclable. KME Mansfeld uses **copper scrap**, mainly through scrap procurement. KME Mansfeld owns the permit to recycle copper scrap.

Materials used
221,362 t of materials were used in 2021 (-3.7 compared to 2020).
The materials used are **95.9% metals** (new metal, scrap and semi-finished)*.

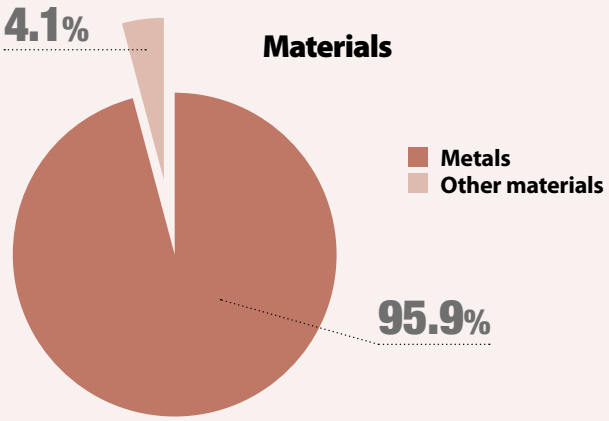
**metals non used for the process are not included*

MATERIALS (t)

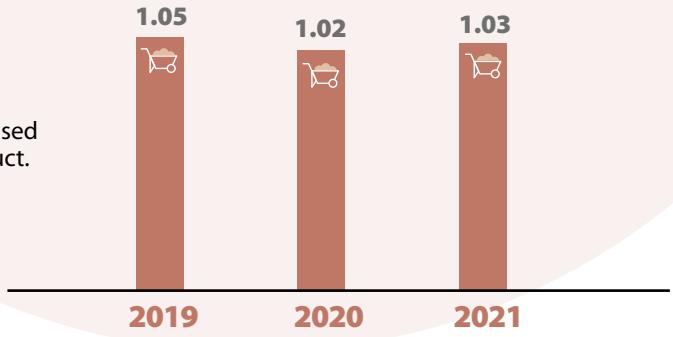
	2019	2020	2021	% 2021/2020
New metal	214,280	194,957	187,849	**-3.6%**
Scraps	20,573	17,984	18,127	**+0.8%**
Semi-finished	8,307	7,454	6,385	**-14.3%**
Total Metals (t)	243,160	220,395	212,360	**-3.6%**
Other Materials (t)	10,816	9,530	9,002	**-5.5%**
TOTAL (t)	**253,976**	**229,926**	**221,362**	**-3.7%**

New metal copper, zinc, tin, nickel, silver in cathods, ingots, etc.

Semi-finished produced with new metal



Materials used per unit of product
In 2021, **1.03 t** of materials were used for every t of product.



Renewable raw materials
4,599 t of materials used in 2021 (wood packaging used pallets, paper, cardboard, charcoal) can be classified as **renewable raw materials**. Of the total materials used, they make up 2.1%, but net of metals the percentage of renewable raw materials rises to **51.1%**.

RENEWABLE RAW MATERIALS

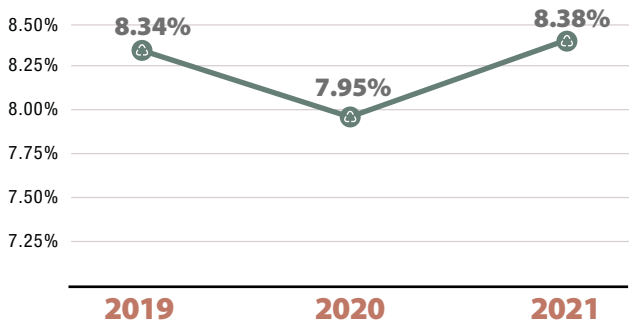
	2019	2020	2021
Tons	6,090	4,671	4,599
Percentage of total materials	2.4%	2%	2.1%
Percentage of other materials (net of metals)	56.3%	49%	51.1%

Recycled materials
In 2021, the plant used 18,127 t of **scraps** from external recycling processes. Including the use of **recycled pallets** (429 t), the total amount of materials from recycling is **18,556 t**, corresponding to **8.38%** of materials used.

RECYCLED MATERIALS

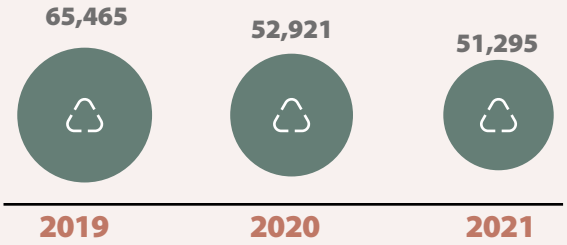
	2019	2020	2021
% recycled materials used	8.34%	7.95%	8.38%

RECYCLED MATERIALS



Internal recycling
From the point of view of the principles of circular economy, the most significant figure is that of internal recycling at the plant. In fact, a relevant part of metals, otherwise destined to come out as waste, is reused through **internal recovery processes** at the plant. **51,295 t** were thus recovered and reintroduced into the production cycle. This makes it possible to increase efficiency in the use of materials, reduce the consumption of virgin raw materials and minimize waste.

INTERNAL RECYCLING



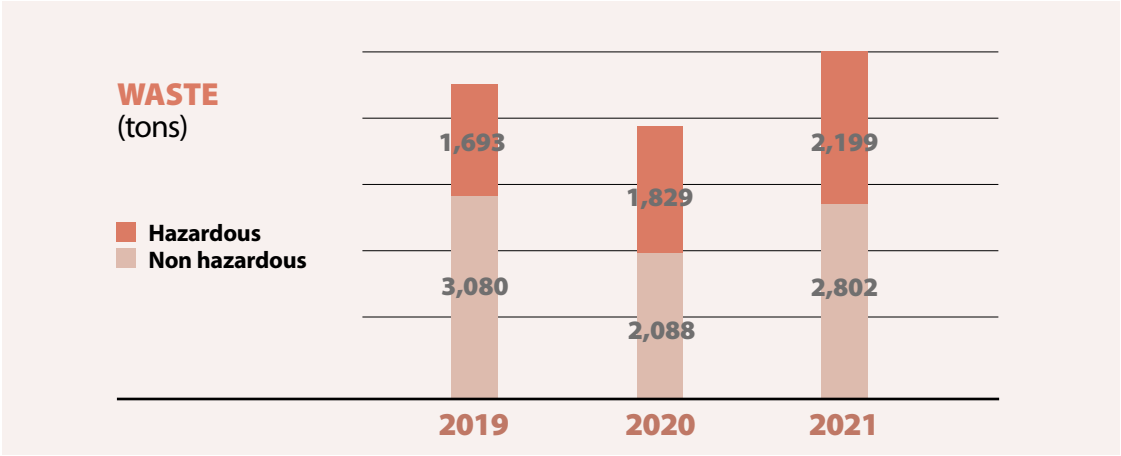
Calculating also the quantity of metals re-introduced in the production cycle **through internal reuse**, the tons of metals processed are 263,655 t (metals from outside plus metals recycled inside the plant). In this sense, the **percentage of total metals recycled** (from external recycling and internal reuse) is **26.3% of metals processed**.

3.4 Waste

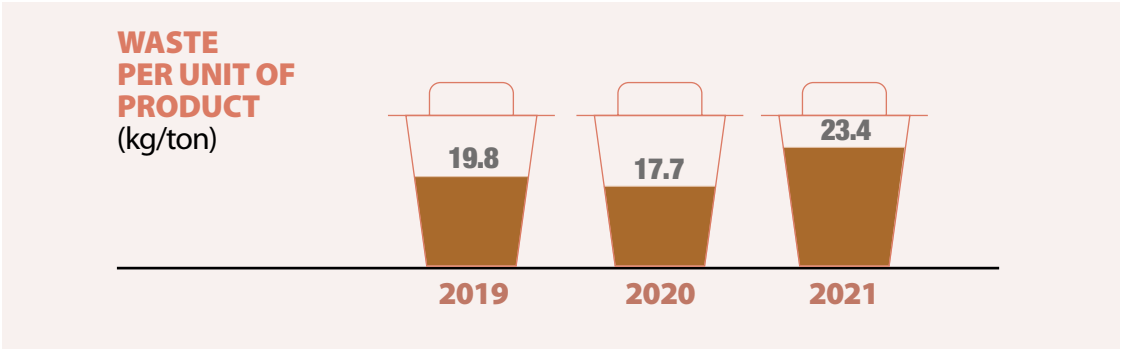
Waste production
The amount of waste produced by the plant amounted to 5,001 tons. Compared to 2020, there is a 27.6% increase.

WASTE (ton)

	2019	2020	2021	% 2021/2020
Non hazardous	3,080	2,088	2,802	**+34.2%**
Hazardous	1,693	1,829	2,199	**+20.2%**
TOTAL	**4,773**	**3,917**	**5,001**	**+27.6%**



Waste per unit of product
An important indicator is the amount of waste generated per unit of product. In 2021 it was 23.4 kg per unit of product (+ 32.2% compared to 2020).



Waste Management
99.8% of the waste produced by the company is sent for **recovery**. Only **0.2%** is **disposed in landfills**.

HAZARDOUS WASTE (t)

	2019	2020	2021
Recovery	**1,686**	**1,815**	**2,188**
Disposal	7	14	11

NON-HAZARDOUS WASTE (t)

	2019	2020	2021
Recovery	**3,080**	**2,088**	**2,802**
Disposal	-	-	-

The company works to recycle as much waste as possible, especially production waste and packaging materials (wood and paper). Separate collection is organized in such a way as to allow maximum recycling of waste.

3.5 Greenhouse gas emissions

Since 2013, copper-producing industries have been involved in the Emission Trading Scheme (ETS), the main tool adopted by the European Union to achieve CO_2 reduction targets in major industrial sectors.

How greenhouse **gas emissions** are calculated

The calculation of GHG emissions is based on the GHG reporting system, which classifies GHG emissions into:

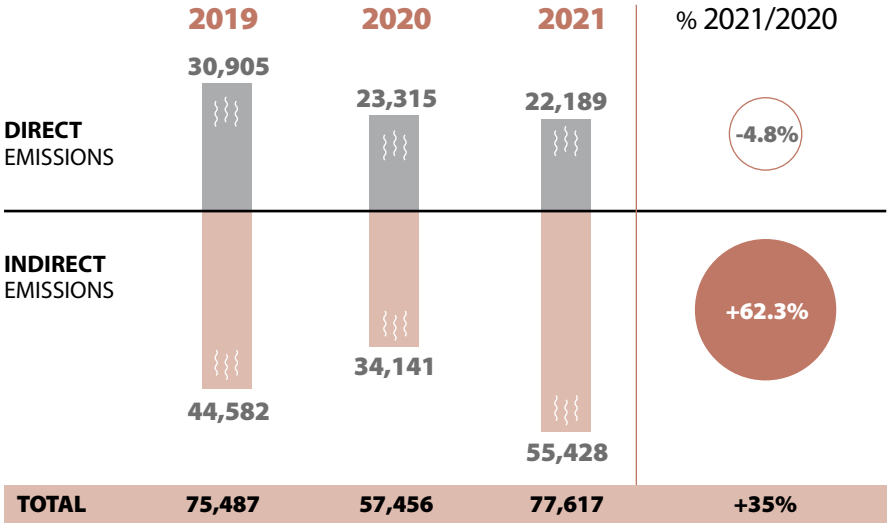
- direct emissions;*
*- Indirect emissions** from the production processes of purchased and consumed energy;*
- other indirect emissions (e.g. from transport).

As information on the latter is not available, the calculation of emissions reported in this report concerns direct emissions and indirect emissions connected with the production of electricity purchased from the grid.
Direct emissions from the use of charcoal are also reported separately because they are biogenic emissions, i.e. of biological or organic origin.
The calculation of specific emissions (CO_2 eq. per unit of product) is made with reference to total emissions (direct and indirect) net of biogenic emissions.

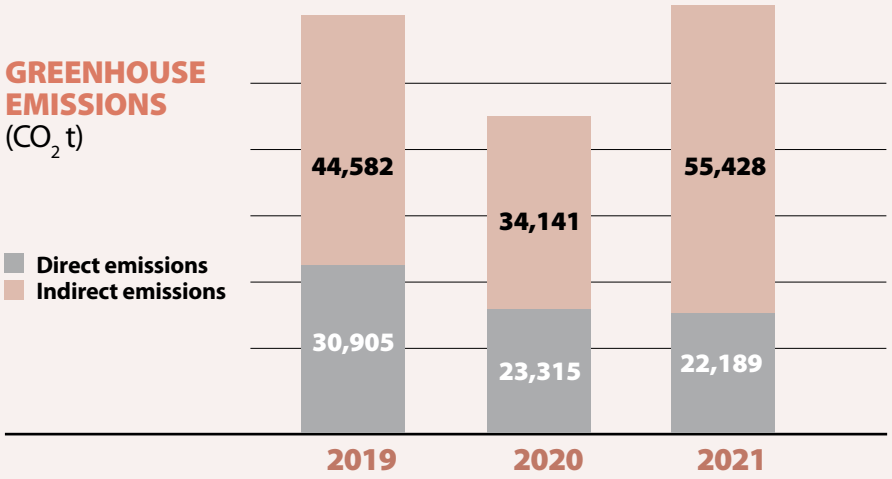
**In the case of KME Mansfeld, these are emissions from natural gas, diesel, gasoline, oil, and purge gas. For the calculation of direct emissions, reference is made to the values reported by the company net of offsets from EU ETS CO_2 certificates.*
***The calculation of indirect emissions from electricity consumption is made with reference to the greenhouse gas emission factors of the energy mix.*

Total emissions
Adding together direct emissions (from production at the factory) and indirect emissions (related to the production of purchased and consumed electricity), KME Mansfeld's **total antropogenic emissions** in 2021 were **77,617 t CO_2 eq.**
Direct emissions from the plant were further reduced (-4.8% compared to 2020), but indirect emissions are greatly increased, despite the fact that electricity consumptions are decreased, due to a reform of electricity labeling in 2021 to eliminate legal greenwashing by German electricity suppliers. The esclusion of subsidised green electricity and the presentation of the suppliers actual electricity purchases leads to a massive increase in **indirect emissions** (+62.3%) compared to the previous year. This inevitably produces an increase in the total emissions figure (+35%).

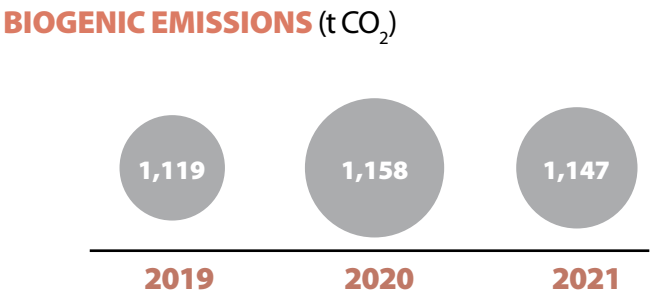
GREENHOUSE GAS EMISSIONS* CO_2 eq. (t)



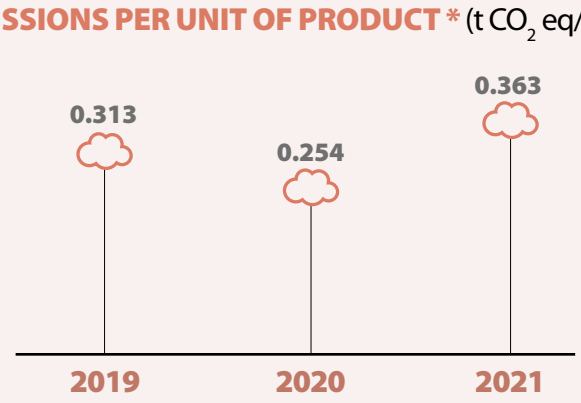
**antropogenic emission*



Biogenic emissions
KME Mansfeld also uses **charcoal**, which produces CO_2 emissions classified as **biogenic emissions**, as they are of biological origin. In 2021, these emissions were 1,147 tons.



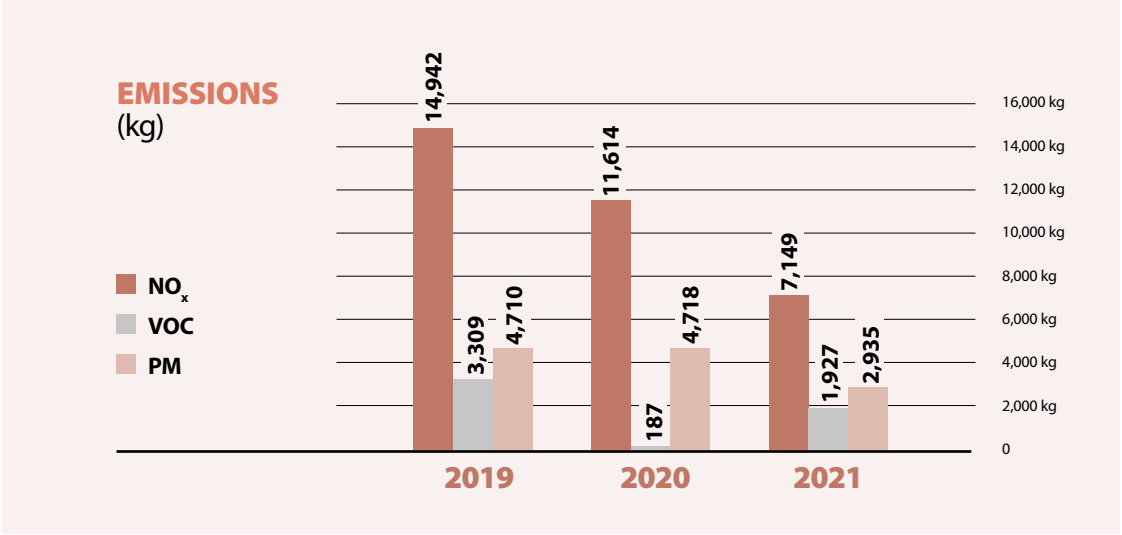
Specific emissions
Emissions* per unit of product increased compared to previous years, despite the fact that the direct emissions are decreased, due to a reform of electricity labeling in 2021 to the consequent increase in the indirect emissions figure. **0.363 t of CO_2 eq.** per unit of product was generated in 2021, while it was 0.254 in 2020 and 0.313 t in 2019.



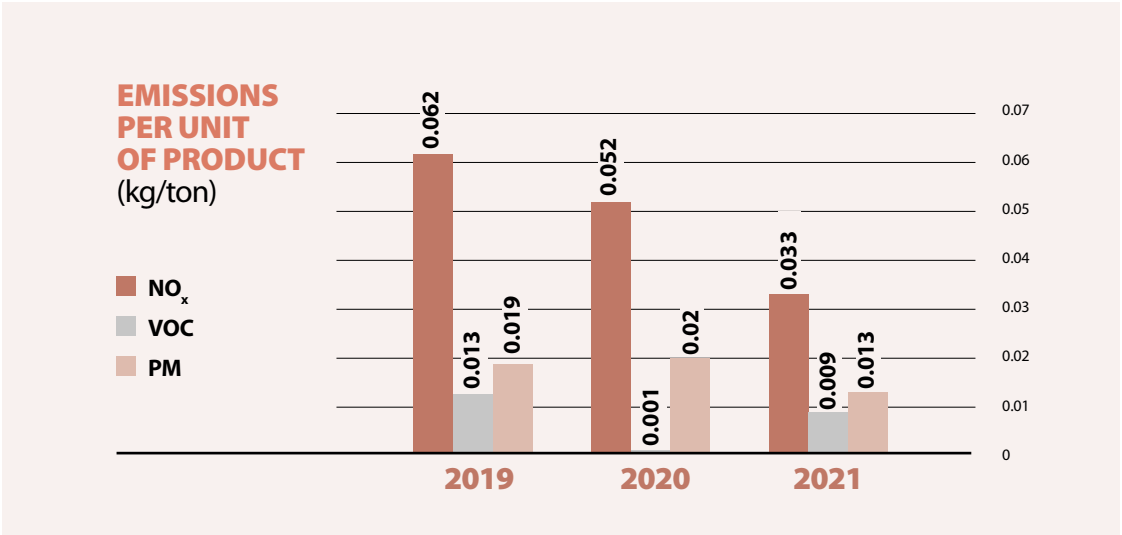
*direct and indirect emissions, net of biogenic emissions

3.6 Other emissions

The emissions generated by the activities of the plant concern in particular **nitrogen oxides (NO_x), volatile organic compounds (VOC)** and **particulate matter (PM)**.
NO_x emissions were 7,149 kg (-38.4% compared to 2020). **VOC** emissions were 1,927 kg and **PM** emissions were 2,935 (-37.8%). In 2021 there were also 1.5 kg of SO_x emissions.



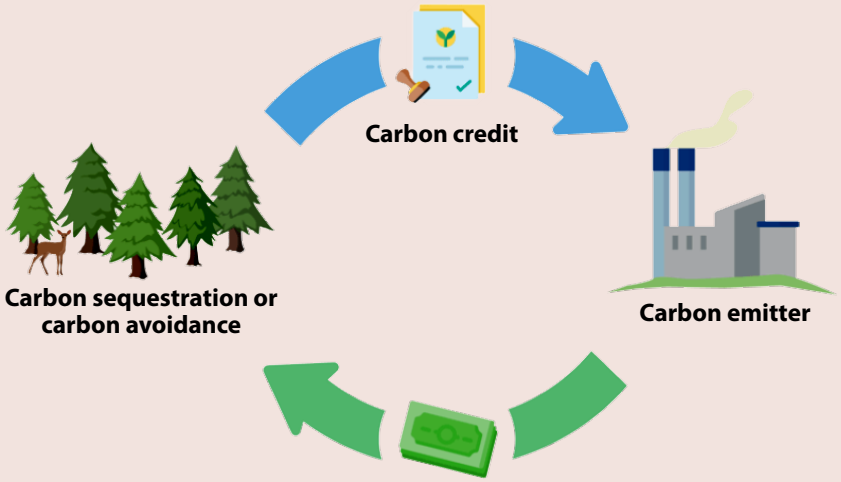
Specific emissions
The amount of emissions per unit of product show a reduction in specific emissions of NO_x and PM, while there is an increase of VOC emissions.



Offsetting climate changing emissions

With the aim of decreasing their Corporate Carbon Footprint, and contributing to the achievement of climate neutrality, the companies KME Italy, KME Mansfeld and KME Germany have planned offsetting measures through an agreement with Natural Capital Italia SpA, the first Italian holding company dedicated to the defence and conservation of natural capital (water, air, soil, biodiversity).

The Intek Group, which carries out industrial activities through KME, will in fact be able to purchase carbon credits from Natural Capital Italia for a value of approximately EUR 500,000, corresponding to offsetting measures for its own climate-altering emissions.



The compensatory measures are carried out at **Oasi Dynamo**, a nature reserve of over 1,000 hectares, affiliated to the WWF, at an altitude of 1,110 metres in the Pistoia Apennines (Municipality of San Marcello Piteglio), next to Dynamo Camp, a facility dedicated to the care of disadvantaged children. The area also includes a farm, accommodation facilities, a visitor centre, and promotes educational activities with students and researchers. In the past, this area was a hunting reserve, but today it is a virtuous model of environmental sustainability and social responsibility. Oasi Dynamo actually represents a perfect synergy between environmental conservation, dissemination of an environmentally friendly culture and traditional farming practices.

3.7 Water

An amount of 1,056,667 m³ water was withdrawn for internal processes (cleaning, steam generation, rinse water, emulsion, sanitary uses, to feed cooling towers, for direct cooling) from the ecosystem.

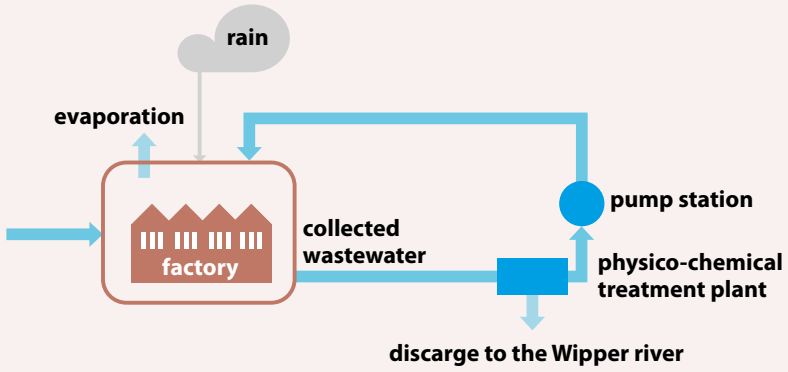
WATER WITHDRAWAL (m³)

Water source	779,471
Collected rainwater	275,707
Ground water	1,000
Public pipeline	489
TOTAL	**1,056,667**

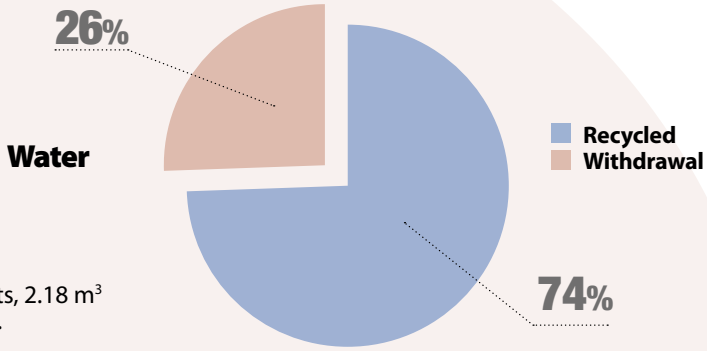
WATER (m³)

	2019	2020	2021	% 2021/2020
Water withdrawal	1,123,499	1,076,523	1,056,667	**-1.8%**
Water discharge	654,262	593,525	590,206	**-0.6%**
Water consumption	469,237	482,998	466,461	**-3.4%**

Recycling
The water-system of our plant is a big water circuit with one outlet (discharge of cleaned waste water to the river Wipper). All water-input (fresh water, water from third parties, rainwater, groundwater) is collected and transported as a mixture via water pipes. After usage it is processed in the central water treatment plant (so called ZBA). Here we clean the water from copper, nickel and other metals, oil and dirt. Afterwards the cleaned water is divided into 2 streams: one stream is recurrent discharged to the river Wipper, the other one flows continuously to the pumping station and back to the factory (process water piping). Fresh water is added via separate piping from outside.

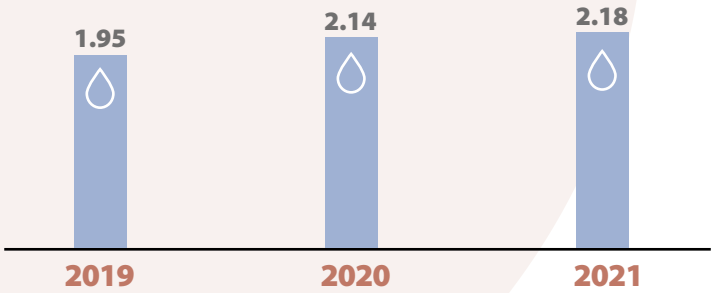


Thanks to this virtuous system, a considerable amount of water is recycled and reused in the industrial process. It has been calculated that in 2021 the company **recycled and reused 2,190,355** m³. This means that the total volume of water required (net of rainwater) without these recirculation systems would have been 2,970,315 m3. The prevailing share of water used in the process comes from **recycling**. In 2021, this percentage had been **74%** (+3.7% compared to 2020)
So this system of recycling avoids the withdrawal of significant volumes of water.



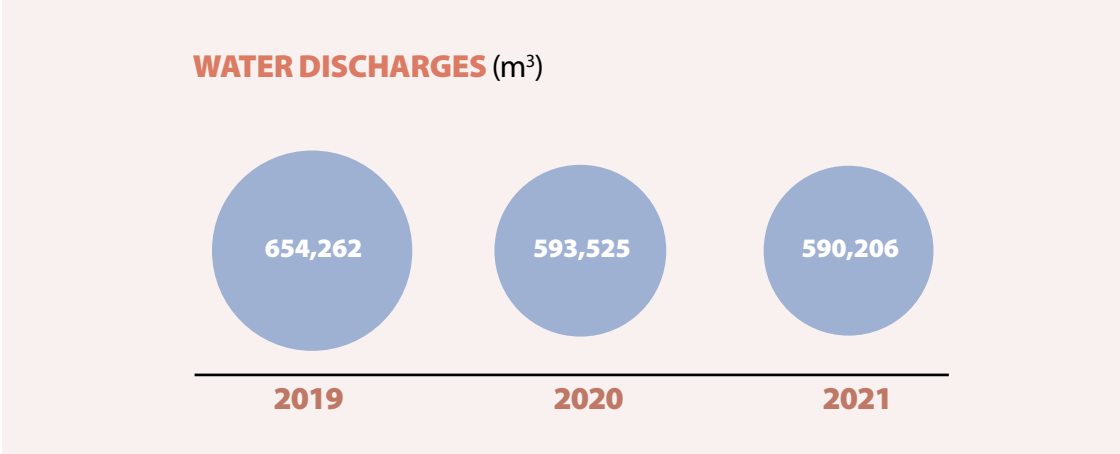
Specific consumption
For every ton of products, 2.18 m^3 of water was consumed.

WATER CONSUMPTION PER UNIT OF PRODUCT (m^3/ ton)



3.8 Purification and water discharges

The water used in the plant is discharged into the Wipper river, **after purification** through chemical and physical treatment (568,987 m³), and to third partys for own use (21,219 m³). Wastewater is managed using the best available techniques.



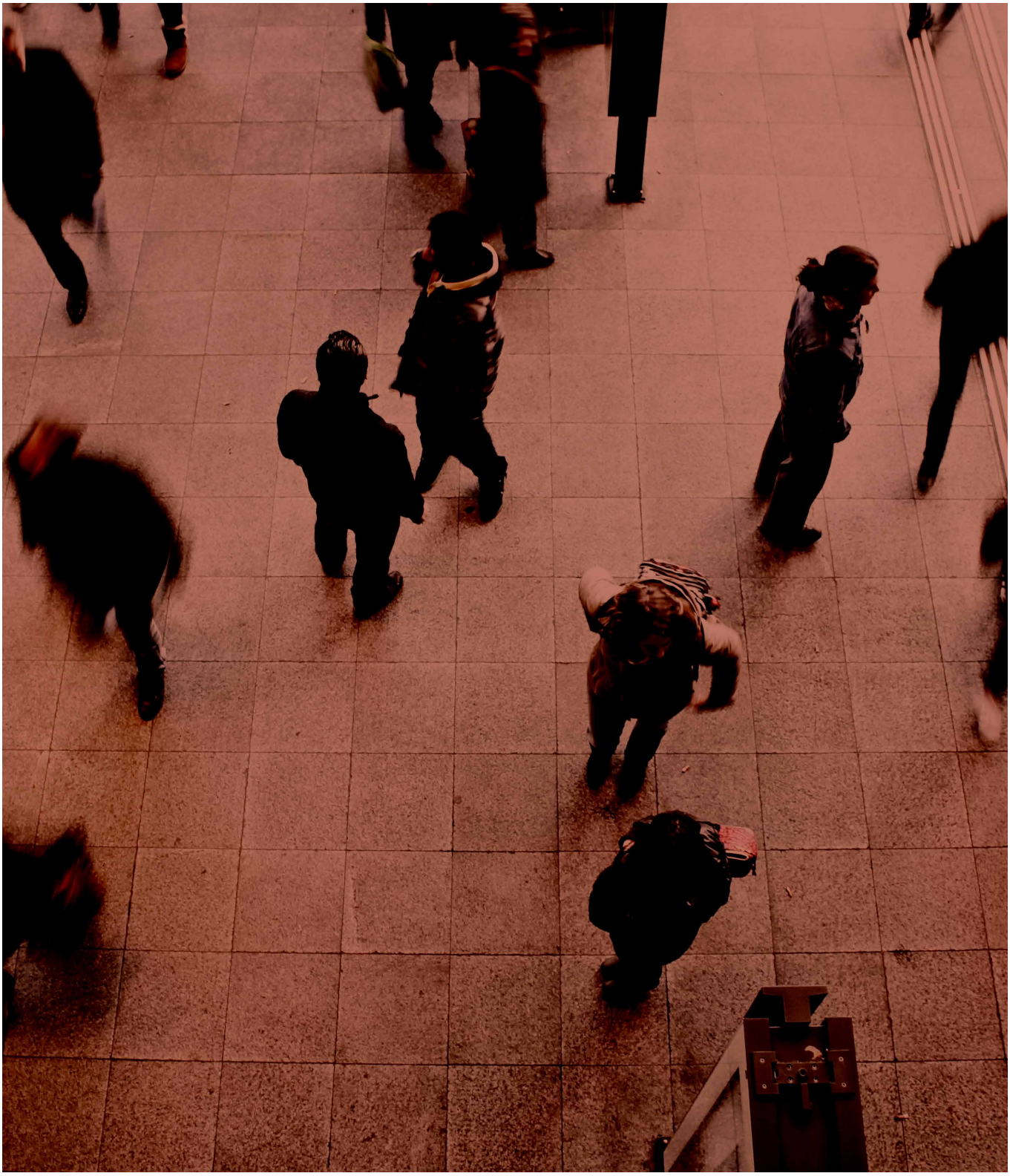
The values of pollutants in the wastewater are well **within the limits** specified in the permit.*
With regard to **copper**, compared to an authorized limit of 0.5 mg/l, the plant releases water with concentrations between 0.025 and 0.170 mg/l.

The same is true for **zinc**: the limit is 1 mg/l, while discharged water have a concentration between 0.025 and 0.280 mg/l.

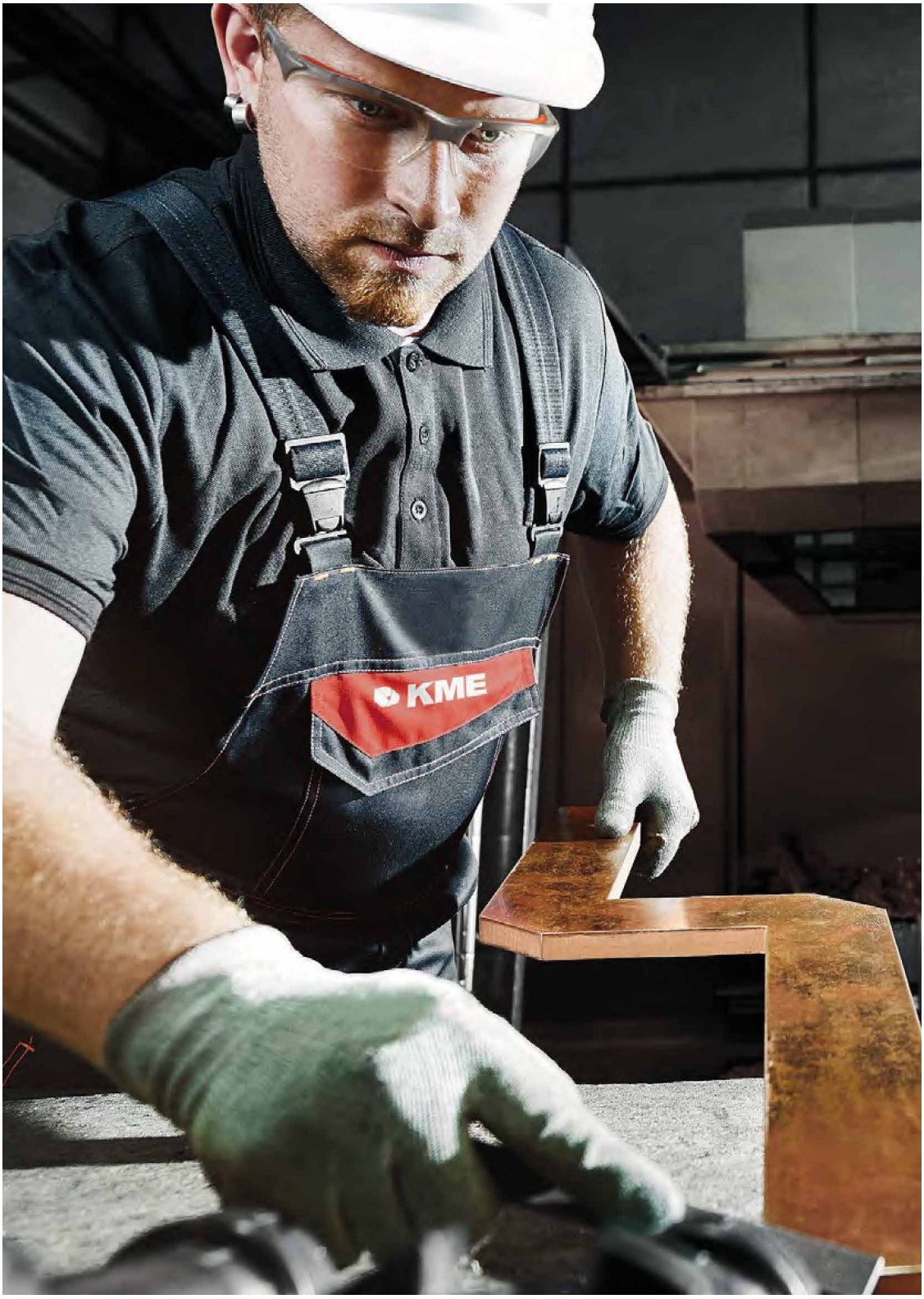
** German waste water regulation (AbwV), Appendix 39 Non-ferrous metal production*

3.9 Biodiversity

There are no protected areas or areas of high biodiversity within or adjacent to the operational site.
The only species classified as "vulnerable", among those listed in the IUCN red list and in the national lists that find their habitat in the area of operation of the plant, is the *oedipod caerulescens*.
The impact of the copper fed into the Wipper river is being examined.



4 Social sustainability



Social responsibility
The company, also thanks to its long history, has a strong relationship with the **local community** of the area in which it operates and with its **stakeholders**. Its presence has generated economic and employment benefits over time, and it is an integral part of the social and cultural fabric. KME Mansfeld is aware of its **social and environmental responsibility** towards the local area, its employees and the local community.

KME Mansfeld is one of the **largest employers** in Saxony-Anhalt with over a thousand employees. The company works to ensure respect for workers' rights, their health and safety, and professional development. As stated in the KME Group's code of conduct, the company considers the **protection of workers' health and safety** a top priority. KME Mansfeld is one of the recognized training facilities in Saxony-Anhalt, with activities aimed at both its own apprentices and people from partner companies.

KME Mansfeld maintains an open and collaborative relationship with **local communities** and the state of Saxony-Anhalt. It develops **initiatives for the local area**,from training to social support for people in need, and encourages employees to engage in volunteer work.

Health represents a high individual value and is of substantial importance for the sustainable viability of the group

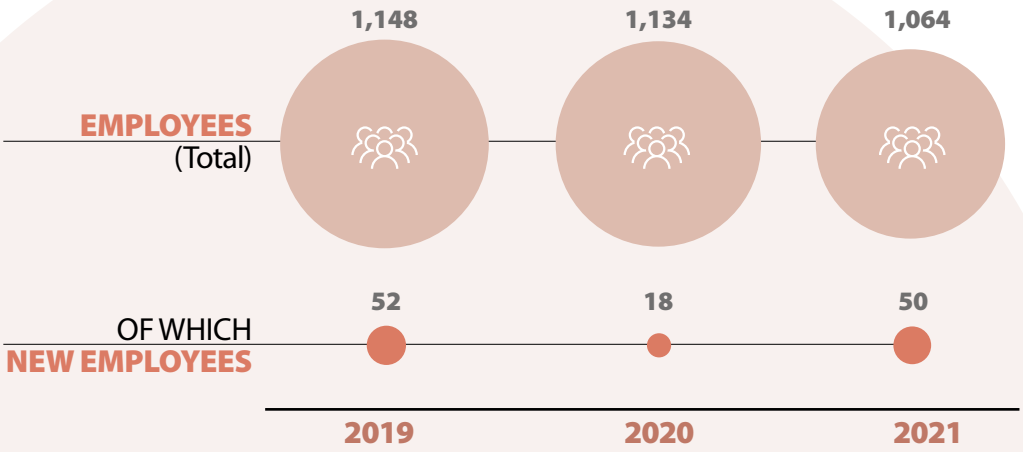
Corporate health management pursues the objectives:
- Reducing workloads and stress
- Relieving work-related illnesses and health hazards
- Permanently improving health and wellbeing at the workplace
- Maintaining the performance capability of employees
- Increasing employee motivation and satisfaction
- Ensuring the long-term success of the Group

In order to accomplish these ambitious targets, we offer our employees:
- An own in-house medical service
- Flexible working time models
- Company integration management
- Health and theme days
- Life coaching
- Physical activities
- Executive development

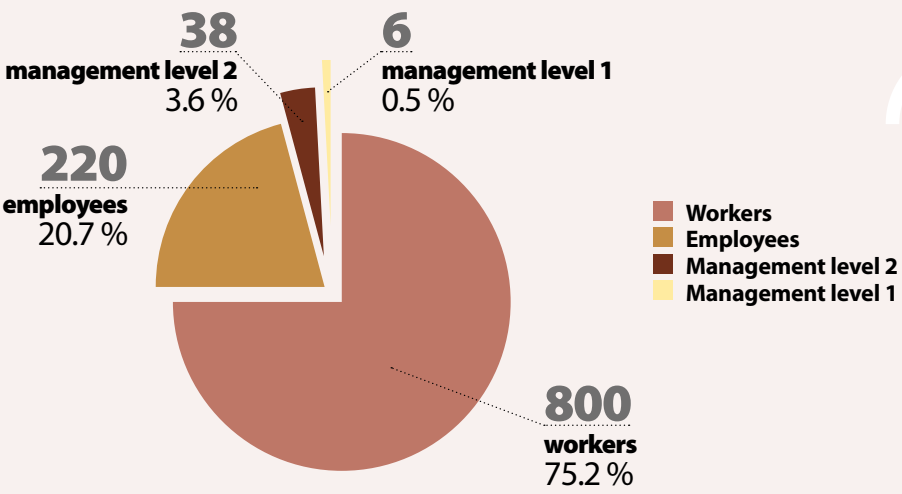
4.1 Employees

8 DECENT WORK AND ECONOMIC GROWTH

As of December 31, 2021, KME Mansfeld had **1,064** employees.
During the year, 50 new employees were hired.

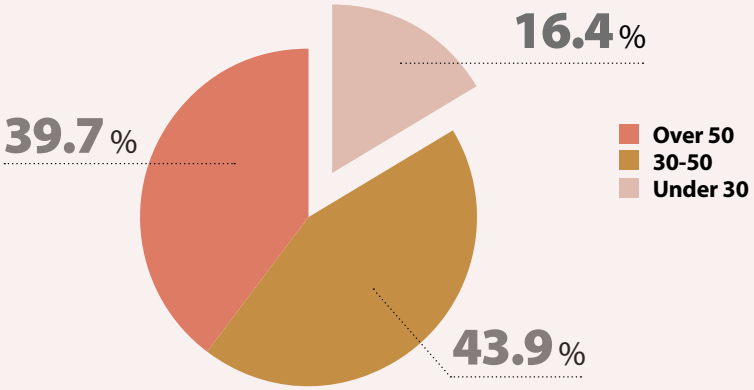


EMPLOYEE STRUCTURE AND DUTIES



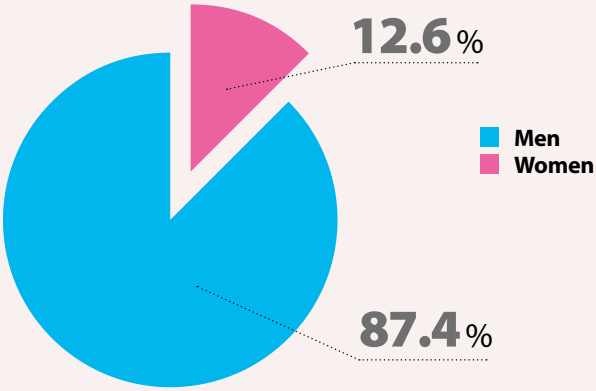
AGE

- **175 employees** (16.4%) are under the age of 30;
- **467 employees** (43.9%) are between the ages of 30 and 50;
- **422 employees** (39.7%) are over 50.



4.2 Equal opportunities

930 men (87.4%) and **134** women (12.6%) worked at the company in 2021.



- The 6 top-level executives are all men;
- Of 38 second-level managers, 5 are women (13%);
- Among the 220 employees there are 92 women (42%);
- Among the 800 workers, there are 37 women (5%).

No incidents of discrimination were detected or reported during the period examined.
According to the metal industry collective tariff agreement, there is no difference in payment between men and women. Within the pay group, the basic salary is the same for all employees, regardless of gender.

During the year 28 employees (27 men and 1 woman) took parental leave, as provided for by law and the collective labor agreement.

4.3 Occupational health and safety

Worker health and safety are key priorities. The main goal is to prevent accidents, work-related illnesses and inappropriate physical and mental exertion.

Workplace health and safety is an essential aspect of business management:

- The company monitors whether goals are being met and is committed to ensuring that each staff member is able to act with health and safety awareness.
- An occupational health and safety committee operates in the company with management, the works council, production managers, employee representatives, the company doctor and occupational safety officers.
- The company's occupational health and safety objectives are measurable and are evaluated through regular audits, inspections and management reviews.
- A company medical service conducts weekly on-site consultations. Pre-employment examinations are provided for new employees, including verification of health fitness for work and regular occupational health examinations for employees.

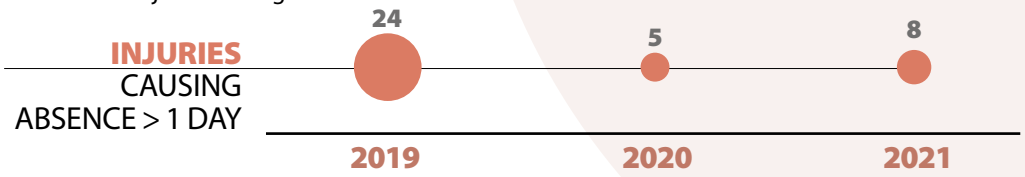
- The company promotes safety training courses for staff.

KME Mansfeld GmbH is subject to the regulations of the **German Occupational Health and Safety act**.

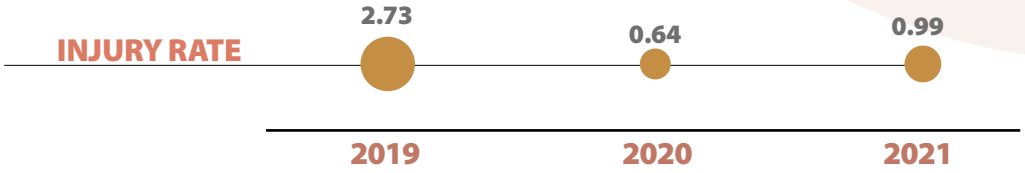
A number of **health & safety agreements**, local or more general, have been signed with labor organizations:
- 03/2009 General provisions on noise protection;
- 03/2010 Prevention and occupational health care;
- 02/2013 Non-smoking protection in the workplace;
- 07/2015 Occupational health and safety (framework agreement);
- 01/2019 Bonus for occupational safety
- 04/2021 Corona protective measures, Mobile Working
- 05/2021 Agreement payment of Burden Allowances
- 2021 Revision of 07/2015 Occupational health and safety (framework agreement)
- 2021 Payment Corona-Bonus
- 2021 Introducing of 35-h week

Compliance with safety regulations is also required for **partner companies** and third parties. KME Mansfeld takes this into account when choosing to collaborate with other companies.

Injuries
There were 8 injuries during 2021.



In 2021 the plant recorded:
- an **Injury Rate** (Injury Rate, according to Occupational Safety and Health Administration OSHA parameters: number of injuries with absence greater than 1 day/number of hours worked x 200,000) of 0.99 (1.13 male and 0.00 female)

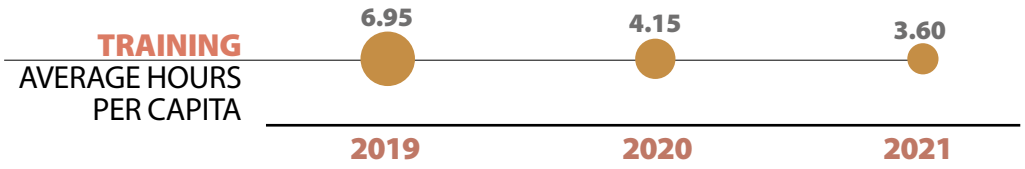


**according to IR OSHA coefficient*

- a **Gravity Index** (days of absence due to injury/number of hours worked x 1,000) of 0.14;
- an **Occupational Diseases Rate** of zero.

4.4 Training

In 2021, hours dedicated to training averaged 3.60 per employee. Training activities are specifically aimed at growing professional skills and safety in the workplace.



KME Mansfeld is one of the recognized apprentice training institutions in Saxony-Anhalt.

4.5 Suppliers

The company's procurement model is based on transparent processes and precise criteria, in accordance with the KME Group's compliance regulations, to ensure ethical and legal standards.

Sustainability of business processes

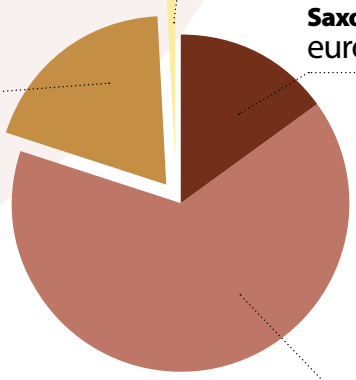
KME is committed to pursuing a sustainable strategy in the organization of its business processes, in particular with regard to

- Transparent customer orientation during product and process design;
- Observance of a corporate code of conduct;
- A healthy and safe working environment for employees and contractors;
- Continuous risk assessment;
- Adherence to current regulations;
- Implementation of best available techniques and procedures for continuous process improvement;
- Developing preventive strategies to reduce environmental impacts;
- Efficient use of materials and energy in the manufacture and supply of products;
- Manufacture of products with safety, energy efficiency and recyclability requirements.

The corporate guidelines define binding standards for all companies operating within the KME Group.
In the **choice of suppliers**, criteria are adopted that qualify the potential partner on an **organizational, environmental and social** level. For the supply of all products or services, preference is given to environmental management system certifications (ISO 14001 or EMAS), safety management system certifications (ISO 45001), quality system certifications (ISO 9001).
When it comes to sourcing raw materials, KME does **not use any cathodes / metal from regions with armed conflicts**. Due to the complex supply chain and the many processes involved in metal transformation, KME - aware that it is not possible in every case to fully trace the materials acquired, especially with regard to recycled materials - when selecting new suppliers considers participation in EICC-GesiConflict-Free (an initiative of the *Electronic Industry Citizenship Coalition and Global e-Sustainability*) an essential requirement. The quality management system ensures continuous monitoring of supplier requirements.

- Total economic value (excl. taxes) of supplies of goods and services in 2021: **912,916,551** euro
- Economic value of supplies of goods and services net of metal and tax: **111,301,255** euro
- Total number of suppliers: **1,586**

ECONOMIC VALUE OF SUPPLIES
(EXCL. METAL AND TAXES)
BY AREA OF ORIGIN

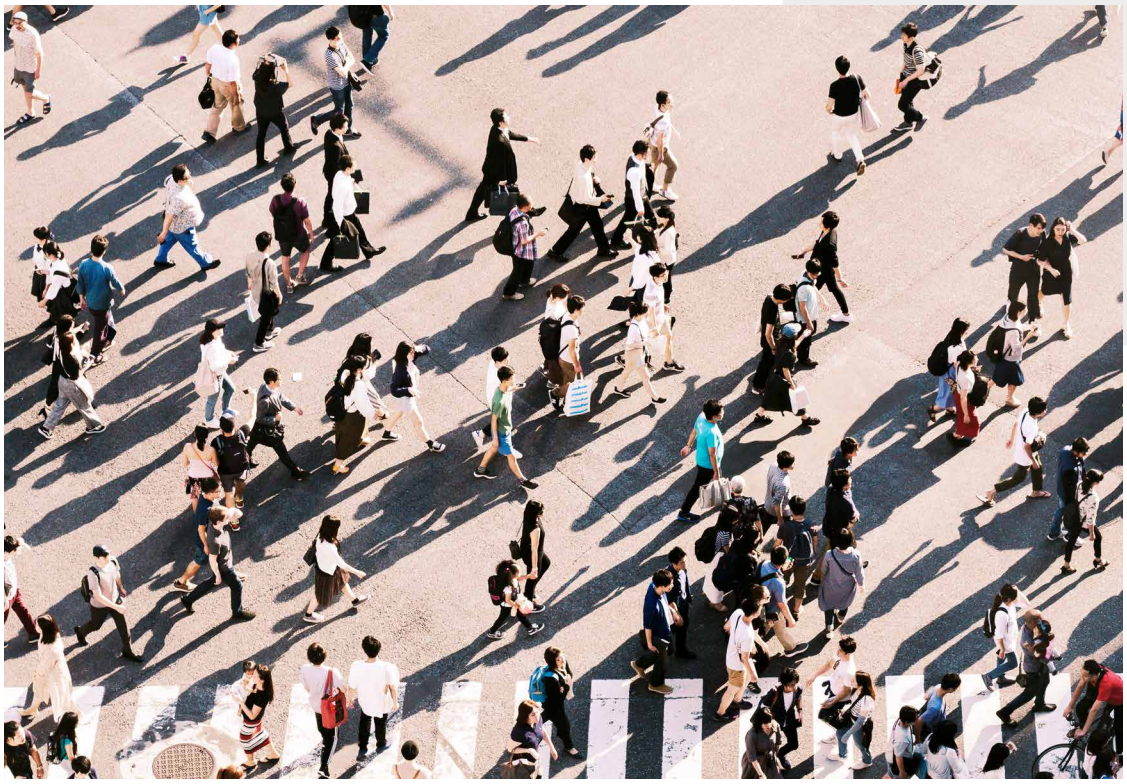


0.8 %
Rest of the world
euro 927,171

15 %
Saxony-Anhalt
euro 16,692,160

19.2 %
E.U. countries
euro 21,375,114

65 %
Rest of Germany
euro 72,306,810



4.6 Relations with the local community

For centuries, the region Mansfelder Land was shaped by a proud history of copper mining and fabrication. Our employees rely on the economic success of KME Mansfeld GmbH, as the cities of Hettstedt and Mansfeld prosper with us. In the aftermath of the reunion of East and West Germany, most of the old industry was closed down and many inhabitants of our region lost their jobs. During this phase, KME Mansfeld GmbH proved to be a reliable employer and today ranges in the top 5 biggest companies of the state of Saxony-Anhalt.

The long lasting mining and industrial activities leaved its scars in the landscape. The environmental impact of our plant has been reduced significantly over the years. This effort will be continued and we will prioritize future investments together with our neighbours and the authorities.

- Financial support of local organisations and youth facilities;
- Participation in public events (company runs, Girls & Boys Days, vocational training fairs…);
- Cooperation with the local universities (scholarships, supervison of bachelor and master theses, practical training);
- Fundraising for local social projects;
- Stem cell typing campaign;
- Commissioning of a new biological treatment plant to improve the water quality of the local river Wipper;
- Construction of a noise barrier to reduce noise emissions towards the direct residents.

5 Economic sustainability

5.1 Results

Economic, financial and balance sheet data are published in the accounting documents and financial statements, which are drawn up in accordance with the law. Please refer to these for all detailed information.

The sustainability report merely highlights some essential data and some information that is particularly relevant from the point of view of social sustainability, including the economic value provided to the working staff and the public administration. Particular attention is also paid to investments related to ecological transition and safety at work.

In 2021, KME Mansfeld's turnover amounted to **977** million euro.

Turnover net of the cost of raw materials was **137.3** million euro*.

The economic value paid to employees as direct remuneration was **32.4** million euro.

The economic value distributed by the public administration (direct and indirect taxes) amounted to **30** million euro.

**This is particularly significant as it allows us to measure company performance without the effect of raw material price variability.*

5.2 Investments

The economic value of investments in 2021 was **6,383,216** euro.

The implemented investments were both replacement investments, investments **to increase the production depth** as well as **productivity**. Significant investments were made in the sheet area with the replacement of the ingot heating furnace and with the overhaul of the milling machine and in the area of copper casting (modernizing the preheating system of the casting furnace). In addition there were further investments in renewing the technical infrastructure (silo for lime, water cooling system, ethanol-thank, cranes, sealing, etc) and in the widening of the energy-monitoring system.

Economic value of investments in 2021 aimed in particular at environmental protection and ecological innovation:

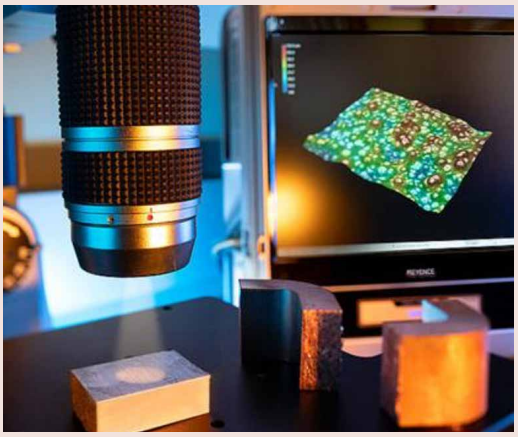
- Lime Silo - 121,500 euro
- Electronic energy data recording system, widening - 59,200 euro
- Modernisation of preaheating cabinet melting furnace - 95,400 euro
- Installation of an oil separator - 10,500 euro
- Renewal of the pipeline network - 118,500 euro
- Sealing of the Concrete as protection - 59,200 euro
- Replacement of furnace for preheating ingots - 976,000 euro
- New acquisition of collection trays and waste bins - 13,300 euro
- Modernisation of the document control system - 11,200 euro
- Storage cabinets for hazardous substances - 40,000 euro
- Ethanol storage and delivering DGW plant - 171,600 euro

5.3 Research and development

Our commitment to **innovation**

The name of the street on which our headquarter is located - *Lichtlöcherberg* - reveals something about our origins. The narrow, often oval shafts that supplied miners with fresh air underground are called *Lichtlöcher* - holes of light. They may not have actually provided light, but they did provide oxygen. And fresh air was also needed for underground lighting, which was not electric in the beginning.

Fresh air is also an appropriate term for what we usually call **research and development**. In other words: replacing the old with the new, bringing freshness into something so we can dig deeper. Copper and its alloys are prehistoric metals. You'd be forgiven for thinking there's nothing left to discover about them. But there is. Working with our employees and partners, we are committed to creating pioneering solutions for the future, particularly in the areas of electro mobility and energy.



For research activities, there is coordination at the KME Group level to avoid overlapping projects between all research departments (Fornaci di Barga, Hettstedt and Osnabrück) and to optimize the use of expertise.
Activities are application and process oriented, and are conducted in close collaboration with all production units, as well as with universities and other research centers.
At KME Mansfeld GmbH, research and development are essential elements in maintaining the company's competitiveness and to gain competitive advantages on the basis of the company's strategy.
All development activities have the goal of further developing the products and their properties in the interests of our customers and to optimise our manufacturing processes, taking into account sustainability, environmental protection, resource conservation and energy efficiency.
The development projects of KME Mansfeld GmbH, which are located in the production areas, are mainly concerned with application-oriented research and engineering development and concentrate primarily on aspects of performance enhancement and process optimisation, as well as on focal points of technology development.
At the same time, the development department also supports in an advisory capacity, the technological development of the various manufacturing processes, the interdivisional know-how transfer, the targeted selection of materials and the preparation and responsible implementation of investment projects.
In 2021, three staff members were employed in the Technology/Development department.

Development priorities in the 2021 were:

- Production of complex, highly thermally conductive copper components - CuAdd
- Implementation of high-pressure descaling on the Contirod® casting strand
- Tool development for special profiles
- Process concept for chemical sharpening of special profiles
- Pipe casting upcast with further multi-stage drawing of the cast pipe
- Pressing of oxide-free copper bars.

Research project on additive manufacturing

"Technology and material development for the additive production of complex highly thermally conductive Cu components - CuAdd"

A joint project of KME Mansfeld GmbH (Hettstedt) and the Fraunhofer Institute for Microstructure of Materials and Systems (Halle/Saale).
The market for additively manufactured components is showing steady growth. While sales of 3D printed parts amounted to around USD 7.3 billion in 2007, sales of USD 27.3 billion are already forecast for 2023. Annual growth rates of over 16% are not uncommon in this booming market segment. The market for 3D-printed metal components, especially for copper, currently represents only a niche with a high growth rate.
The research project involves risky technology and materials research for the additive production of complex, highly thermally conductive copper components. The following scientific and technical objectives are being pursued by the project partners:

Scientific objectives

- Research into the structure-property relationships between the powder and the custom-made printed component using additive manufacturing,
- Testing the compatibility of different polymer systems (PLA, PA) with copper systems,
- Verification of the real behaviour of semi-finished products with heat flow simulation (FEM) on complex internally structured (honeycomb, triangle etc.) geometries.

Technical goals

- Powder development and characterisation for highly thermally conductive systems with a copper content of more than 95%,
- Development of Inline-SLM for one-dimensional material characterization for high throughput screening,
- Development of a Cu-polymer compound and, derived there from, a Cu-polymer filament,
- Testing the printability of the Cu filament using FDM,
- Construction and testing of a demonstrator with highly complex structure for cooling purposes.

At the end of the project, a complex geometric structure, manufactured in an additive manufacturing process, should be available as an exemplary prototype. With this geometric structure it is possible to evaluate the feasibility of replacing conventional technologies such as sintering, forging and extrusion.

Project title

"Technology and material development for the additive production of complex highly thermally conductive Cu components - CuAdd"

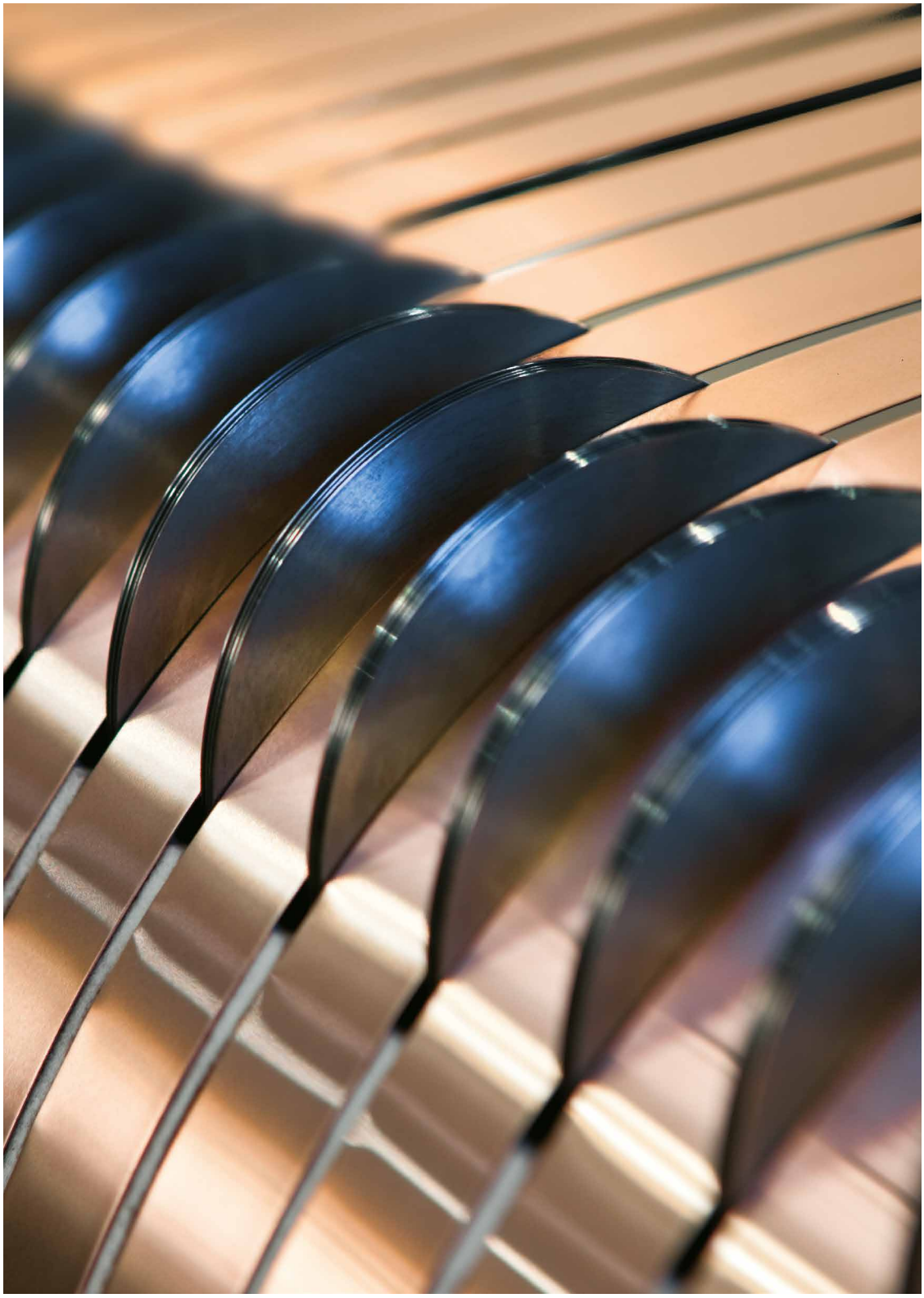
Project duration

December 2019 - December 2021

Project partners

- KME Mansfeld GmbH, Hettstedt (Coordinator)
- Fraunhofer Institute for Microstructure of Materials and Systems
- Fraunhofer Center for Chemical-BiotechnologicalProcesses CBP

6 Circularity indicators



The new European Union's **Action Plan for the Circular Economy aims** to change production and consumption systems, for environmental, economic and geopolitical purposes. The main objective is to increasingly improve **efficiency in the use of resources** - through changes in the design of goods, production processes, technologies, life cycle of products, recycle - to build environmentally sustainable development, while promoting economic competitiveness.
In this context, **KME Mansfeld** aims to help accelerate the transition to a circular economy through the efficient use of materials and energy.

Circularity indicators

Accelerating the transition from linear economic models to a circular economy requires that every company be fully aware of its own positioning. Companies need to be able to measure their circularity performance at each stage of their production process and along the entire value chain, from design to procurement, from production to sales, from logistics to maintenance, to end-of-life management of products.

To this end, increasingly sophisticated tools for the detection and analysis of the main indicators of circularity are starting to spread, with the aim of providing companies not only with analytical tools, but also with information and solutions to improve the efficiency in the use of resources and the circularity of the production cycle.

How to measure "circularity"? To date, there are still no standardized and shared criteria and parameters. There are some methods developed in recent years at the international level - in particular the Bellagio Charter of the European Environment Agency - but a standardized monitoring methodology is still being defined.

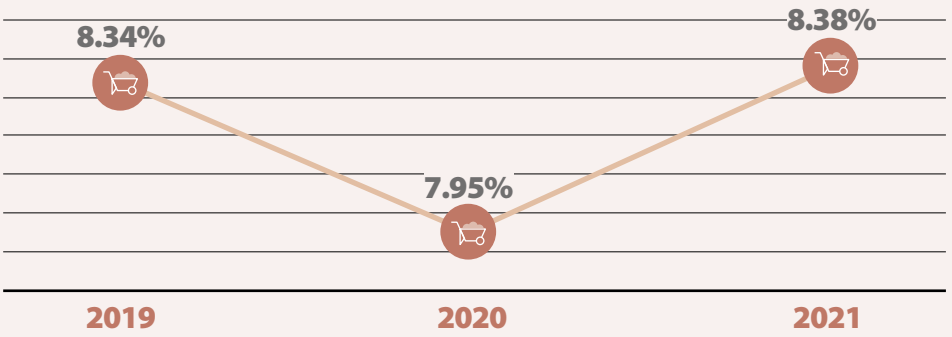
Using the methodology developed by Greening Marketing Italia, a number of circularity indicators relating to KME Mansfeld's activities are reported in the sustainability report. In this way, the company, which is already committed to the circular economy, intends to set out on a path of even more careful evaluation of its efficiency in the use of resources and to monitor progress year after year.

Circularity rate
A first important indicator is the circularity rate, i.e. the percentage of recycled materials compared to the total materials used.

Recycled materials (copper scrap and wooden pallets) are **8.38%** of total materials used in 2021

8.38 %
OF THE MATERIALS USED COME FROM EXTERNAL RECYCLING

RECYCLED MATERIALS



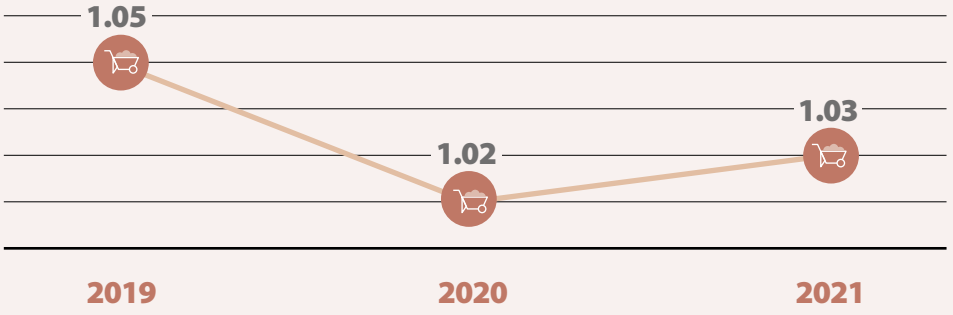
Calculating the percentage of **metals** coming from **external recycling** (net of a share of semi-finished products that it is not possible to quantify precisely) in relation to the metals used, the rate of circularity is **8.53 %.**

But the circularity rate does not end with these numbers. Adding to the use of recycled materials outside the plant is the fact that within the plant's production process a high amount of materials (51,295 tons in 2021) is **recycled** and returned to the **production cycle**.
This further increases the efficiency rate in the use of materials and reduces the consumption of raw materials.
Overall, compared to the total metals processed within the plant, the share of **metals from external recycling and internal** reuse is **26.3%**.

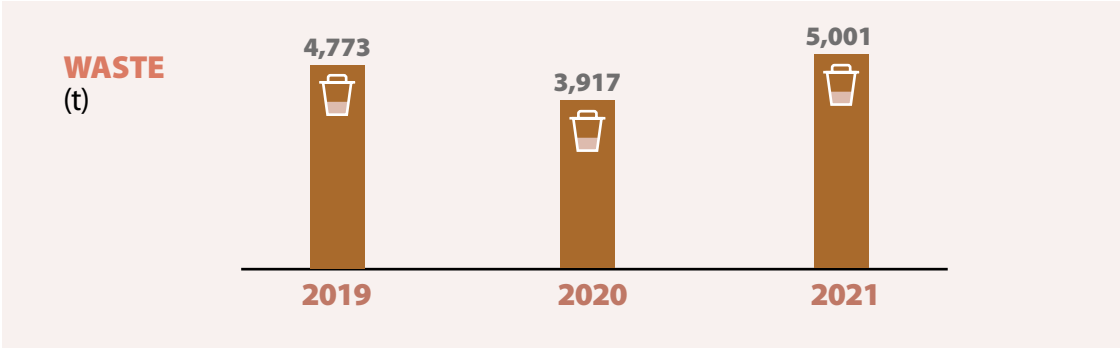
THANKS TO INTERNAL RECYCLING THE RATE OF CIRCULARITY OF PROCESSED METALS INCREASES TO
26.3 %
(+0.4% compared to the previous year)

Resource productivity
In order to measure the efficiency in the use of resources, an important indicator is the ratio between the amount of materials used and the production output from the plant. In 2021 it is equal to 1.03 tons/ton.

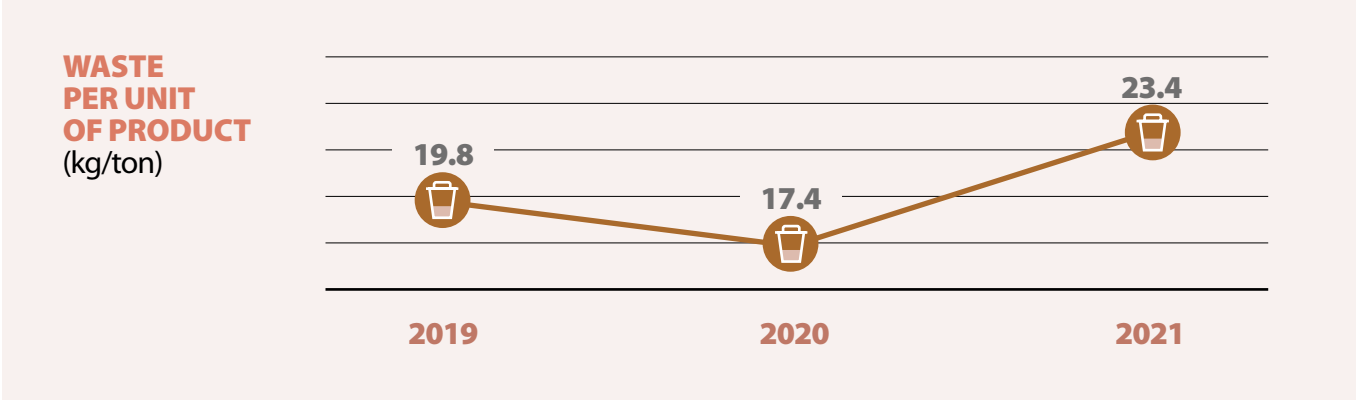
MATERIAL USED PER UNIT OF PRODUCT (tons/ton)



Waste production and management
A circular economic model requires a progressive reduction of waste and an increase in material recovery, both within the production cycle and downstream of production.
The amount of waste produced in 2021 was 5,001 tons (+ 27.6% compared to 2020).



The **amount of waste per unit of product** is also increasing. In 2021, 23.4 kg of waste were generated per unit of product (t), a higher figure than in previous years.

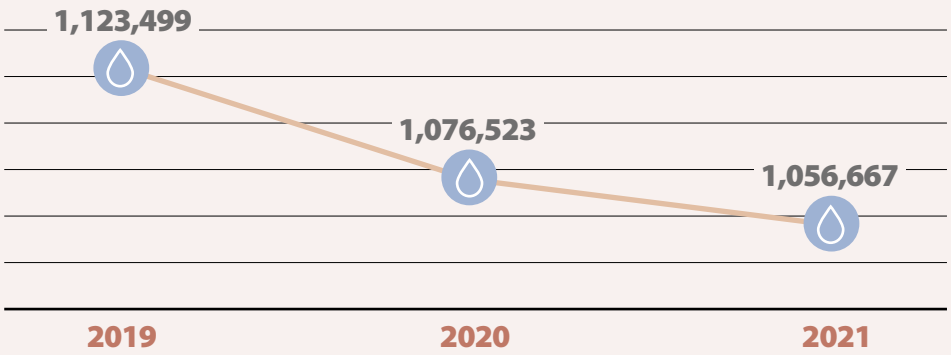


Another important indicator is the percentage of waste sent for recovery instead of disposal in landfills.
In 2021 it reaches 99.8% (+0.2% compared to 2020).

Efficient use of water resources
Even water, in a circular economy scenario, should be used as efficiently as possible, reducing consumption and increasing reuse within production cycles.

The data show a progressive improvement. In fact, we go from 1,123,499 m^3 of water withdrawn in 2019 to 1,076,523 m^3 in 2020 and to 1,056,667 m^3 in 2021. About 26% of the water used is rainwater.

WATER WITHDRAWAL
(m^3)

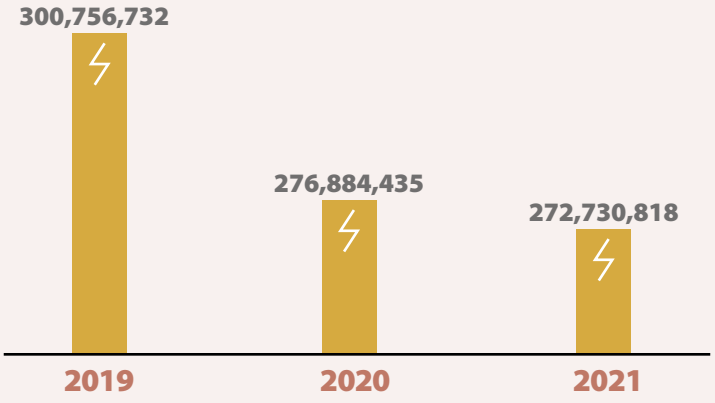


The plant also uses a **water recycling system** that processed **2,190,355 m^3** in 2021, thus significantly reducing the volume of water withdrawal required. Again, this is a principle of **circular economy** applied to an element, water, whose importance, also due to climate change, has grown and will grow in the future.
Finally, it should be noted that the discharged water, after being purified in a physico-chemical treatment plant, is released into the Wipper river, thus closing the cycle.

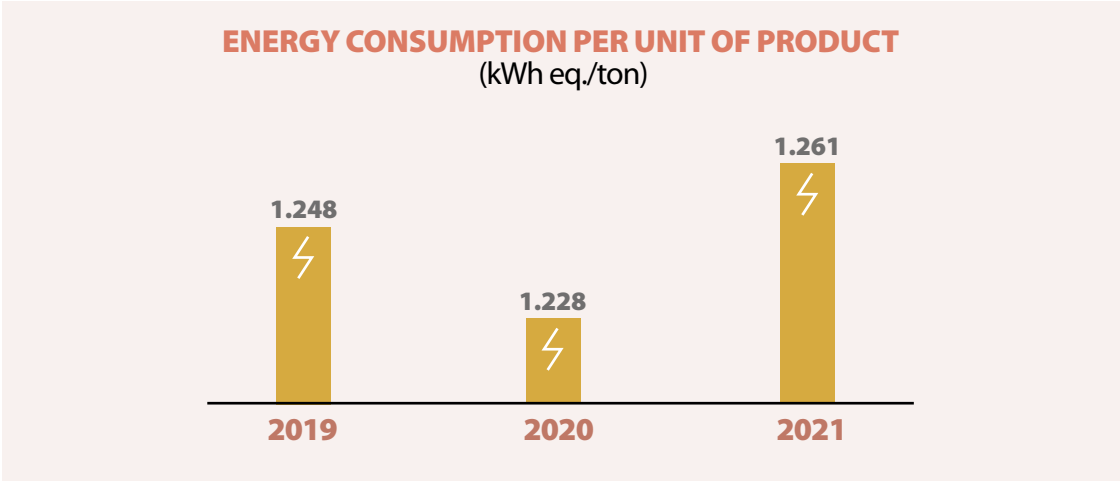
Energy efficiency
In a circular economy model, energy, like matter, must be used as efficiently as possible. All the more so in energy-intensive facilities such as metalworking plants. As mentioned in another chapter, KME Mansfeld has already taken steps to improve energy efficiency for this reason.

In absolute values, there is a 1.5% reduction in energy consumption in 2021 compared to 2020 and a **9.3% reduction in last three years.**

ENERGY CONSUMPTION
(kWh eq)

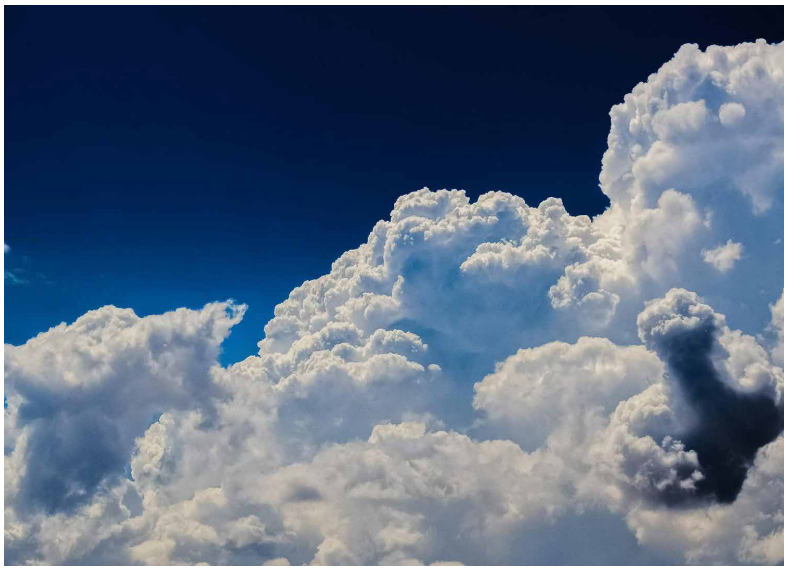


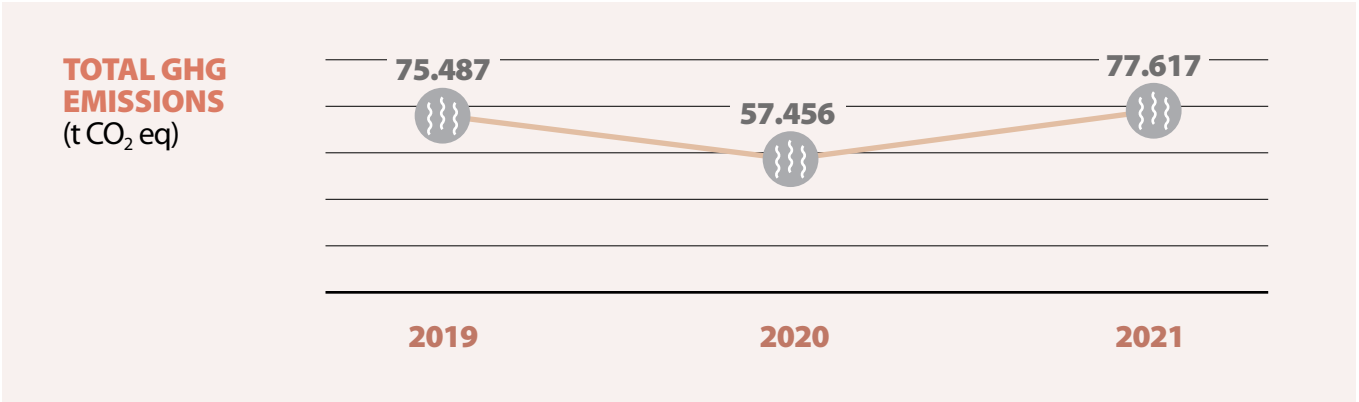
In terms of **specific consumption**, considering electricity and natural gas, 1.261 kWh eq. were consumed per ton of products (+2.7% compared to the previous year).



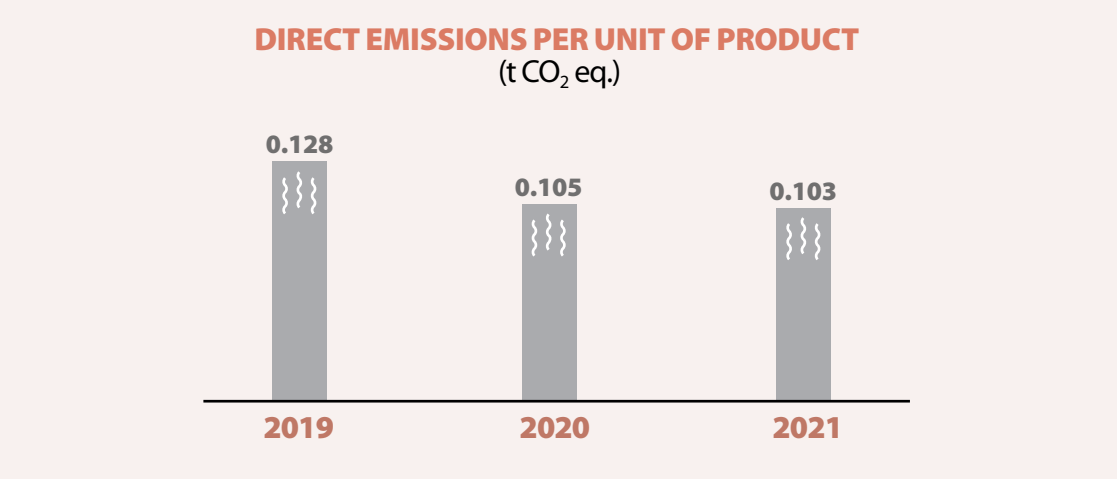
Greenhouse gas emissions
The increase in efficiency in the use of natural resources and the transition towards a circular economy model are closely related to the need to reduce greenhouse gas emissions in order to combat global warming. This is therefore also among the main objectives that a company must pursue on the path towards circularity.

In absolute terms, total GHG emissions (direct plus indirect) apparentely increased 35% in 2021 compared to 2020, despite that both direct emissions and electricity consumptions have decreased. How is it possible? It depends of a reform of electricity labeling in 2021 to eliminate legal greenwashing by German electricity suppliers: the esclusion of subsidised green electricity and the presentation of the suppliers actual electricity purchases leads to an apparent massive increase in indirect emissions (+62.3%) compared to the previous year. This inevitably produces an increase in the total emissions figure.





The most significant indicator is the quantity of **direct emissions per unit of product**, which **decreased** from 0.128 t CO_2 eq in 2019 to 0.105 t CO_2 eq in 2020 and to 0.103 t CO_2 eq in 2021.



Projects

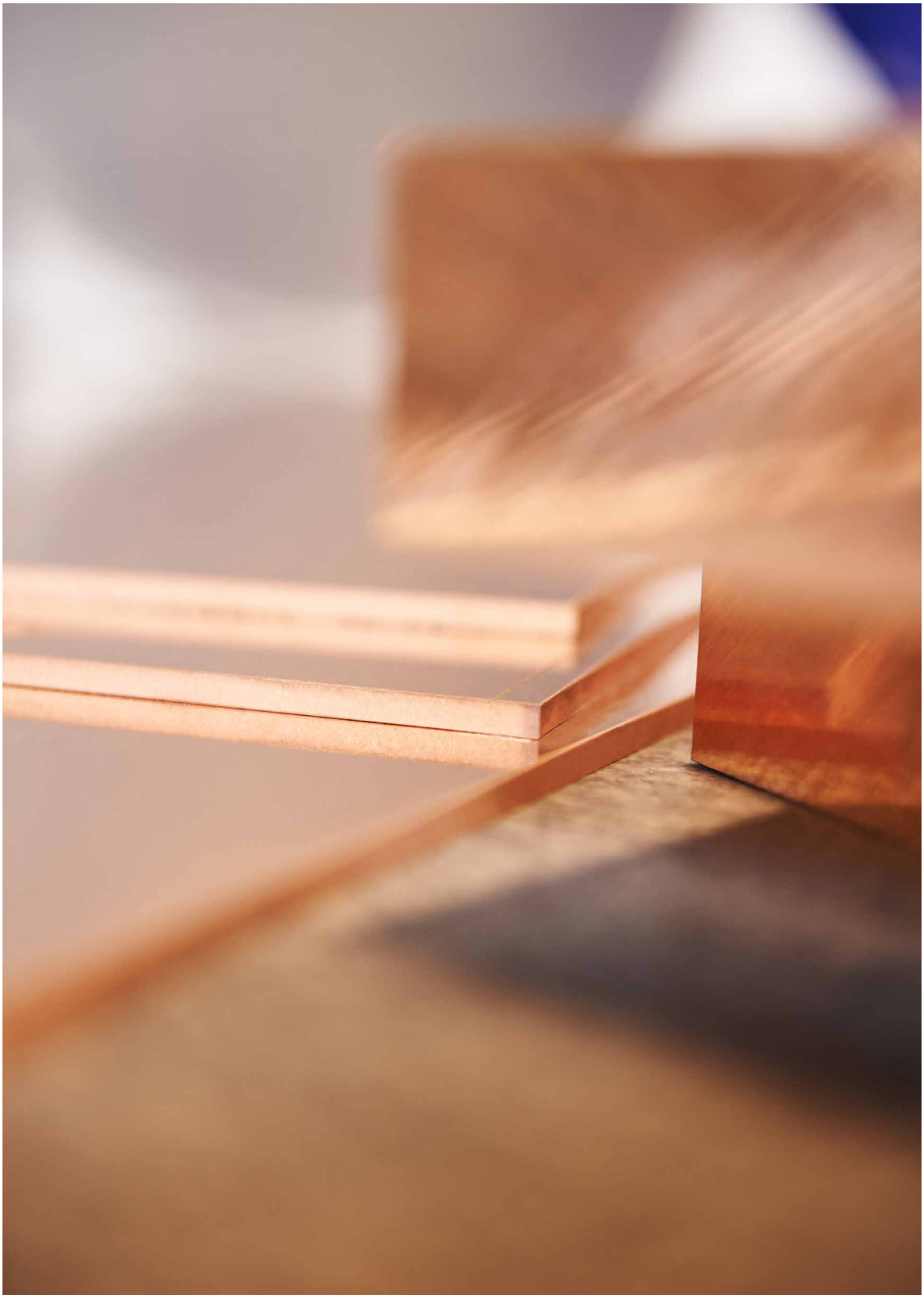
The promotion of a circular economy requires investments in process and product eco-innovation, new business models, technological innovations, industrial symbiosis projects and research and development activities.

As part of the research and development activities of the KME Group and KME Mansfeld, as mentioned in section 5.3, particular attention is paid to two topics closely related to the circular economy: efficiency in the use of materials and energy efficiency.

There are mainly two acitivities which are focused to:

- *Analysis and melting trials for electrification of continuous melting processes, which are currently focused to the use of natural gas*
- *Importance of natural gas substitution by hydrogen for the industrial plant park in the semi-finished copper products industry (this project is focused to the impact of partial hydrogen admixture in natural gas and the effects on process stability and copper metallurgy)*

7 Appendix



7.1 Methodological note

The sustainability report was prepared in accordance with the Global Reporting Initiative GRI-G4 guidelines. GRI promotes the use of sustainability reporting as a tool to enable businesses and organizations to contribute to the sustainability of the global economy.
The report was prepared with the consultancy of Greening Marketing Italia (GMI).

Reporting period
The reporting period for this sustainability report is January 1 through December 31, 2021.
The report contains not only 2021 data but also data from the previous two years (2019 and 2020) in order to provide a more complete picture of the ongoing trends in the company's performance.

Principles of defining report content

Materiality: The information contained in the report and its level of detail take into account all significant impacts (economic, environmental and social) and all aspects that could substantially influence stakeholders' assessments and decisions.

Stakeholder inclusiveness: the report addresses all stakeholders, internal and external, who are involved or may be affected by the activities of the facility and the companies.

Sustainability context: the report describes the company's performance with respect to the objectives of sustainable development, taking into account both significant global impacts (such as climate change) and the specific characteristics of the territorial context in which the significant impacts of the industrial activity occur.

Completeness: the report describes the environmental, economic and social performance of the company using a system of indicators that describes all the main impacts of the activities carried out, and highlighting their evolution in the reference period.

Principles of relationship quality assurance

Balance: the report describes both the positive and negative aspects of the company's environmental, social and economic performance, providing qualitative information and quantitative data that allow the reader to make an independent and balanced judgment.

Comparability: the indicators developed in the report follow the methodologies indicated in the GRI guidelines, thus making it possible to compare the company's performance with that of other industries, as well as to assess its evolution over the reporting period.

Accuracy: each indicator developed in the report is developed according to a consistent pattern, reporting numerical data in tables, accompanying them with explanatory graphical representations and illustrating with a synthetic text the main evidence found. Tables and graphs indicate the units of measurement used.

Clarity: The report is drafted using language that is as simple as possible, avoiding overly detailed technical information. The structuring of the index and the table of correspondence with the GRI index help stakeholders identify issues of specific interest to them in the report. Graphics facilitate understanding of the data.

Verifiability: Information is provided in such a way that it can be verified over the years and possibly become the subject of external scrutiny.

Production data
The figure relating to the company's production is to be understood as the quantity of products leaving the plant (output) during the year, while the figure relating to materials used refers to the quantity of materials entering (input) in the same period. The production figure may therefore include some quantities not actually produced during the year but already in stock.

7.2 GRI Correspondence table

GRI INDICATOR	DESCRIPTION	CHAPTER – PARAGRAPH*
PROFILE		
	Organization profile	
102 – 1	Name of organization	2
102 – 2	Activities, brands, products and services	2.2
102 – 3	Location of management offices	2.3
102 – 4	Location of existing activities	2.3
102 – 5	Ownership and legal status	2
102 – 7	Order of magnitude of the organization	2
102 – 8	Information on employees and other workers	4.1
102 – 9	Supply chain	4.5
102 – 10	Significant changes in relations between the entity and its supply chain	
102 – 11	Precautionary Principle	3.1
102 – 12	External initiatives	4.6
102 – 13	Membership in associations	
	Strategy	
102 – 14	Declaration of top decision makers	Letter to Stakeholders
102 – 15	Main effects, risks and opportunities	
102 – 16	Values, principles, standards and rules of conduct	2.4
102 – 17	Ethics Advisory Mechanisms	
102 – 18	Governance Structure	2.3
102 – 19	Delegating process	2.3
102 – 20	Executive level for economic, environmental and social topics	2.3
102 – 21	Consultation with stakeholders on economic, environmental and social topics	
102 – 22	Composition of governance at the highest levels	2.3
102 – 23	Chairing the highest level of governance	2.3
102 – 24	Apex nomination and selection	
102 – 25	Conflict of interest mechanisms	2.4
102 – 26	Role of senior governance figures in setting values and intentions	
102 – 27	Cognition of senior governance figures on individual topics	
102 – 28	Assessing the performance of senior governance	
102 – 29	Identification and management of economic, environmental and social impacts	
102 – 30	Effectiveness of risk management processes	
102 – 31	Monitoring of economic, environmental and social topics	
102 – 32	Role of senior governance on the sustainability report	

** Where this is an indicator deemed not relevant or not available, no reference paragraph is given.*

GRI INDICATOR	DESCRIPTION	CHAPTER – PARAGRAPH*
102 – 33	Communication of critical issues	
102 – 34	Nature and number of critical aspects	
102 – 35	Remuneration policies	4.1
102 – 36	Compensation Determination Process	As per national collective agreement
102 – 37	Level of stakeholder involvement in the remuneration process	
102 – 38	Annual total compensation ratio	
102 – 39	Percentage increase in compensation ratio	
102 – 40	List of stakeholders involved	
102 – 41	Collective bargaining agreements	4.1
102 – 42	Identification and selection of stakeholders	1
102 – 43	Approach to stakeholder engagement	
102 – 44	Key themes	1
	Reporting	
102 – 45	Entities included in the financial statements	5
102 – 46	Defining report content and topic boundaries	
102 – 47	List of topics materials	
102 – 48	Information review	
102 – 49	Changes in reporting	
102 – 50	Reference period	2021
102 – 51	Date of most recent report	2020
102 – 52	Reporting cycle	Annual
	Management approach	
103 – 1	Explanation of the topic and its boundaries	
103 – 2	Reporting requirements	

ECONOMIC PERFORMANCE		
201 – 1	Direct economic value generated and distributed	5.1
201 – 2	Financial implications and other risks and opportunities due to climate change	
201 – 3	Significant financing received from the public administration.	
	Market presence	
202 – 1	Ratio of local minimum wage to average entry level wage	
202 – 2	Proportions of senior management hired from within the local community	
	Indirect economic impacts	
203 – 1	Investments in infrastructure and services	4.6

GRI INDICATOR	DESCRIPTION	CHAPTER - PARAGRAPH*
203 – 2	Significant indirect economic impacts	4.5-4.6
	Procurement practices	
204 – 1	Proportion of spending with local suppliers	4.5
	Anti-Corruption	
205 – 1	Operations planned for corruption risks	2.4
205 – 2	Communication and training on anti-corruption procedures	2.4
205 – 3	Evidence of corruption and responses	
	Conduct detrimental to competition	
206 – 1	Legal action for anti-competitive behavior, anti-trust and monopolistic practices	

ENVIRONMENTAL PERFORMANCE		
	Materials	
301 – 1	Materials used, by weight or volume	3.3
301 – 2	Recycled materials used	3.3
301– 3	Reused products and their packaging materials	3.3
	Energy	
302 – 1	Energy Consumption	3.2
302 – 2	Energy consumption outside the organization	
302 – 3	Energy Intensity	3.2
302 – 4	Reduced energy consumption	3.2
302 – 5	Reductions in energy requirements for products and services	3.2
	Water	
303 – 1	Water withdrawal	3.7
303 – 2	Water sources significantly affected by withdrawal	3.7
303 – 3	Recycled and reused water	3.7
	Biodiversity	
304 – 1	Operational sites owned, leased, managed in, or adjacent to protected areas	3.9
304 – 2	Significant impacts of activities, products and services	3.9
304 – 3	Protected or restored habitats	3.9
304 – 4	Species on the IUCN red list	3.9
	Emissions	
305 – 1	Direct greenhouse gas emissions (scope 1)	3.5
305 – 2	Indirect greenhouse gas emissions (scope 2)	3.5

GRI INDICATOR	DESCRIPTION	CHAPTER – PARAGRAPH*
305 – 3	Other indirect greenhouse gas emissions (scope 3)	
305 – 4	Greenhouse gas emission intensity	3.5
305 – 5	Reduction of greenhouse gas emissions	3.5
305 – 6	Emissions of ozone-depleting substances	
305 – 7	Nitrogen oxides, sulfur oxides, and other significant air emissions	3.6
	Waste and discharge	
306 – 1	Final water discharge	3.8
306 – 2	Waste and disposal methodology	3.4
306 – 3	Spills	
306 – 4	Transportation of hazardous waste	
306 – 5	Water bodies affected by discharges and/or outflows	3.8
	Environmental compliance	
307 – 1	Non-compliance with environmental laws and requirements	
	Supplier environmental assessment	
308 – 1	Reporting requirements	4.5
308 – 2	Negative environmental impacts in the supply chain	

SOCIAL PERFORMANCE		
	Workers	
401 – 1	Hiring new employees and employee turnover	4.1
401– 2	Benefits reserved exclusively for full-time employees	
401 – 3	Parental leave	4.2
	Corporate labor relations	
402 – 1	Minimum notice periods for operational changes	As per contract national collective of work
	Health and safety	
403– 1	Employee representation on joint management/employee health care committees	4.3
403– 2	Injury types and percentage of injuries, work-related illnesses, absences, and work-related deaths	4.3
403– 3	Workers with a high degree of injury or high risk of occupational disease	4.3
403 – 4	Health and safety issues covered by formal agreements with labor organizations	As per contract National workforce

GRI INDICATOR	DESCRIPTION	CHAPTER - PARAGRAPH*
	Training	
404 – 1	Average annual hours dedicated to training	4.4
404– 2	Skills implementation and transition assistance programs.	
404 – 3	Percentage of performance and review	
	Equal opportunities	
405 – 1	Diversity of management bodies	4.2
405 – 2	Salary ratio man/woman	4.2
	Non-discrimination	
406 – 1	Incidents of discrimination and actions taken	4.2
	Freedom of association and collective bargaining	
407 – 1	Transactions and suppliers where there are association risks	-
	Child labor	
408 – 1	Operations and suppliers subject to child labor risk	2.4
	Forced labor	
409 – 1	Operations and suppliers at risk for forced labor	2.4
	Security practices	
410 – 1	Security personnel trained in human rights	2.4
	Rights of indigenous peoples	
412 – 1	Operations subject to human rights controls	2.4
412 – 2	Human rights policy training	2.4
412 – 3	Investment agreements for the protection of human rights	2.4
	Local communities	
413 – 1	Activities involving local communities	4.6
413 – 2	Operations with significant impacts on communities	4.6
	Social evaluation of suppliers	
414 – 1	New suppliers screened using social criteria	4.5
414 – 2	Negative social impacts in the supply chain	4.5
	Public policy	
415 – 1	Public contributions	
	Consumer health and safety	
416 – 1	Assessment of safety and health impacts	2.5

GRI INDICATOR	DESCRIPTION	CHAPTER – PARAGRAPH*
416 – 2	Incidents of service and product non-compliance	
	Marketing and labeling	
417 – 1	Product disclosure and labeling requirements	2.5
417 – 2	Incidents related to non-compliance	
417 – 3	Incidents related to failure to communicate	
	Consumer privacy	
418 – 1	Reasoned complaints about invasion of privacy	
	Socioeconomic compliance	
419 – 1	Failure to comply with laws in the socioeconomic area	

KME Mansfeld GmbH

Lichtlöcherberg 40
06333 Hettstedt
GERMANY

he-info@kme.com
Phone +49 (0)3476 89-0
Fax +49 (0)3476 89-2090

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GREENING MARKETING ITALIA S.R.L.

GRAPHICS AND LAYOUT
9COLONNE