ENVIRONMENTAL REPORT 2021

Updated environmental report for the Linz, Steyrling and Traisen locations

The content of the updated Environmental Statement 2021 complies with the requirements of EMAS III Regulation No. 1221/2009, as amended, 2018/2026 and refers to the validated locations in Linz, Steyrling and Traisen and the respective companies voestalpine Stahl GmbH, voestalpine Grobblech GmbH, voestalpine Giesserei Linz GmbH, voestalpine Giesserei Traisen GmbH, voestalpine Camtec GmbH, voestalpine Steel & Service Center GmbH, voestalpine Standortservice GmbH, Logistik Service GmbH, Cargo Service GmbH und voestalpine Automotive Components Linz GmbH.

CONTENT

CLIMATE PROTECTION MEASURES

Climate protection and decarbonization present a major challenge in process and product development in energy-intensive industries such as the steel industry. voestalpine has been working intensively on research and development projects in an effort to implement technologies that allow the CO_2-lean production of consistently high-quality products.

voestalpine is committed to the objectives of the Paris Climate Agreement is striving to achieve carbon-neutral steel production by 2050 with a consistent decarbonization strategy that is embodied in greentec steel.

Extensive research and development programs such as H2FUTURE, which is an EU flagship project, for the production of green hydrogen on an industrial scale. H2FUTURE was successfully commissioned in 2019 and will run through 2021, making it possible in the long term to switch from coal- to hydrogen-based steelmaking.

However, concrete intermediate steps are also being taken. A hybrid designed to make the gradual switch from a coal-based blast furnace route to a green electricity-based electric steel route is currently under economic and technical assessment and would reduce CO_2 emissions in steelmaking at the Linz and Donawitz locations by one third after the year 2030. The technological challenge is ensuring consistently high product quality. The additional demand for renewable electricity for this technology would be up to 3 terawatt hours, which would require an expansion in the electrical grid infrastructure.

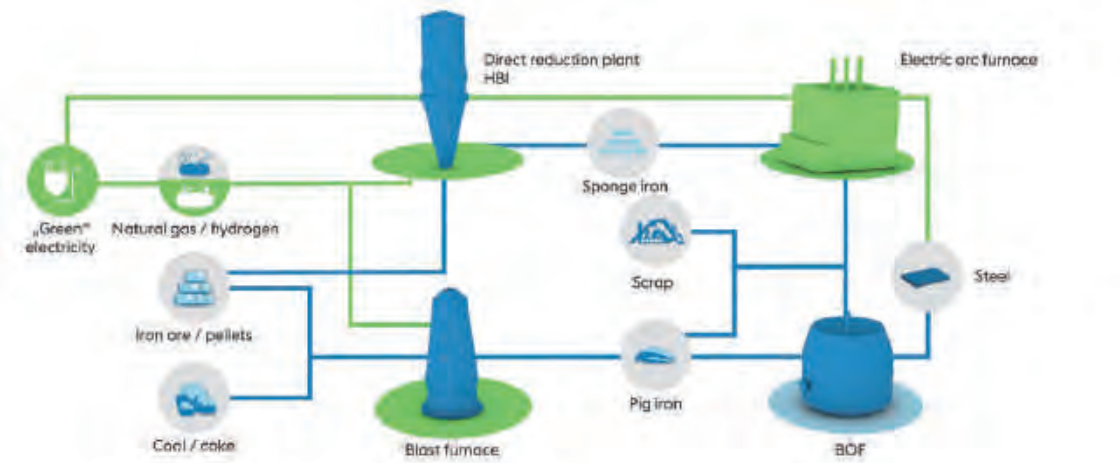
In addition to hot metal, pig iron and scrap as demanding prematerials, the hybrid design also uses the hot-briquetted iron (HBI) produced by voestalpine using natural gas in the direct-reduction plant in Texas. This raw material mix with an increased portion of HBI is the most important factor in this innovative production route. It should be possible in the long term to produce the same high-quality steel grades as we do today using green HBI and scrap while utilizing hydrogen instead of natural gas in the process.

DECARBONIZATION OF THE STEELMAKING PROCESS

Traditional blast furnace route

HYBRID STEELMAKING PLANT THROUGH 2030/35

HBI as a high-quality prematerial (CO_2 emissions reduced by more than 30%)

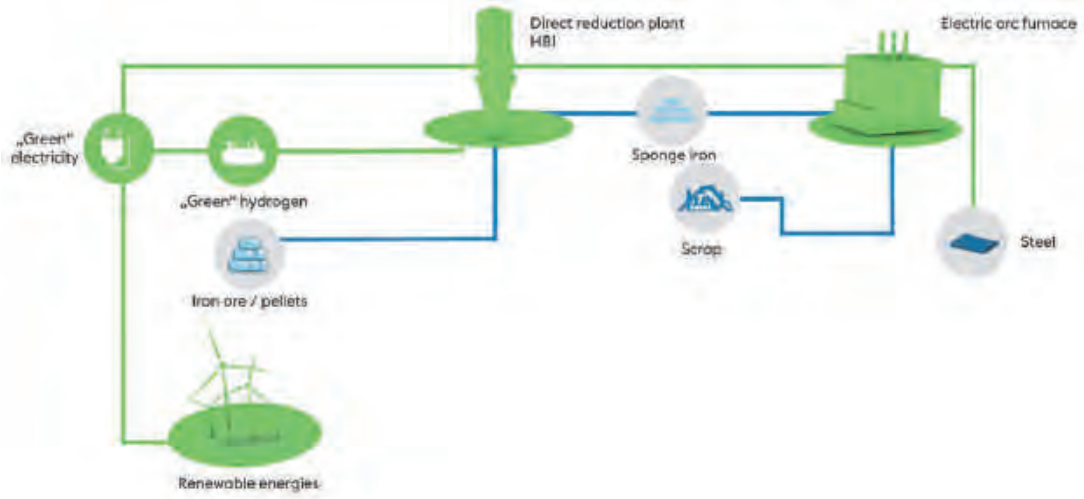


The primary prerequisite for this transition is the availability and affordability of renewable electrical energy. Ultimately it will be crucial to competitively operate these CO_2-lean technologies on a global scale. The political prerequisites, however, have not yet been established, and economic feasibility has not yet been proven.

In addition to the long-term development of groundbreaking hydrogen metallurgy, which will remain in the developmental phase for years to come, voestalpine is carrying out research and development projects that focus on the hydrogen-based reduction of ores and the production of crude steel using hydrogen plasma.

GROUNDBREAKING TECHNOLOGY

CO_2-neutral by 2050



The technical specialists at voestalpine are working intensively on cross-sector projects that focus on the economic and technological feasibility of carbon capture and usage (CCU), which is the separation of carbon dioxide and its conversion into raw materials in the chemical and petrochemical industries.

2020/21 ENVIRONMENTAL PROGRAM IMPLEMENTED MEASURES

Excerpt of environmental measures implemented in the 2020/21 fiscal year

Essential environmental measures that have made a significant contribution to environmental performance are integral constituents of the environmental programs of companies included in the scope. The following tables document measures implemented in previous programs as well as objectives newly defined in the 2021/2022 environmental program. Further individual measures have been developed and implemented in the respective companies.

Company	Target	Task	Figure	Deadline
voestalpine Stahl GmbH	Improved quantification of emissions in the coking plant	Recurring emission measurements in addition to those prescribed by law	Target: Presentation of measurement reports Current status: measurement reports available by the end of 2020, systematization of measurement intervals	3/31/2021
voestalpine Stahl GmbH	Reduction of energy input during charging of mixed materials in the sintering plant	Savings in ignition gas volume (coke-oven gas) by optimizing mixture	Target: Reduction of coke-oven gas by roughly 60 Nm^3/h = roughly 2,500 MWh per year	3/31/2021
voestalpine Stahl GmbH	Reduction of purge gas losses in blast furnace gas flares 5 and 6	Reduction of top gas purging quantities for flares 5 and 6 through additional measures that prevent backfiring	Target: Reduced by roughly 3,900 MWh/year Current status: Reduction of approximately 5,000 MWh achieved per year	3/31/2021
voestalpine Stahl GmbH	Increased energy efficiency in blast furnaces 5 and 6	Increased mixed blast temperature by 5 °C in blast furnaces 5 and 6 through structural changes in combustion air ducts and changes in combustion parameters	Target: Reduction of roughly 1,372 tons of CO_2/year Current status: Reduction of approximately 1,372 tons of dust per year	12/31/2020
Steyrling location	Reduction of dust emissions arising from the transport of grit in the steelworks	Dust emissions are significantly reduced by lowering the height of discharge, eliminating a conveyor belt and by altering the course by means of a reactivated bunker	Target: Dust emissions reduced in grit transport by approximately 30% Current status: Reduced by 44%	3/31/2021
voestalpine Giesserei Linz GmbH	Reduction of pollutants (CO_2) [1]	Coke oven gas heating methods replaced by infrared radiation	Target: Reduction of roughly 100 tons of CO_2/year Current status: Reduction of approximately 97.6 tons of CO_2 per year	3/31/2021
voestalpine Camtec GmbH	Reduction of packaging material	Reuse of wooden boxes at our customers (being extended to other large customers)	Target: Packaging materials reduced by roughly 5–10% Current status: Expansion to other customers was not possible because of a drop in orders. It was possible, however, to reuse 19% of the wooden crates	3/31/2021
voestalpine Steel & Service Center GmbH	Reduction of gas consumption in the shape-cutting facility	Reduction of the annealing temperature from 100 to 60 °C	Target: Consumption of propane gas reduced by roughly 40 MWh per year Current status: Reduced by 32 MWh per year	3/31/2021
voestalpine Standort Service GmbH	Conversion from fluorine-containing foaming agent to a fluorine-free one at the works fire department	Continuous replacement of fluorine-containing foam concentrate used by the works fire department in emergency vehicles or stored in the warehouse (roughly 1,900 liters)	Target: Conversion from fluorine-containing to fluorine-free foaming agent Current status: 1,900 liters of fluorine-containing foam concentrate were delivered to Aurolzmünster	3/30/2021
Cargo Service GmbH	Reduction of energy consumption	Replacement of 6-axle railcars with modern 4-axle railcars (TansANT) for ore transport between Eisenerz and Linz	Target: Traction current reduced by 180 kWh x 500 trains = 90,000 kWh Current status: Reduced by 151,560 kWh (842 trains)	3/31/2021
voestalpine Automotive Components Linz	Replacement of air-conditioning systems Elimination of old anti-freeze	Air-conditioning system in production line 1 upgraded to the latest generation (chilled water unit). Savings of R22 coolant. Better design efficiency. No losses through leakage	Target: Elimination of 444 kg R22 coolant per year, reduction of R410a coolant to 160 kg per year in chilled water unit Current status: 444 kg of R22 refrigerant eliminated	9/1/2020

[1] Measure was updated.

2021/22 ENVIRONMENTAL PROGRAM
MEASURES BEING IMPLEMENTED

Company	Target	Task	Figure	Deadline
voestalpine Stahl GmbH	Coking plant: Soil vapor extraction: Reduction of BTEX content in future excavated material	Remediation of Linz coking plant 076 in Linz, stage 1: Extraction of BTEX from contaminated underground air in the unsaturated zone	Reduction of BTEX in contaminated soil to below 50 mg/m³	12/31/2022
voestalpine Stahl GmbH	Reduction of fugitive dust emissions during coke pressing process	Optimization of the coke cake guide carriages and improved dust collection in the coke transfer machines	Reduction of approximately 6 tons of dust per year	12/31/2022
voestalpine Stahl GmbH	Reduced consumption of cooling water at the Linz location during the summer months as part of an experimental program	Optimized utilization of the temperature range between the Danube water inlet and the cooling water outlet in selected water lines	Result in final report on cooling water reduction in m³ per year	12/31/2021
voestalpine Stahl GmbH	Reduction of fuel input in annealing	Replacement of old annealing hoods with new ones	Burner gas consumption reduced by 600 MWh per year	12/31/2022
voestalpine Stahl GmbH	Reduction of precipitation discharge into sewage system and increase in underground water quantity by 10,100 m³ per year (introduced into natural water cycle)	Beta 3 project: Throughout the project, roof water is no longer discharged into the sewer system, but into the subsoil.	Installation of an infiltration system	3/31/2022
voestalpine Stahl GmbH	Reduction of filter cartridges in wastewater treatment in hot-dip galvanizing and annealing lines	Installation of cleaning system with flow rate measurement	Filter tube consumption reduced by roughly 270 units per year	Extended until 31 March 2021
voestalpine Giesserei Traisen GmbH	Increased efficiency of in-house-controlled transport vehicles for inbound and outbound deliveries	Development of a planning tool	Reduction of truck transport runs by 10	Extended until 31 March 2021
voestalpine Grobblech GmbH	Reduced energy consumption in heating units	Investment in a chamber furnace and optimization of the operation modes of blow-type furnaces (relocation of thick plating units to chamber furnace and thus optimizing the operation mode in pusher-type furnaces 1 and 2)	Target: Natural gas consumption reduced by roughly 4,600 MWh/year and coking gas consumption by roughly 4,900 MWh/year	Extended until 31 March 2021
voestalpine Grobblech GmbH	Reduced energy consumption in heating units	Increased energy efficiency through investment in a second chamber furnace and optimization of the operation modes of the pusher-type furnaces (relocation of thick plating units to chamber furnace and thus optimizing the operation mode in pusher-type furnaces 1 and 2)	Natural gas consumption reduced by roughly 4,600 MWh/year and coking gas consumption by roughly 4,900 MWh/year	Extended until 31 December 2021
Logistik Service GmbH	Reduced consumption of diesel fuel on the works railway	Acquisition of an electronic shunting module (iSi robot as replacement for diesel locomotive)	Savings of approximately 43,500 liters of diesel per year	Extended until 31 December 2021

2021/22 ENVIRONMENTAL PROGRAM
NEW MEASURES

Company	Target	Task	Figure	Deadline
voestalpine Stahl GmbH	OPERATIONALIZATION OF DECARBONIZATION STRATEGY PHASE 1: Direct CO_2 emissions reduced in the conventional integrated blast furnace route	Development of measures and simulation of savings in the course of a climate project based on ISO 14064	Validation and verification based on ISO 14064 and opinion statement	6/31/2022
voestalpine Stahl GmbH	OPERATIONALIZATION OF DECARBONIZATION STRATEGY: Expansion of existing management system to include aspects of sustainability	Introduction of requirements of the industry-specific ResponsibleSteel standard at the Linz production site	Successful external certification	5/31/2022
voestalpine Stahl GmbH	Reduction of precipitation discharge into sewage system and increase in underground water quantity by 1,680 m^3 per year (introduced into natural water cycle)	Remodeling in alloy storage 59: roof surface water no longer discharged into the sewer system, seeps into the ground	Installation of an infiltration system	12/31/2021
voestalpine Stahl GmbH	Reduction of consumption of industrial water in the steelmaking plant	Technical improvements in service water fittings and process safety achieved through control system monitoring	Process water reduced by roughly four m^3 per year	9/30/2022
voestalpine Stahl GmbH	Increased resource efficiency in the use of fine coke in blast furnace A	Increased use of fine coke for further reduction of lump coke volume in blast furnace A	Lump coke reduced by approximately 18,000 tons	12/21/2021
voestalpine Stahl GmbH	Increased resource efficiency in coarse dust briquetting in the steelmaking plant	Increased use of briquettes with increased coarse dust content in converters (higher iron and lime content in the briquettes)	Use of briquettes between 4.5 kg/t RSt and 6.5 kg/t RSt	3/31/2022
voestalpine Stahl GmbH	Reduction of electricity and natural gas consumption based on lower startup losses	Installation of turbidity measurement for live steam at unit 07 through reduced wear in the high pressure control valve	Natural gas consumption reduced by roughly 684 MWh per year and coking gas consumption by roughly 432 MWh/year	5/1/2021
voestalpine Stahl GmbH	Avoided purchases of natural gas	Converter gas fed into the blast preheaters of blast furnace A	Reduction of natural gas by roughly 39,400 MWh/a and about 5,300 tons of CO_2 per year (with simultaneous increase in externally purchased electricity)	3/31/2022
Steyrling location	Electricity consumption reduced in lime kiln blower 7	The old blowers in KO7 will be replaced and the motors upgraded to state of the art from IE1 to IE3. The use of the new motors results in a reduction of losses.	Electricity consumption reduced by roughly 31 MWh per year at nominal furnace capacity	3/31/2022

Company	Target	Task	Figure	Deadline
voestalpine Grobblech GmbH	Optimized energy consumption in heating units	Replaced recuperator in pusher-type furnace 1	Coke gas consumption reduced by roughly 5,800 MWh per year and CO_2 roughly 390 tons per year	3/31/2022
voestalpine Giesserei Linz GmbH	Coarse-grained degenerated chromite sand reduced in residual waste landfill	Amount of residual material landfill reduced by adjusting screens and detailing analysis of the material	Reduction of residual waste volume by approximately 50 tons per year	3/31/2022
voestalpine Giesserei Traisen GmbH	Mixing ratio of resin/ hardener to molded sand reduced by roughly 10%	Mixer modernized and sand management optimized	Resin and hardener consumption reduced by roughly 10% per year	3/31/2022
voestalpine Camtec GmbH	Logistics optimized and number of truck transports reduced	Planning and introduction of a new logistics strategy	Savings of roughly 40% per year in diesel consumption for transports from our most important supplier	3/31/2022
voestalpine Steel & Service Center GmbH	OPERATIONALIZATION OF DECARBONIZATION STRATEGY: Increased share of green electricity through in-house generation	Installation of a 489 kWp photovoltaic system on the building roof of the shape cutting center	Generation of roughly 461 MWh of green electricity in the shape cutting center	3/31/2022
Logistik Service GmbH	Reduced consumption of diesel fuel on the works railway	Procurement of two new diesel locomotives with start-stop technology (1004.05 and .06 series)	Fuel savings of roughly 5,225 liters/year of diesel per locomotive = total diesel savings of roughly 10,450 liters per year	3/31/2022
Cargo Service GmbH	Reduced railway electricity consumption	Train capacity between Steyrling and Linz increased from 17 to 20 railcars with two daily trains	Savings of additional split trains, roughly 84,280 kWh per year	3/31/2022
voestalpine Standort Service GmbH	Pollutant emissions reduced in emergency vehicles	Replacement of emergency vehicle powered by an internal combustion engine with one powered by an electric motor	Fuel savings of roughly 800 liters of diesel per year	3/30/2022
voestalpine Automotive Components Linz	OPERATIONALIZATION OF DECARBONIZATION STRATEGY: Increased share of green electricity through in-house generation	Installation of a 750 kWp photovoltaic system on the building roofs of Works 2	Generation of roughly 707 MWh of green electricity in the Works 2	6/30/2022

PRODUCTION AND ENERGY FIGURES

The following production figures show the relevant environmental parameters for the companies included in this Environmental Report.

Linz location

Production volume	Unit	2018 CY	2019 CY	2020 CY
Crude steel (CS)	Million tons	4.62	5.25	5.05

Products	Unit	2018 CY	2019 CY	2020 CY
Hot-rolled strip (non-slit)	Million tons	1.0	1.0	0.975
Cold-rolled strip and electrical steel		0.908	0.961	0.935
Galvanized strip		2.1	2.1	1.991
Organic-coated strip		0.183	0.2	0.181
Heavy plates		0.6	0.5	0.4
Blast furnace slag		1.3	1.4	1.2
Castings in Linz	tons	5,912.0	5,212.0	4,985.0
Castings of Camtec		114.0	80.0	62.0
Laser-welded blanks		152,461.0	155,165	137,821
Laser-welded blanks	units	27,819,473	28,287,213	26,302,000
Products processed by SSC	t	1,703,757.7	1,718,992	1,618,119

Energy	Unit	2018 CY	2019 CY	2020 CY
Natural gas [1)]	TWh	3.86	3.57	3.22
Electric power (outside source)	TWh	0.589	0.461	0.384

Steyrling location

Products	Unit	2018 CY	2019 CY	2020 CY
Burned lime (BL)	Million tons	0.287	0.315	0.301
Armor stones		0.002	0.002	0.004
Fines (unburned)		0.513	0.618	0.669
Volume of limestone mined (LS)		1.011	1.179	1.214

Energy	Unit	2018 CY	2019 CY	2020 CY
Natural gas	GWh	282	308	327
Electric power		11	12	12

Traisen location

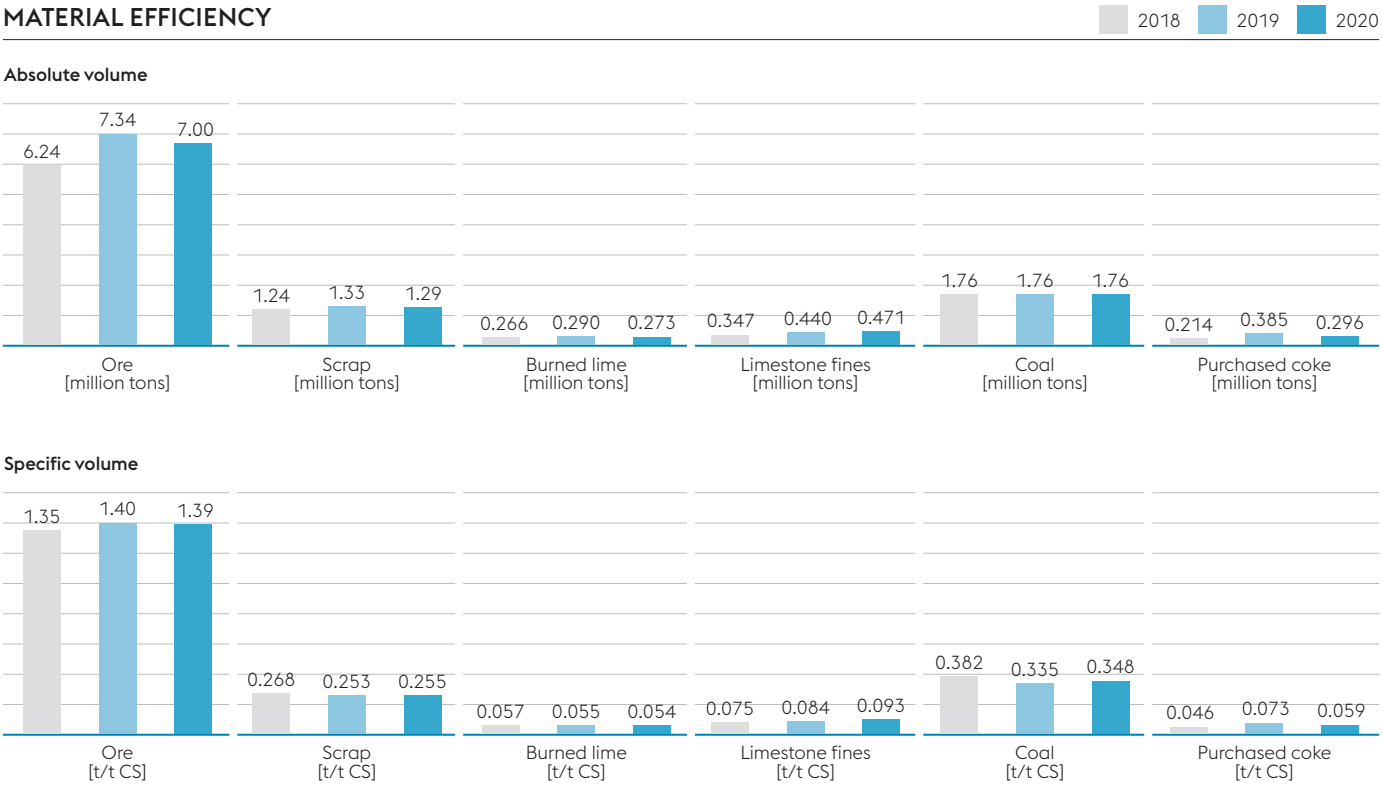
Production volume	Unit	2018 CY	2019 CY	2020 CY
Cast parts	tons	8,361	6,539	4,432
Cast parts	units	25,790	23,659	18,825

[1)] Calculation was standardized in compliance with reporting obligations pertaining to energy monitoring (upper calorific value).

CORE INDICATORS
LINZ LOCATION

The core indicators refer to total annual crude steel production. In the 2020 calendar year, the value was 5.05 million tons. In 2018 it was 4.62 million tons. In 2019 it was 5.25 million tons.

MATERIAL EFFICIENCY



ENERGY EFFICIENCY

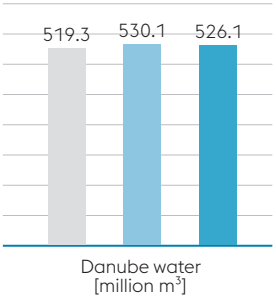
[1] Increased proportion of renewable energies with respect to electricity labeling from purchased third-party electricity. This reflects the following for the 2020 calendar year: water power (12.34%), solid biomass (13.19%), liquid biomass (0.01%), biogas (1.03%), wind energy (10.73%), photovoltaic power (1.48%), waste containing a high percentage of biogenic materials (0.15%), landfill gas (0.01%), sewage gas (0.01%) and geothermal energy (< 0.01%).

CORE INDICATORS
LINZ LOCATION

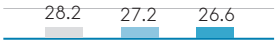
WATER

2018 2019 2020

Absolute volume

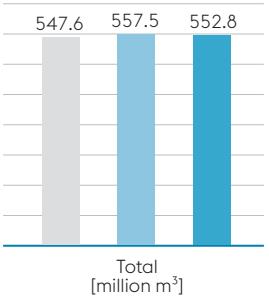


Danube water [million m^3]



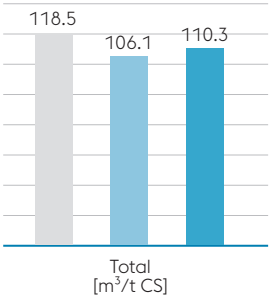
Ground water [million m^3]

Potable water [million m^3]



Total [million m^3]

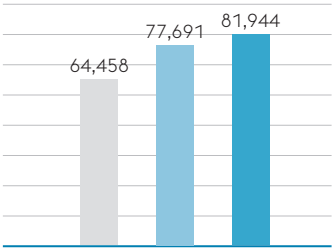
Specific volume



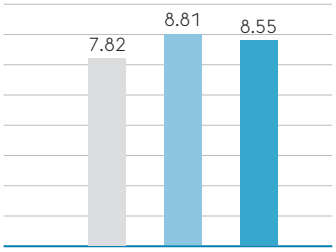
Total [m^3/t CS]

EMISSIONS

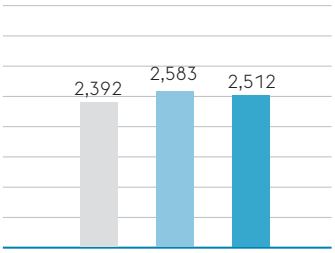
Absolute volume



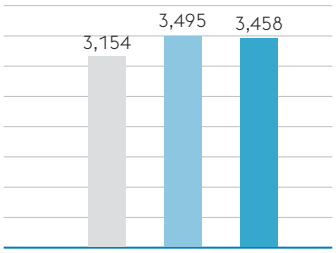
CO [t]



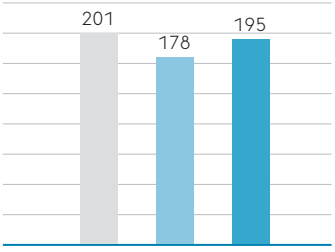
CO_2 [1] [million tons]



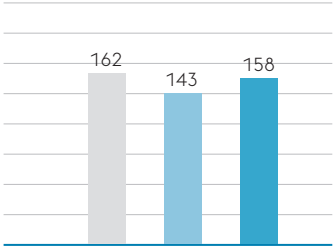
NO_x as NO_2 [t]



SO_2 [t]

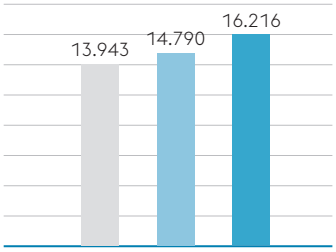


Dust [t]

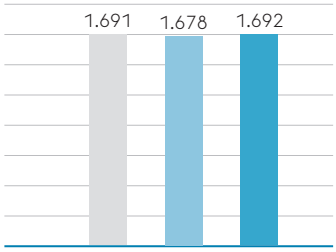


PM_{10} [t]

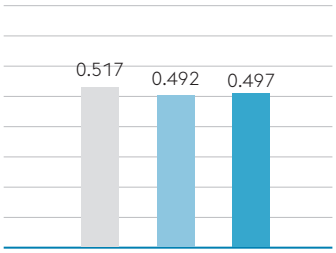
Specific volume



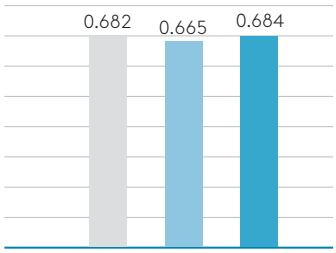
CO [kg/t CS]



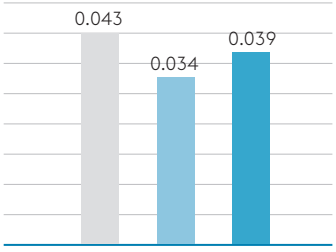
CO_2 [1] [t/t CS]



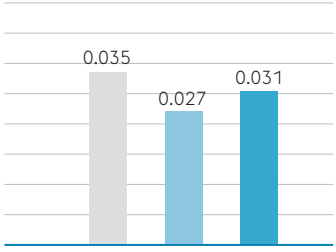
NO_x as NO_2 [kg/t CS]



SO_2 [kg/t CS]



Dust [kg/t CS]



PM_{10} [kg/t CS]

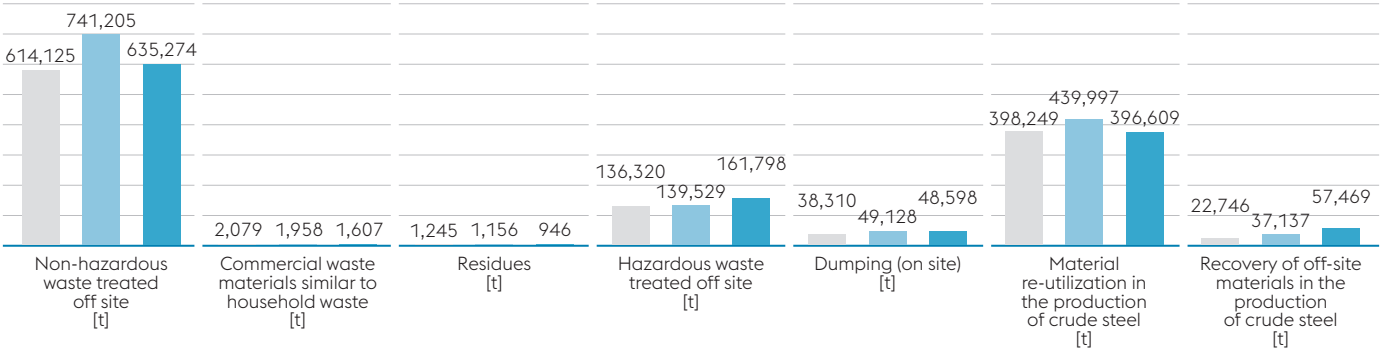
Other greenhouse gases such as methane and fluorochlorohydrocarbons (FCHC) are emitted in only small amounts (roughly 66 tons of methane and 25 kg of FCHC).

[1] Verified quantity based on EU emission allowance trading

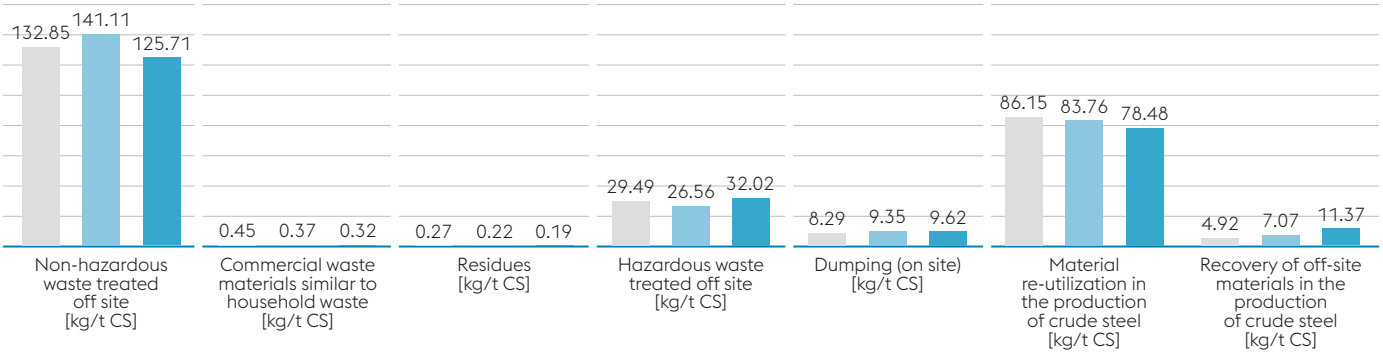
WASTE

2018 2019 2020

Absolute volume

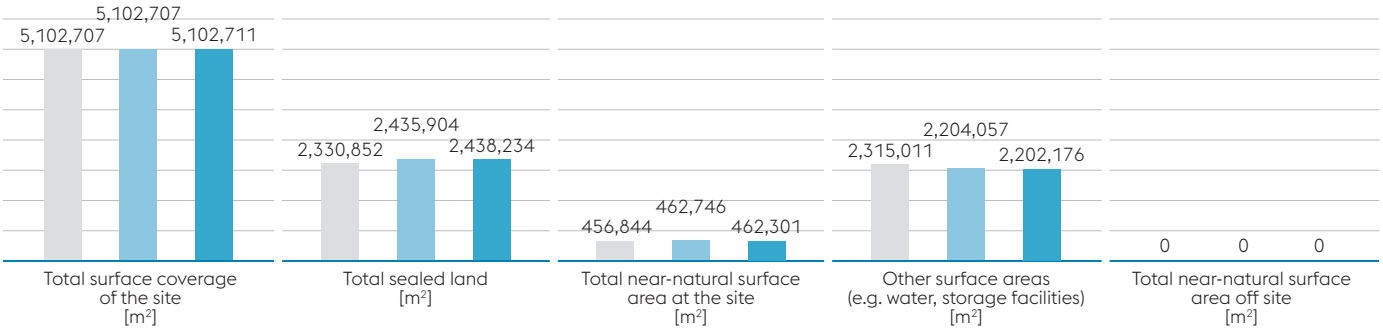


Specific volume



BIOLOGICAL DIVERSITY [2)]

Absolute volume



[2)] Core biological diversity indicator refers to the surface area of the works premises at the Linz location as registered in the land registry in April 2020.

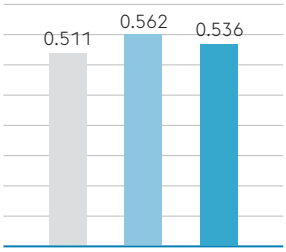
CORE INDICATORS
STEYRLING LOCATION

The core indicators refer to total annual burned lime production. In the 2020 calendar year, the value was 0.30 million tons. In 2018 it was 0.29 million tons. In 2019 it was 0.32 million tons).

MATERIAL EFFICIENCY

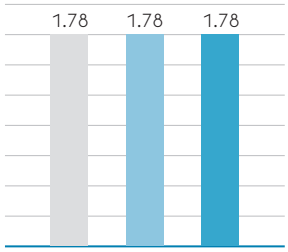
2018 2019 2020

Absolute volume



Limestone for production of burned lime [million tons]

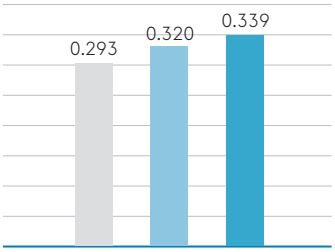
Specific volume



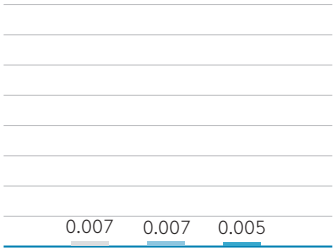
Limestone for production of burned lime [t/t BL]

ENERGY EFFICIENCY

Absolute volume

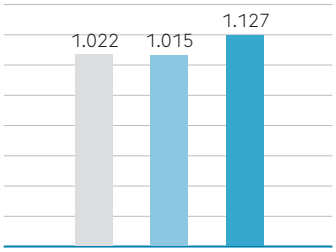


Total energy consumption [TWh]

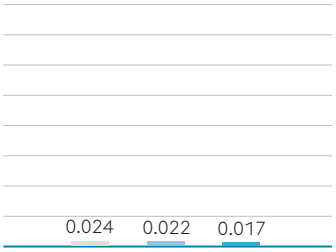


Portion of renewable energy [1] [TWh]

Specific volume



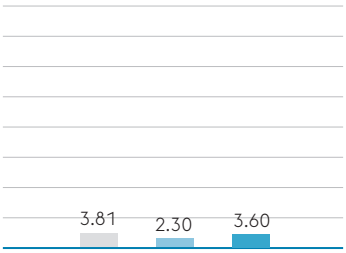
Total energy consumption [MWh/tBK]



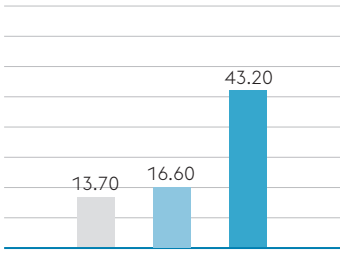
Portion of renewable energy [1] [MWh/tBK]

EMISSIONS

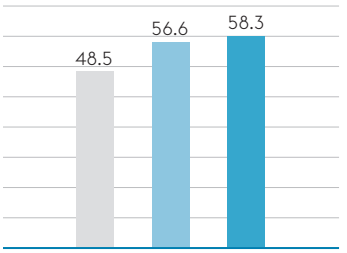
Absolute volume



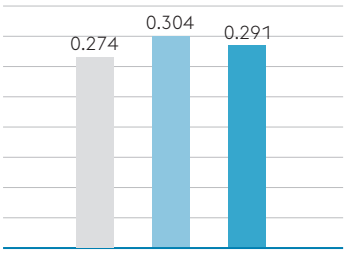
Dust [t]



NO_x as NO_2 [2] [t]

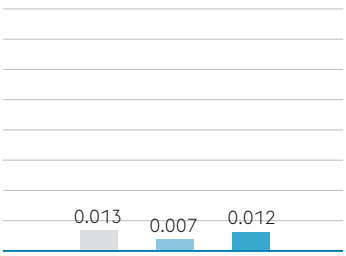


Diffuse dust emissions PM_{10} [g/t]

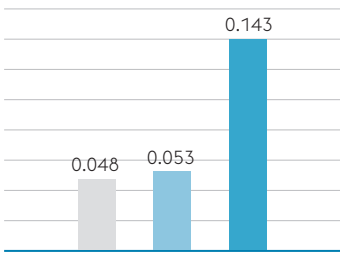


CO_2 [3] [million tons]

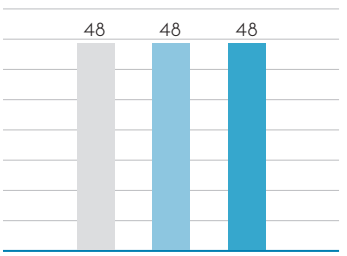
Specific volume



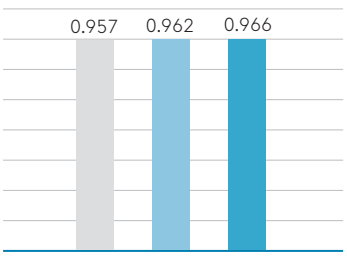
Dust [kg/t BL]



NO_x as NO_2 [2] [kg/t BL]



Diffuse dust emissions PM_{10} [g/t LS]



CO_2 [3] [t/t BL]

[1] Increased proportion of renewable energies with respect to electricity labeling from purchased third-party electricity. This reflects the following for the 2020 calendar year: water power (12.34%), solid biomass (13.19%), liquid biomass (0.01%), biogas (1.03%), wind energy (10.73%), photovoltaic power (1.48%), waste containing a high percentage of biogenic materials (0.15%), landfill gas (0.01%), sewage gas (0.01%) and geothermal energy (< 0.01%).

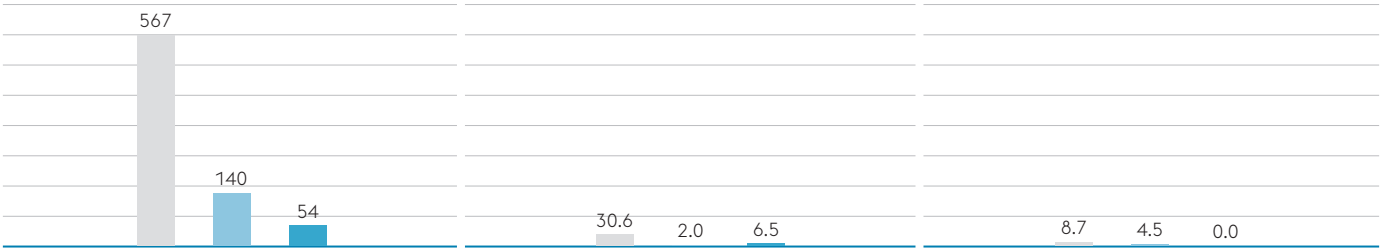
[2] Emissions from lime furnaces

[3] Verified quantity based on EU emission allowance trading

WASTE

2018 2019 2020

Absolute volume

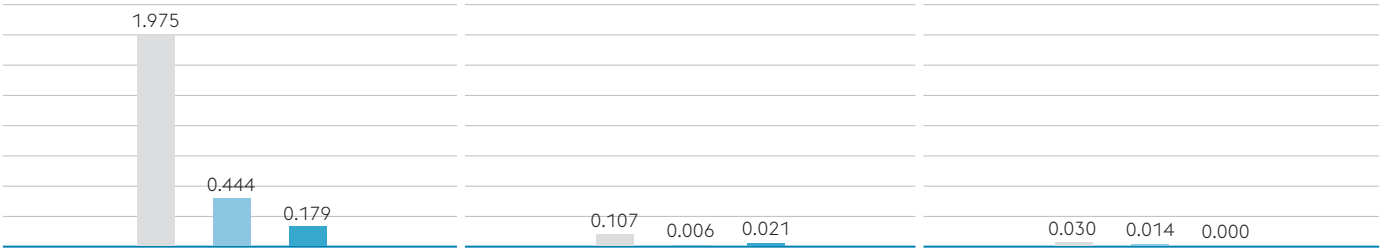


Non-hazardous waste treated off site [t]

Hazardous waste treated off site [t]

Material re-utilization in the production of crude steel [t]

Specific volume



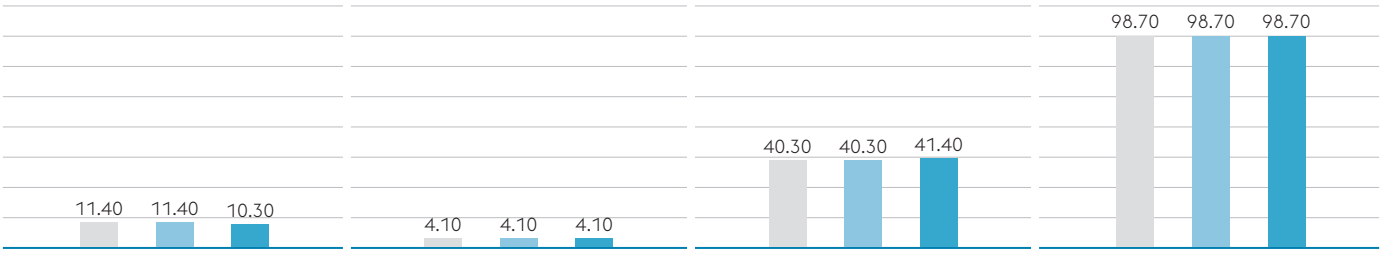
Non-hazardous waste treated off site [kg/t BL]

Hazardous waste treated off site [kg/t BL]

Material re-utilization in the production of crude steel [4] [kg/t BL]

BIOLOGICAL DIVERSITY [4]

Absolute volume



Total surface coverage of the site [ha]

Total sealed land [ha]

Total near-natural surface area at the site [ha]

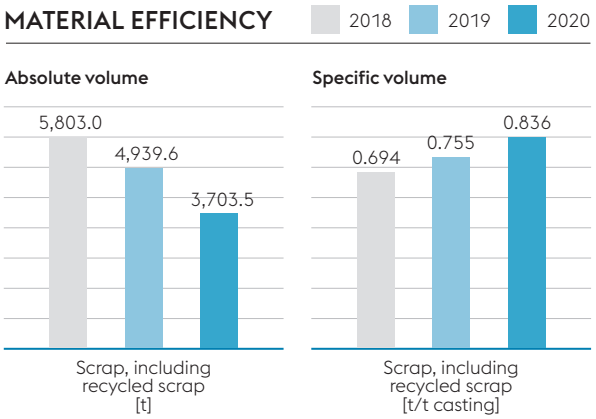
Total near-natural surface area off site [ha]

[4] The core biological diversity indicator refers to the surface of the works premises at the Steyrling location as registered in the land registry in March 2021.

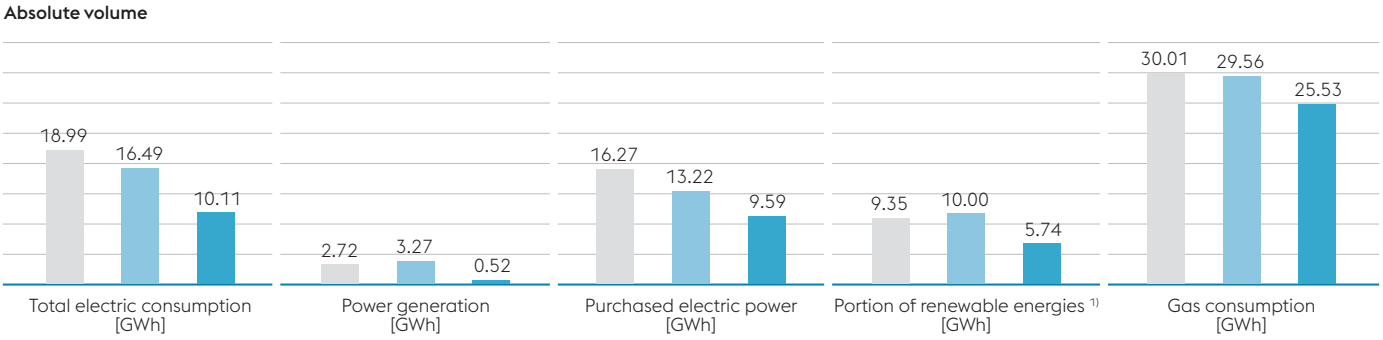
CORE INDICATORS
TRAISEN LOCATION

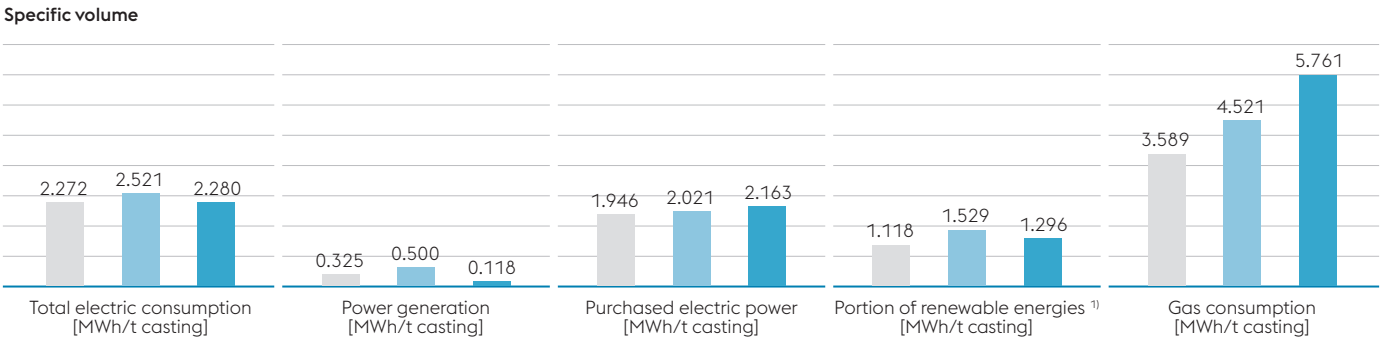
The core indicators refer to total annual casting production. In the 2020 calendar year, the volume was 4,432 tons. In 2018 it was 8,361 tons. In 2019 it was 6,539 tons.

MATERIAL EFFICIENCY

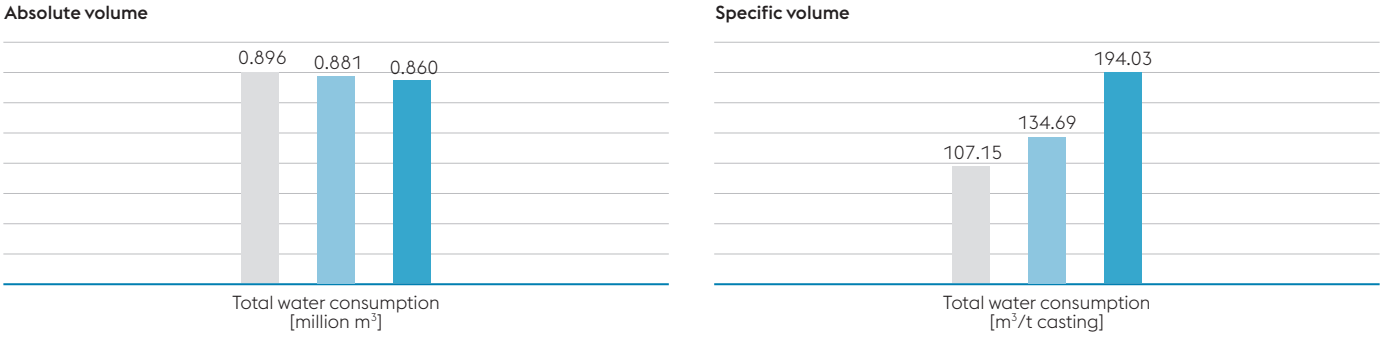


ENERGY EFFICIENCY





WATER

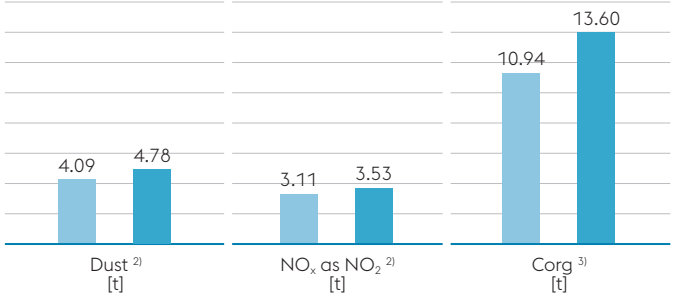


1) Determination of share of renewable energies based on official disclosure arising from purchased external electric power and electricity generated by the two hydro-power plants. During the 2020 calendar year, externally supplied electricity was generated by water power (27.89%), wind energy (10.73%), solid biomass (13.34%), photovoltaics (1.48%), other eco-energies (0.02%), natural gas (42.11%) and other sources (3.40%).

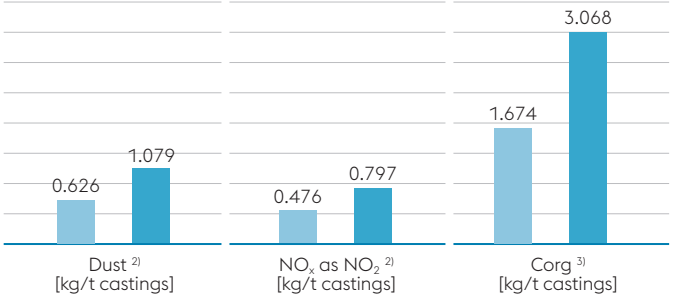
EMISSIONS

2018 2019 2020

Absolute volume

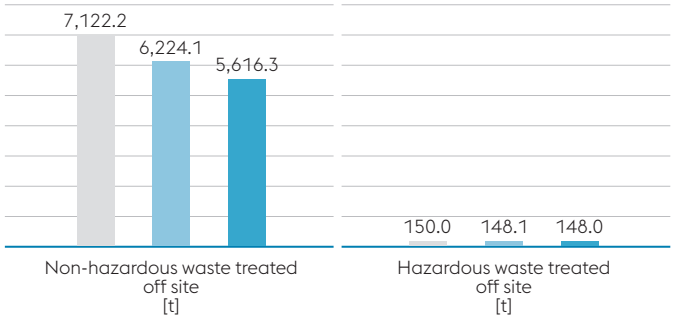


Spezifische Menge

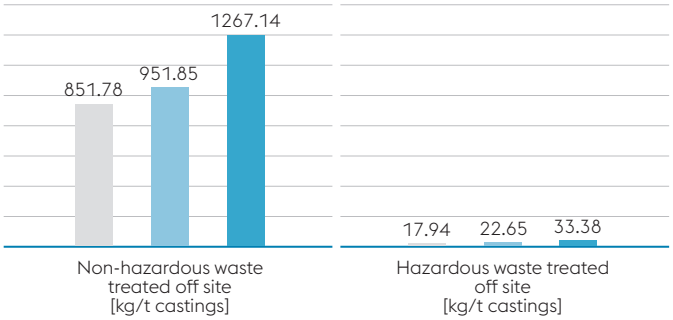


WASTE

Absolute volume

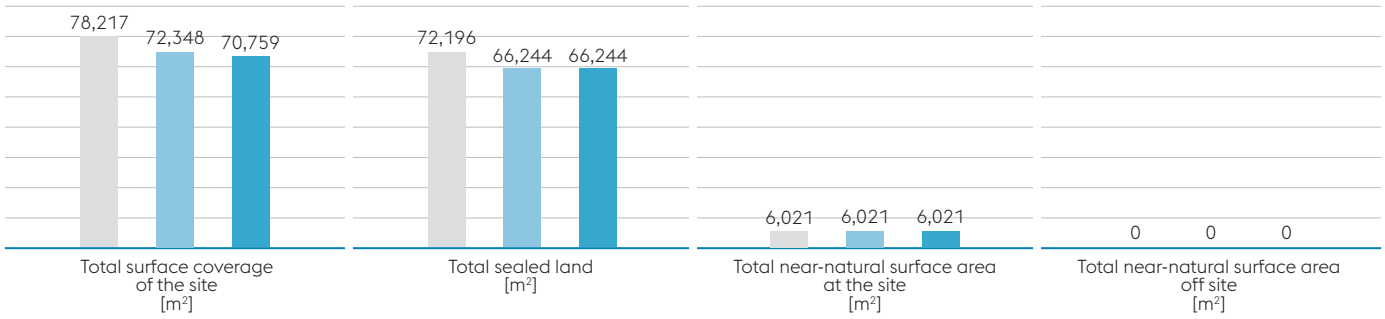


Specific volume



BIOLOGICAL DIVERSITY 4)

Absolute volume



2) Emissions from production systems
3) From annealing furnace/bogie hearth furnace
4) The core biological diversity indicator refers to the surface area of the works premises at the Traisen location as registered in the land registry, April 2020; 2019 values updated.

CIRCULAR ECONOMY
BY voestalpine

Versatile, durable and environmentally friendly, steel is the material of the future.

Steel is durable, easy to repair and can always be recycled into new steel products. The unique properties of steel, such as product weight reduction, durability and processability, make it the number-one material of the future and indispensable in a wide variety of industries.

STEEL MEETS ALL THE REQUIREMENTS OF A FUTURE CIRCULAR ECONOMY.

Reduce. Product weight and material quantities can be reduced by using modern steel grades.

Reuse. The durability and sustainability of steel allows continuous reuse of products.

Repair. Because to their manufacturing properties, steel products can be re-manufactured or repaired using a variety of different methods for different purposes.

Recycle. Steel products can always be recycled to make new steel products. The recycling loop is a closed one.

The circular economy has long been implemented in many areas at voestalpine

and is being further developed on a continual basis.

At the political level, the term stands for an ambitious package of measures and legislation adapted and published by the European Union Commission in 2015 to take into account the growing importance of this approach in our society as well as in the European and global economies.

This includes all phases of value creation (the entire lifecycle) from production, use and consumption to end of life (waste management and loop closure) and the creation and further development of markets for secondary raw materials. All these measures are intended to foster development in Europe toward a closed-loop economy, strengthen global competitiveness and promote sustainable economic growth.

The concept of a circular economy aims at developing and finalize cycles of materials added-value chains:

- Maintain added value of the products by using them for as long as possible
- Keep substances and materials available in the overall system by closing the loop and making them available again as secondary raw materials in order to preserve their value

This minimizes waste (towards ZERO WASTE) and increases resource and energy efficiency.

Steel products contribute to the progress our circular economy because modern steels can reduce the amount of materials used in products (reduce). Steel products can be reused because of their durability and longevity (reuse) and can be repaired using a variety of different manufacturing techniques (repair/re-manufacture). Steel products can always be recycled.

In a circular economy, a fundamental aspect of product assessment is a holistic view that takes into account ecological, social and economic factors throughout the entire lifecycle of the product.

Product sustainability encompasses all three pillars of sustainability along the entire supply and value chain. At present, emphasis is on environmental aspects.

Lifecycle assessment (LCA) is the method used to systematically determine the environmental impact of products throughout their entire lifecycle. Several impact categories are considered, including carbon footprint (CO_2), acidification potential (SO_2, NO_x), primary energy demand and much more.

This holistic view within the system boundaries is necessary in order to transparently and objectively identify shifts in the environmental impact between lifecycle phases or between different impact categories and ideally to avoid them.

Environmental product declarations (EPDs) are an important tool for providing transparent and neutral information on the environmental impact of products based on a lifecycle assessment. voestalpine has prepared and published EPDs for various products such as colofer®, hot-dip galvanized steel strip, electrical steel, heavy plate, roll-clad heavy plate and rails.

EPDs are based on the EN15804 and ISO14025 standards, are verified by independent auditors and are published as part of the declaration program of the Institute for Construction and Environment (IBU) in Berlin.

voestalpine also determines the water footprint for the Linz location based on holistic methods.

Material cycles can only be developed and the loop closed if the products do not contain substances that inhibit or counteract the closure of a loop. A corresponding legal framework governs the handling of such substances as well as the obligation of informing and verifying.

These include REACH (Registration, Evaluation, Authorization and Restriction of Chemicals), RoHS (Restriction of Hazardous Substances) and the directive on end-of-life vehicles. The products of the voestalpine Steel Division meet all pertinent requirements (material compliance).

The concept of circular economy with development and material loop closure as well as material and value creation cycles to increase resource and energy efficiency is implemented in the manufacturing processes of voestalpine at the Linz location. Waste and recycled materials from steel production as well as waste and secondary raw materials from external production processes are used in the production processes at the Linz location. Additionally, material cycles (product and secondary raw materials) in the supply chain are established and promoted.

The establishment and expansion of so-called industrial symbioses, for example the use of by-products from steelmaking processes and secondary raw materials for the manufacture of products in other industrial sectors, contribute to the further development of the circular economy. These industrial symbioses include, for example, the use of granulated blast furnace slag as an additive in cement production, the use of coal recyclables from the coking process in the chemical industry and regeneration products such as iron oxide for the production of components in electronics and electrical applications.

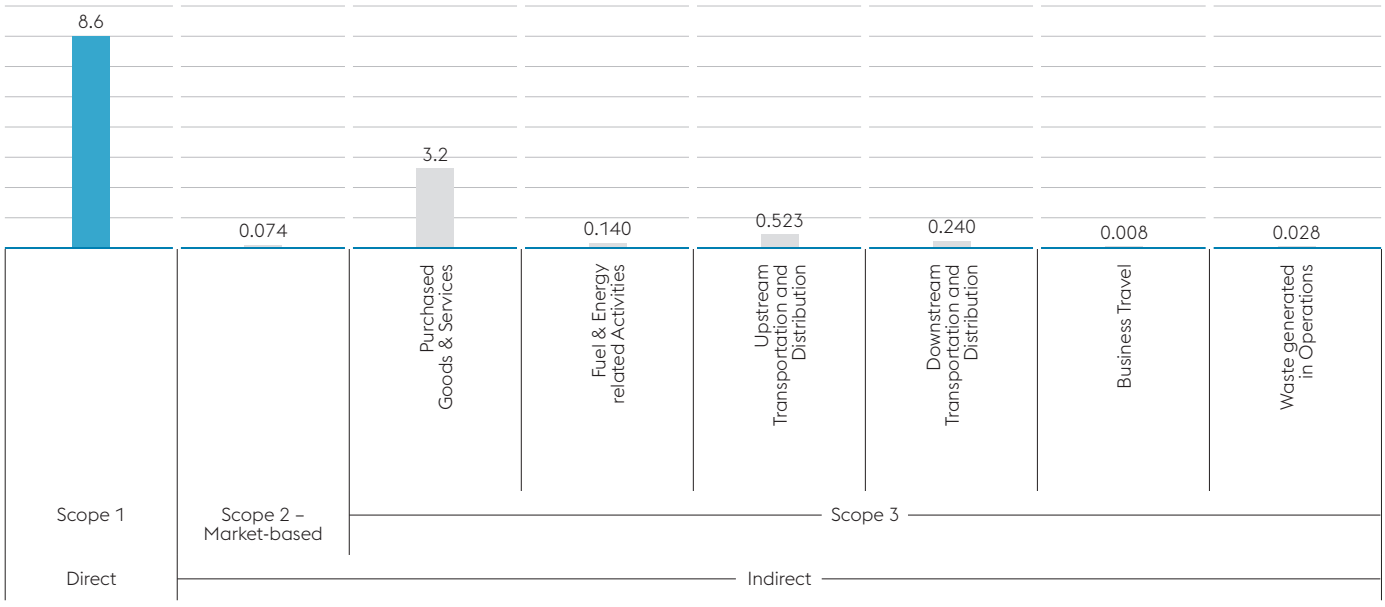
Circular economy is not a theoretical approach at voestalpine. The steel products made by voestalpine are versatile, durable and sustainable, and the production processes at the Linz location are optimized on a continual basis to further increase resource and energy efficiency. voestalpine is an integral part of the circular economy along the entire value chain.

DIRECT AND INDIRECT GREENHOUSE GAS EMISSIONS, 2020

voestalpine attaches great importance to transparency and has been participating in the Carbon Disclosure Project (CDP) since 2017. The greenhouse gas emissions along the entire value chain have been calculated holistically for all production sites pursuant to ISO 14064-3 and verified externally[1]. The greenhouse gas emissions at the Linz, Steyrling and Traisen sites are as follows:

DIRECT AND INDIRECT GHG EMISSIONS AT THE LINZ SITE

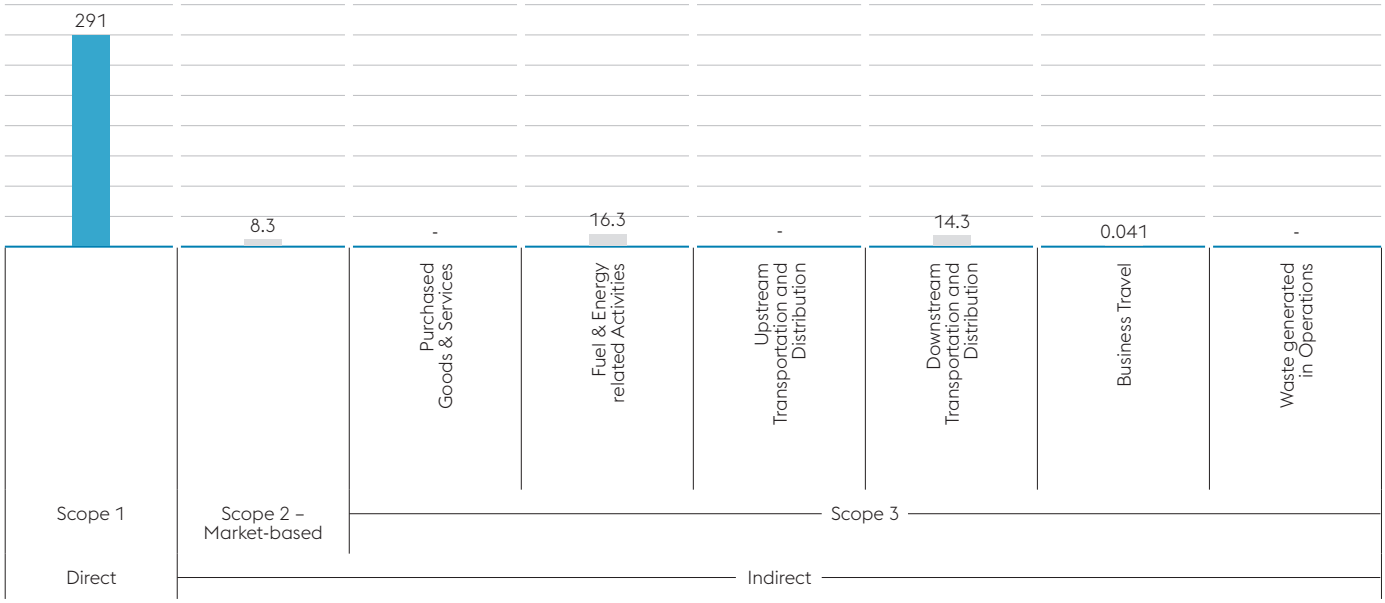
in [millions of tons CO_2e] (CO_2 equivalent)



[1] The Scope 1, 2 and 3 emissions at the Linz, Steyrling and Traisen sites have been verified and confirmed by an external agency. This statement was submitted as part of the EMAS verification and the CO_2 quantities. Scope 1, 2 and 3 stated here, however, were not verified by EMAS.

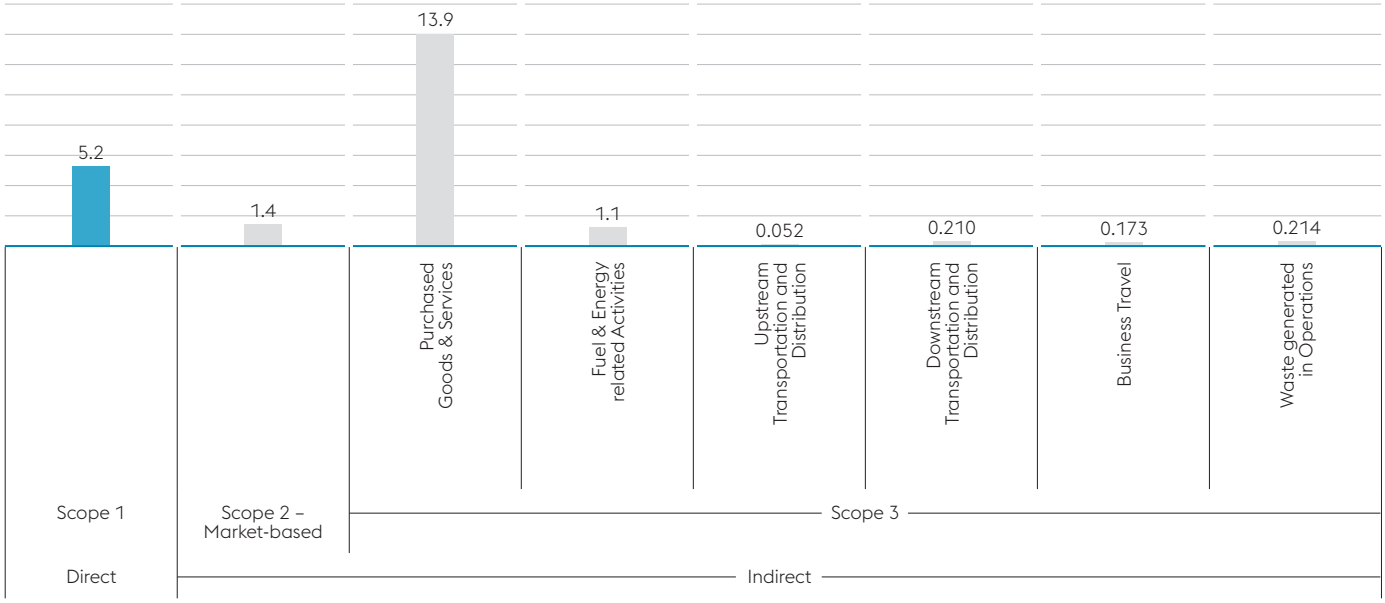
DIRECT AND INDIRECT GHG EMISSIONS AT THE STEYRLING SITE

in [1,000 tons of CO_2e] (CO_2 equivalent)



DIRECT AND INDIRECT GHG EMISSIONS AT THE TRAISEN SITE

in [1,000 tons of CO_2e] (CO_2 equivalent)



In order to reach the Paris climate targets, voestalpine Stahl GmbH has launched the CO_2 Reduced Steel climate project as part of a comprehensive decarbonization strategy at the Linz site. The objective is to reduce direct CO_2 emissions from the conventional blast furnace route in the production of high-quality steel products. The climate project is based on the requirements of ISO 14064-2:2019 and has been successfully verified by Lloyd's Register EMEA (Vienna branch) pursuant to ISO 14064-3:2019. The project optimization measures demonstrably achieve emission savings of ~9% in the steel production process. Beginning in the 2019 calendar year, emissions have been confirmed by Lloyd's Register. The methodical project measures makes it possible to report the carbon footprint for the products of voestalpine Stahl GmbH according to recognized methods (ISO 14044, EN 15804, worldsteel methodology etc.).

RESPONSIBLE STEEL

In 2019, voestalpine became one of the first steelmaking companies to join the ResponsibleSteel initiative and to commit to the twelve principles, which range from corporate governance to human and labor rights to a variety of environmental issues such as climate change, noise, wastewater, waste and biodiversity.

The manufacturing companies in the voestalpine Steel Division at the Linz site have committed themselves to the ResponsibleSteel Standard and will be certified as a sustainably producing steel site in the 2021/2022 business year.

Responsible treatment of people and resources along the entire production and supply chain are the emphasis. Increased attention is also being paid to the reduction of greenhouse gases, which is intended as a visible sign of support for the United Nations' Sustainable Development Goals.


Respon
sibility

ENVIRONMENTAL FOCUS ON AIR

The reduction of emissions is an essential target. The results are very favorable.

-95%

A savings of 95% dust per ton of crude steel is only one of the many values that voestalpine substantially improved. The reduction of specific emissions at the Linz location is impressive. Since the mid 1980s, SO_2 and NO_x have also been reduced by 75%, and CO_2 by roughly 20%.

Reduce. Process-integrated measures, e.g. new burner technologies

Reuse. Circulation in dust management, e.g. zinc in the LD3 steelmaking plant, or of activated carbon and sodium bicarbonate in the sintering plant

Repair. Coal grinding and drying plant with post-combustion, filter bag exchange, regular cleaning of $DeNO_x$ heat plate exchangers, end-of-pipe technologies

Recycle. Reuse of the casting hall dust in the sintering plant

Implementing state-of-the-art technologies takes a high priority at the Linz location in order to avoid or reduce emissions.
More than 70% of the emissions are continuously measured and are transmitted online to the local environmental authorities. The remaining emissions are assessed in compliance with official requirements in prescribed intervals.

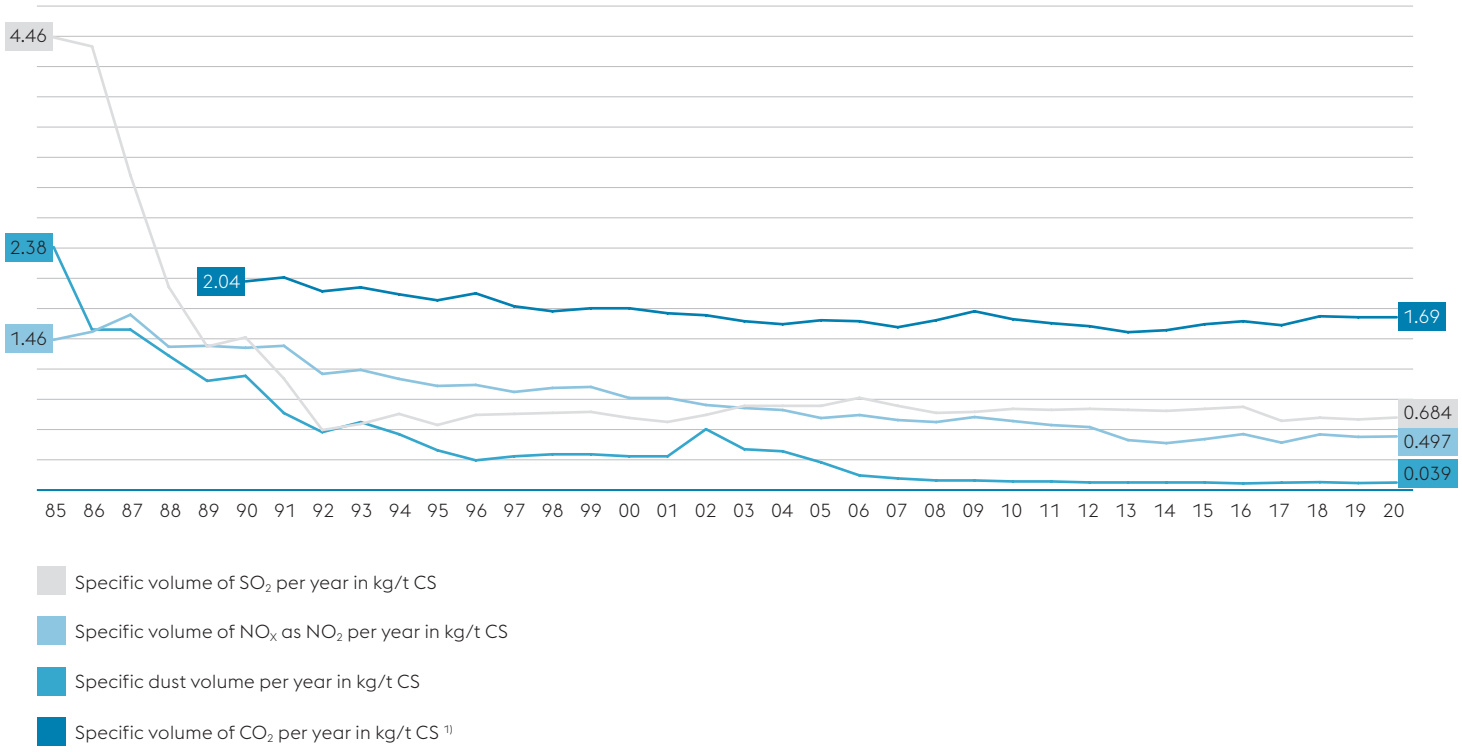
The emissions from lime extraction at the Steyrling location during the 2020 reporting year were minimal as compared to the previous year. Activities involving particularly large amounts of dust, such as blasting, take weather conditions into account.

The voestalpine foundry at the Traisen location takes effective air pollution control measures to sustainably improve the air quality, meet legal obligations and pursue its own interests. Best available technologies are implemented to achieve the best results.

Specific air emissions
Continual further development of production processes and the implementation of numerous air-pollution-control measures have led to a significant reduction in emissions.

EMISSIONS REDUCTION AT THE LINZ LOCATION

Per ton of crude steel since the mid 1980s



[1)] Pursuant to Emissions Certificate Act 2011 as amended

Continuous emission measurements at the Linz location

NO_x as NO_2	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Power station	Block 06	100	66	80	73
	Block 03	100	46	42	48
	Block 04	100	46	51	42
	Block 05	100	42	49	52
	Block 07	100	42	50	56
	Gas and steam turbine	33	25	28	28
Blast furnace blower station	Central blower station 2, boiler 1	100	7	1	2
	Central blower station 2, boiler 2	100	5	3	6
Hot-rolling mill	Pusher-type furnace 06	400 [1]	270	292	255
	Pusher-type furnace 07	350 [2]	199	209	212
	Walking-beam furnace 1	220 [3]	115	114	120
Sintering plant	Sinter belt 5	150 [4]	85	86	89
Cold-rolling mill	Hot-dip galvanizing line III	250	148	88	97
	Hot-dip galvanizing line IV	250	94	101	101
	Hot-dip galvanizing line V	250	153	155	139
Heavy plates	Pusher-type furnace 1	500	370	398	385
	Pusher-type furnace 2	300 [5]	167	172	154

SO_2	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Power station	Block 06	200	63	71	83
	Block 03	200	89	96	89
	Block 04	200	89	111	103
	Block 05	200	91	97	89
	Block 07	200	94	99	91
	Gas and steam turbine	67	29	32	26
Blast furnace	Casting bay dedusting (BF A)	350	88	80	117
LD steelmaking plant	Secondary dedusting 1	101.5 [6]	21	22	24
Hot-rolling mill	Pusher-type furnace 06	200	114	125	106
	Pusher-type furnace 07	200	49	53	52
Coking plant	Sulfuric acid and gas cleaning system	1,000 [7]	393	372	354
Sintering plant	Sinter belt 5	350	269	296	293
Heavy plates	Pusher-type furnace 1	200	111	120	123

All emission sources are continuously monitored. The data refer to the respective calendar year.

[1] Pusher-type furnace 6: additional limitation of daily mean values for NO_x of 300 mg/scm.

[2] Pusher-type furnace 7: additional limitation of daily mean values for NO_x of 220 mg/scm.

[3] HBO 1: additional limitation of daily mean values for NO_x of 130 mg/scm.

[4] Sinter belt No. 5: additional limitation of daily mean values for NO_x of 100 mg/scm.

[5] Pusher-type furnace 2: additional limitation of daily mean values for NO_x of 200 mg/scm.

[6] SO_2 limit values in kg/h.

[7] There is also a fraction limit value of 150 kg SO_2/day under normal operating conditions.

CO

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Power station	Block 03	100	5.9	6.6	6.4
	Block 04	80	5.6	13.3	18.9
	Block 05	80	7.1	10.6	11.2
	Block 07	80	9.1	8.8	3.9
	Gas and steam turbine	33	2.8	3.8	9.3
Blast furnace	Central blower station 2, boiler 1	80	1.3	3.7	1.3
	Central blower station 2, boiler 2	80	3.2	4.5	1.0
Coil coating line	Coil coating line 1	100	0.5	1.0	1.2
	Coil coating line 2	100	6.1	6.9	7.3

Total carbon

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Coil coating line	Coil coating line 1	30	1.2	1.7	1.4
	Coil coating line 2	30	3.1	3.7	3.9

H_2S [8)]

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Coking plant		500	250	274	285

HF

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Sintering plant	Sinter belt 5	3.0	1.5	0.7	0.3

Hg

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Sintering plant	Sinter belt 5	0.050	0.042	0.042	0.043

Dust

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Blast furnace	Casting bay dedusting (BF A)	10	5.3	3.7	4.4
	Casting bay dedusting system (BF 5 and 6)	10	1.6	1.1	0.5
Sintering plant	Sinter belt 5	10	2.4	2.4	2.5
	Sinter plant dedusting	10	4.3	1.9	3.9
	Sinter crusher and screening unit (SIBUS)	10	1.5	1.7	1.9
LD steelmaking plant	Secondary dedusting 1	10	5.6	4.8	5.6
	Secondary dedusting 2.1	10	2.7	2.3	2.4
	Secondary dedusting 2.2	10	1.0	0.4	0.9
	Secondary dedusting 3.1	10	0.1	0.1	0.1

The emission concentrations listed in this table refer to the legally prescribed oxygen content, e.g. emission protection law on boiler plant systems, directive on iron and steel).

All emission sources are continuously monitored. The data refer to the respective calendar year.

[8)] H_2S is contained in the coke gas that is energetically utilized in other process steps. Emissions only occur in the form of SO_2.

Emission measurements at the Steyrling location

NO_x as NO_2	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Steyrling Lime Plant	Furnace 4	300	16.5	Stand By	Stand By
	Furnace 5	300	16.0	15.7	39.3
	Furnace 6	300	[1]	23.7	44
	Furnace 7	300	24.3	22	46.7

CO	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Steyrling Lime Plant	Furnace 4	150	9.2	Stand by	Stand By
	Furnace 5	150	9.1	8.0	6.0
	Furnace 6	150	[1]	12.7	12.3
	Furnace 7	150	12.8	10.3	10.7

SO_2	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Steyrling Lime Plant	Furnace 4	100	< NWG [2]	Stand by	Stand By
	Furnace 5	100	< NWG [2]	< NWG [2]	< NWG [2]
	Furnace 6	100	1,6	< NWG [2]	< NWG [2]
	Furnace 7	100	< NWG [2]	< NWG [2]	< NWG [2]

C.org	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Steyrling Lime Plant	Furnace 4	30	10	Stand by	Stand By
	Furnace 5	30	6.3	8.3	13.7
	Furnace 6	30	[1]	10.7	3.7
	Furnace 7	30	14	9.7	9.3

Dust	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm)		
		Limit value	2018 CY	2019 CY	2020 CY
Steyrling Lime Plant	Furnace 4	10	6.2	Stand by	Stand By
	Furnace 5	10	8.2	0.9	5.6
	Furnace 6	10	[1]	1.4	0.5
	Furnace 7	10	2.9	0.3	1
	Furnace discharge 4	10	[3]	Stand by	[3]
	Furnace discharge 5	10	[3]	0.8	[3]
	Furnace discharge 6	10	[3]	1.3	[3]
	Furnace discharge 7	10	[3]	1.2	[3]
	Lime extraction	10	[3]	7.8	[3]
	Lime loading	10	[3]	0.5	[3]

[1] Standstill for conversion of lime furnace 6 to a circular shaft furnace, no measurements taken
[2] Below detection limit for pollutants (< 5 mg/scm for SO_2)
[3] Measuring interval every 3 years, next measurement in the 2022 CY

Emission measurements at the Traisen location

Dust

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm) Most recent measurement in the 2018 CY [1]
			2018 CY
voestalpine Giesserei Traisen GmbH	Dedusting in the melting plant	10	< 1
	Mixer 1, molding line	10	9.5
	AAF Bay 3	10	4.5

NO_x as NO_2

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm) Most recent measurement in the 2018 CY [1]
			2018 CY
voestalpine Giesserei Traisen GmbH	Annealing Furnace 6	350 (at < 800 °C)	317
	Annealing Furnace 7	350 (at < 800 °C)	193
	Annealing Furnace 9	350 (at < 800 °C)	115

C.org

	Attachments	Half-hour average value (mg/scm)	Measured annual average value (mg/scm) Most recent measurement in the 2018 CY [1]
			2018 CY
voestalpine Giesserei Traisen GmbH	Dedusting in the melting plant	50	7
	Mixer 1, molding line	20 (materials of Class 1)	< 0.1
		100 (materials of Class 2)	44 [2]
		150 (materials of Class 3)	44 [2]
	AAF Bay 3	20 (materials of Class 1)	6.3 [3]
		100 (materials of Class 2)	6.3 [3]
		150 (materials of Class 3)	6.3 [3]

Future emission measurements at the Traisen site will be supervised by voestalpine Stahl GmbH. In collaboration with technical experts, the measurement schedule was optimized during the 2021 calendar year and is now the responsibility of Testing Technology and Analytics at the Linz site. Improved planning measures ensure that regulatory requirements will continue to be met in the future.

[1] Measuring interval every 3 years, next measurement in calendar week 38 to 42 in the 2021 CY
[2] Total organic carbon (Class 2 + Class 3)
[3] Total organic carbon (Class 1 + Class 2 + Class 3)

ENVIRONMENTAL FOCUS ON ENERGY

Sustainable management of energy resources is an essential principle at voestalpine.

>15%

By optimizing production processes and cascading the energy used, specific energy consumption at the Linz location has been reduced by more than 15% over the past 20 years.

At the Linz location, roughly 70% of the electrical energy is generated by the company itself.

Reduce. Optimization of steam generation and thermal processes as well as reduced loss of compressed air

Reuse. Energetic utilization of co-products (gases generated during steel production)

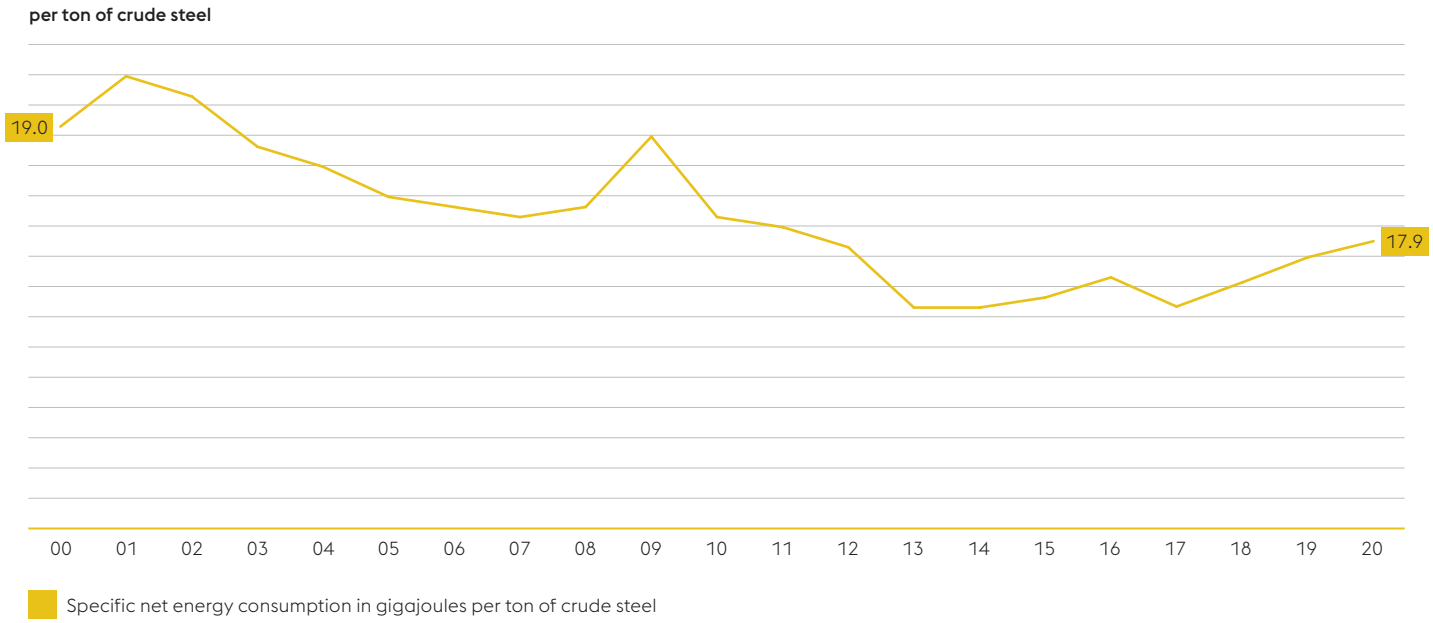
Repair. Energy recovery through blast furnace gas expansion turbine

Recycle. Injection of used plastics as a substitute for fossil fuels

In our efficient use of energy, we also focus on optimization of process gas utilization and energy recovery. Consistent energy monitoring and continuous plant system optimization for increased overall energy efficiency.

The voestalpine foundry in Traisen ensures that materials and energy are used in an environmentally friendly and resource-conserving manner in all production cycles. We continually surmount new challenges and implement new standards in order to live up to our social responsibility.

NET ENERGY CONSUMPTION



Specific energy consumption was substantially reduced over the past twenty years. Roughly 75% of the electric power consumed at the Linz site is produced on location.

The energy required in steelmaking is derived primarily from coal, coke, natural gas and electricity. Process gases (coke-oven gas, blast-furnace gas and converter gas) generated in the making of steel are used as energy-transfer media either directly or by efficiently converting the gases into heat or electrical energy in individual process steps.

The active contributions of each employee to environmental protection and energy savings are of great value. Many projects, large and small, are continually being planned and implemented.

The spectrum ranges from small projects to larger and overarching measures such as the reduction of the purge gas volume at flare 6 and sealing of the minimum flow valve at unit 07. These and many other measures saved more than 37,000 MWh during the 2020 calendar year.

ENVIRONMENTAL FOCUS ON WATER

In tune with nature.

90%

Total water consumption at the Linz location amounted in 2020 to roughly 553 million cubic meters, of which roughly 89.6% (a total of 499 million cubic meters) was used as cooling water and returned to the Danube and Traun rivers without any pollution.

Reduce. Cooling process optimization

Reuse. Cooling towers, 95% circulation; LD3 water treatment

Repair. Seepage pits at the Linz location

Recycle. Reuse of cooling water in the recycling center, wet granulation

Water is one of the most important operating supplies. It is needed to cool plant systems and to create steam in iron and steel production.

A total of 526 million cubic meters of water were pumped from the Danube in the 2020 calendar year at the Linz location. This cooling water is channeled back into the Danube in compliance with the defined temperature limit values. Depending on the wastewater constituents, was either cleaned before returning it to the Danube or was piped to the municipal waste water treatment plant in Asten for biological treatment.

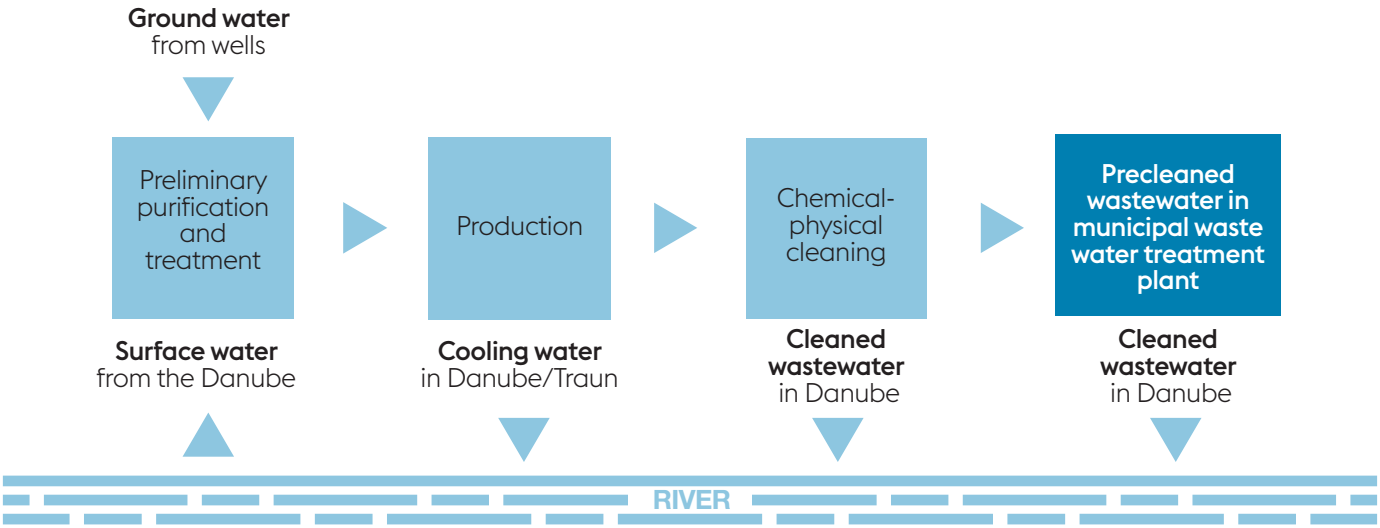
The sustainable management of water resources, particularly in compliance with local conditions, is an essential priority of voestalpine.

Functional water circulation is the foundation for an operational system. This is why voestalpine Giesserei Traisen strives to achieve sustainable resource management by linking water management with energy and environmental services under the premise of preserving flora and fauna.

The direct net fresh water consumption of voestalpine at the Linz location in the 2020 calendar year amounted to 7.4 million m^3 or 1.46 m^3/ton of crude steel.

The impact of production systems at the Linz location on local water systems is relatively small and does not lead to an increase in water scarcity in the region. This conclusion was reached during a Water Scarcity Footprint study conducted in 2018, which, in addition to the Linz location, also included an analysis of all operations and the Group's entire value chain (cradle to gate).

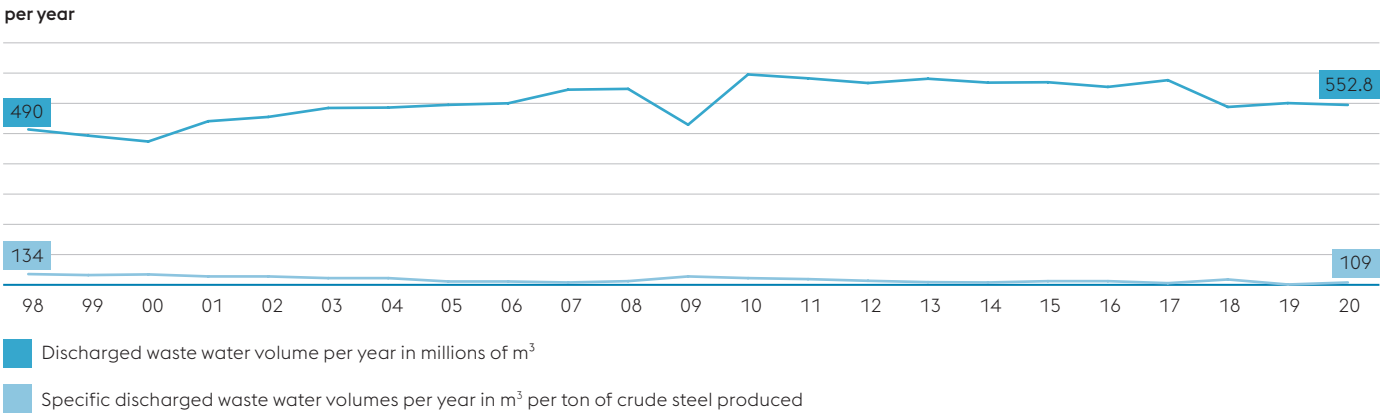
CAREFUL TREATMENT OF WATER AS A NATURAL RESOURCE IS REGARDED AS A FUNDAMENTAL PRIORITY AT voestalpine.



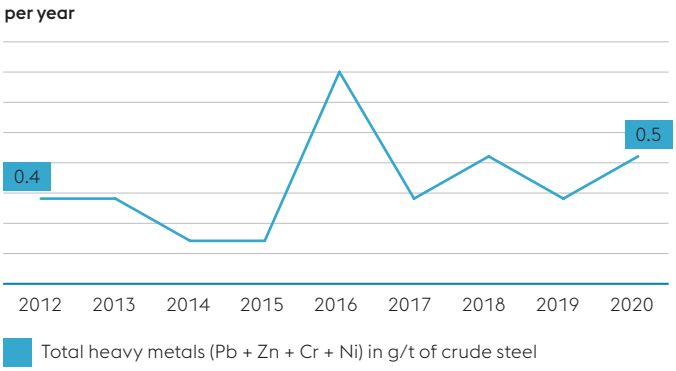
Trends in discharged waste water volumes

In the 2020 calendar year, the amount of discharged water amounted to 109 m^3 per ton of crude steel.

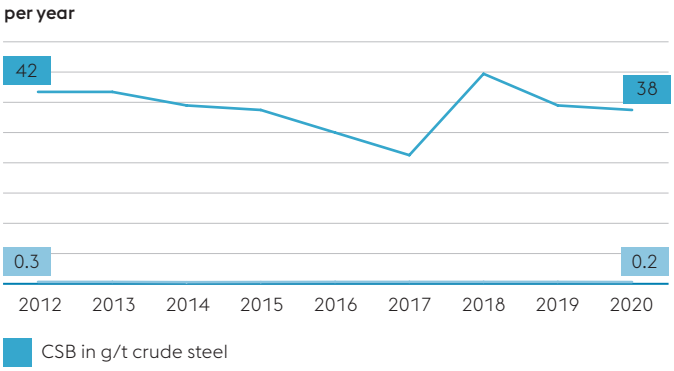
WATER DISCHARGE VOLUMES



SPECIFIC DISCHARGE INTO DANUBE



DISCHARGE INTO MUNICIPAL WASTEWATER TREATMENT PLANT

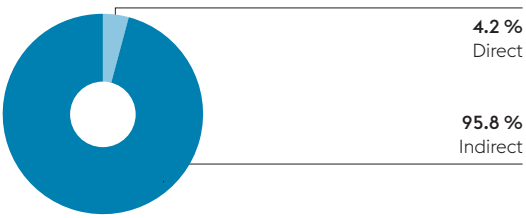


Water footprint at the Linz site, LCA

Pursuant to ISO 14046, voestalpine takes a holistic view of the water systems across all production sites and implements the lifecycle assessment.

The water footprint calculation consists of direct and indirect water consumption during production. The hydro-geological characteristics of the production site and regional water conditions are also taken into account.
This lifecycle analysis showed that only roughly 4% of the water scarcity indicator surveyed was within the sphere of influence of the Linz location. Almost 96% is determined by upstream processes (primarily raw material supply).

WATER-SCARCITY-FOOTPRINT



[1] minus initial load from Danube

ENVIRONMENTAL FOCUS ON WASTE

The objective is to reduce and reuse waste.

85%

Material recycling and the portion of re-used waste materials in total amount to a resource efficiency of 85% with respect to all waste processed off site and on site.

Reduce. Reduced external disposal of sludge from water treatment systems based on recovery of iron-rich fraction by flotation

Reuse. n. a.

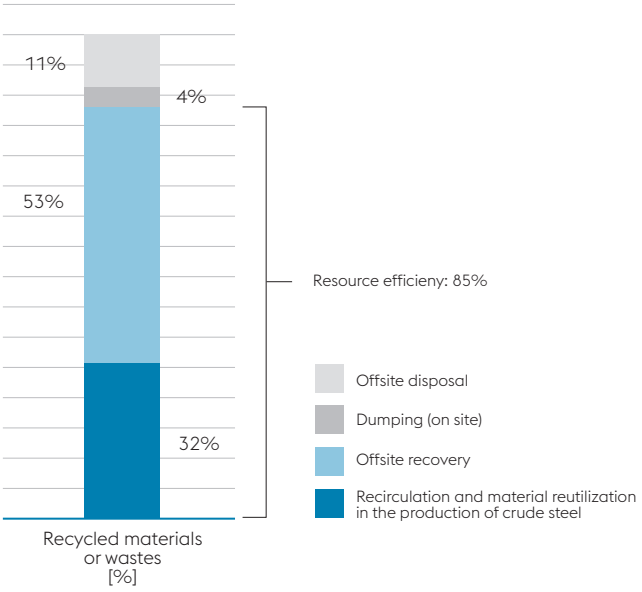
Repair. Use of waste oils as a substitute reducing agent

Recycle. Zinc recycling from steel mill dusts

Numerous waste and circulating materials are incurred during steelmaking and are returned to the production processes. This conserves natural raw materials. Waste and secondary raw materials are utilized in both in-house and external production process. Examples of this are scrap, end-of-life oils and waste greases. The following graphic provides an overview of utilized resources in the form of waste and recycled materials at the Linz location (not including scrap).

RESOURCE EFFICIENCY

Recyclable and waste materials incurred at the Linz location



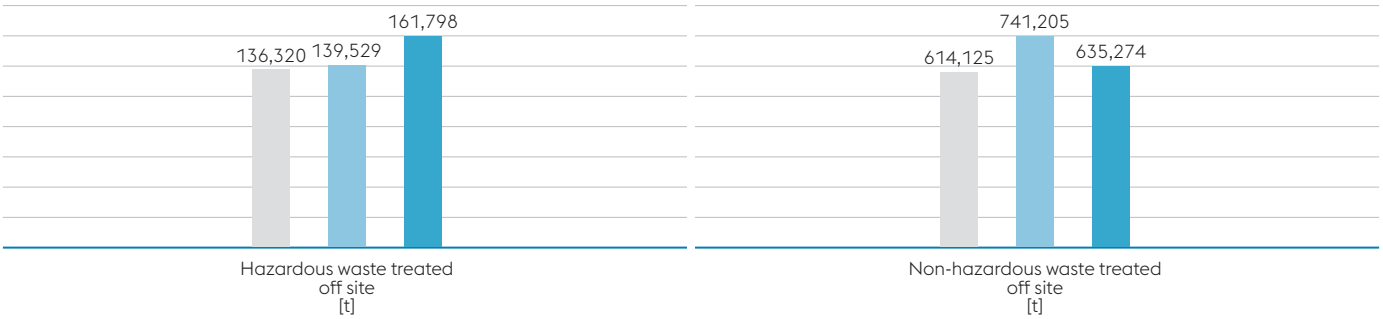
In the 2020 calendar year, roughly 32% of the recycled materials and waste incurred at the Linz location were re-utilized, thus increasing resource efficiency in production processes. (This value is increases to 55% when in-house scrap recycling is taken into account.)

Material recycling and the portion of re-used waste materials in total amount to a resource efficiency of 85% with respect to all waste processed off site and on site.

Sustainable policies to conserve natural resources play an essential role at the Traisen location. The aim of material management is to use the materials taken from nature as intensively as possible and to return them to production cycles.

WASTE

Waste treated off site



ENVIRONMENTAL FOCUS ON TRANSPORTS

More rail, less road.

56%

56.2% of the products are delivered by rail. In the case of raw materials, the figure is even as high as 70% by rail, 30% by ship and less than 0.1% by truck.
(Linz location, 2020)

Reduce. Reduction of emissions through the use of sustainable and climate-friendly means of transport

Reuse. Closed-loop product, production scrap in the automotive industry: Use of free railway car capacities

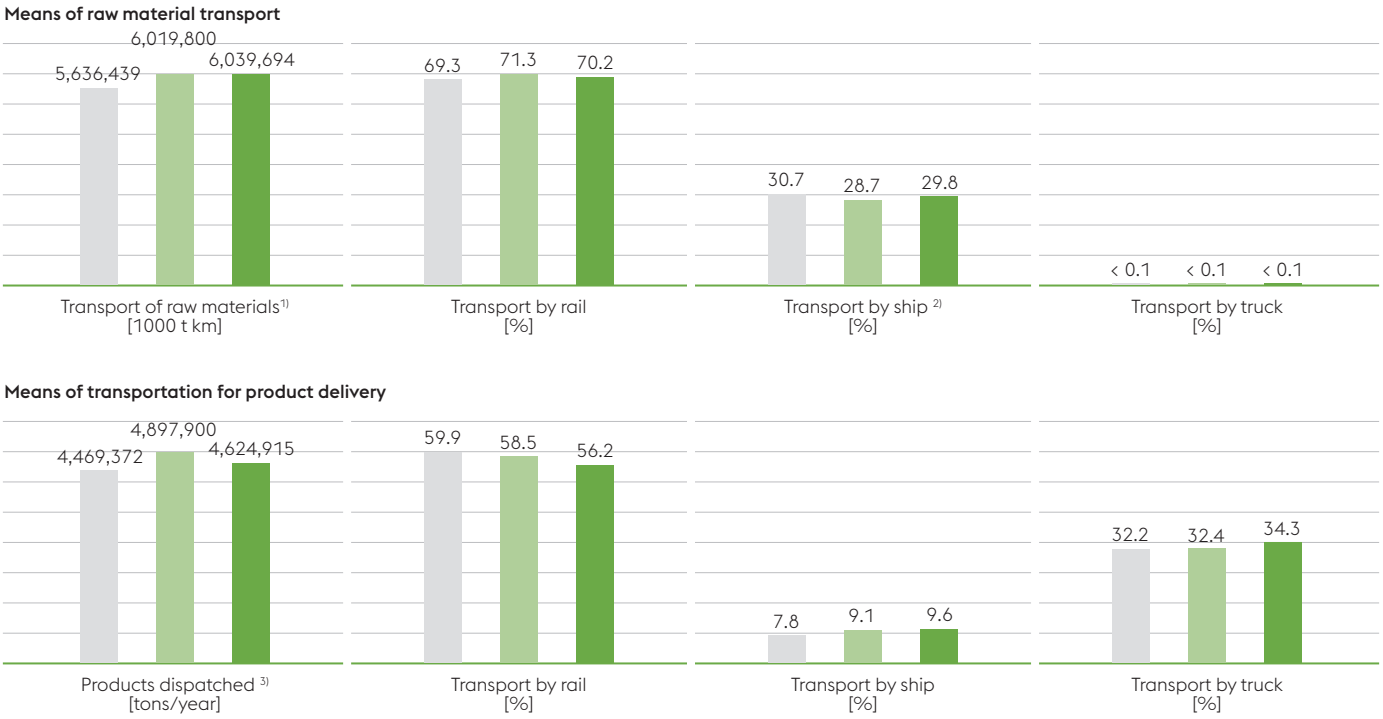
Repair. Shifting of transports from road to rail or ship

Recycle. n. a.

Material supply and product delivery are by railway, waterway or truck. It is important to us that our transports are as ecological as possible. Logistik Service GmbH and Cargo Service GmbH combine their transport possibilities, e.g. mobile systems, in order to avoid empty hauls and rely heavily on continual improvements in logistics systems, in technologies, implementation, methods, environmentally compatible driving techniques. Where possible, as many transports as possible are transferred from the roadway to the more environmentally compatible railway.

The figures for distribution of raw materials transported within Europe and distribution of product deliveries to the individual means of transport are as follows in the 2020 calendar year:

LOGSERV + CARGOSERV RAW MATERIAL TRANSPORTS AT THE LINZ AND STEYRLING LOCATIONS 2018 2019 2020



The definition of diffuse emissions is difficult to impossible because of the large number of transport routes in use by the various means of transport (railway, ship, truck) with a wide variety of engine and vehicle technologies.

For this reason, no direct emission assessment is made for the transport of raw materials and for the delivery of products to voestalpine at the Linz location. Only the modal split is used as evaluation criteria for the assessment according to the respective transport routes.

Customers throughout the world are supplied by voestalpine Giesserei Traisen GmbH. In collaboration with a dynamic network of suppliers and customers, the challenge is to achieve sustainable development in each process stage of the supply chain. The geographical location and the infrastructure in Traisen provide only few possibilities for loading and unloading. Strategic decisions must yet be made with respect to the selection of suppliers, delivery windows and the efficient use of transport vehicles based on product and market requirements.

[1] Raw material deliveries in ton kilometers of ore, coal, scrap, lime, coke and coke breeze
[2] Raw material transport by inland waterway
[3] Products supplied from the Linz location by Logistik Service GmbH and Cargo Service GmbH

SAFETY TAKES HIGHEST PRIORITY
SEVESO PRODUCTION SYSTEMS

External emergency plan

Detailed information on the alarms and measures outside the works premises can be found in the external emergency plan issued by the fire department of the city of Linz. Required measures in the event of Danger Level III are contained in the internal emergency plan. The safety report complies with Section 84f of the Trade and Industrial Code dated 1994 and is available for review in the Environment Department of voestalpine Stahl GmbH.

Information to the public on safety measures and correct behavior in the event of industrial accidents pursuant to Section 14 of the Industrial Accident Act.

At the Linz production site, voestalpine Stahl GmbH operates plant systems that are subject to Section 8a of the Trade and Industrial Code of 1994 and the Industrial Accident Act and provides the following information on safety measures and proper behavior in the event of industrial accidents. Not every plant system failure is an industrial accident, which is defined as an event in which certain hazardous substances are released that pose a danger to humans or to the environment.

The precautions to be taken to prevent and limit industrial accidents are set forth in the Industrial Accident Act. Because of the comprehensive safety measures that have been taken for many years in production, the probability of you as a neighbor being affected by an industrial accident is very low. An industrial accident can only occur in the event that all the precautionary technical and organizational measures simultaneously fail. In the unlikely event that an industrial accident occurs in spite of all the safety measures that have been implemented, the following information advises you of steps to take.

There are six relevant plant areas in the integrated metallurgical facility that could have an effect beyond the works premises in the unlikely event of an industrial accident:

- Coke oven batteries, including coking gas recovery, conveyor system and gasometer
- Tar extraction and crude benzene plant, including storage tank
- Blast furnaces, including gas cleaning, conveyor system and gasometer
- Converter operations, including converter gas cleaning, conveyor system and gasometer
- Unloading of fuel oil and distribution into piping and storage tanks
- Storage and distribution lines for calcium carbide in the steelmaking plant

Steam reformers A and B and air disintegration units 8 through 10 are operated by Linde Gas GmbH according to the Linde low-pressure technology and are safety-relevant systems installed on the works premises in Linz.

The substances contained in the systems of voestalpine Stahl GmbH and Linde Gas GmbH are subject to the provisions set forth in Section 8a of the Trade and Industrial Code dated 1994.

COMPREHENSIVE SAFETY MEASURES ARE IN PLACE TO ENSURE THAT THE RISK OF AN INDUSTRIAL ACCIDENT IS EXTREMELY LOW.

The authorities have been notified pursuant to Section 84d of the Trade and Industrial Code. Corresponding safety and security reports were submitted to the authority (Magistrate of the Provincial Capital of Linz, Office of the Provincial Government). The information is submitted to or updated at regular intervals and can be consulted there. This environmental report is also available at Central Works Security Post A.

The following safety aspects are taken into account in the safety report submitted:

- Processes and reactions occur in closed systems.
- Hazardous substances are replaced where possible and remaining amounts are reduced to the specifically required volumes.
- The avoidance of waste takes a high priority in the planning and operation of plants.
- Safety systems generally consist of multiple stages.
- The plants are operated, maintained and tested by qualified and regularly re-trained personnel.

The plants are regularly tested in accordance with legal regulations by in-house and external experts, e.g. TÜV. Stringent safety regulations are assessed by the authorities for all designated plant systems. As a result of these regulations and precautions taken by the operators, there has never been an accident at the works since it has existed that would have posed any hazard to the population. In spite of the high safety standards, then risk of accidents can never be completely eliminated. Even though the probability of an accident with effects beyond the works premises is very low, voestalpine Stahl GmbH nevertheless takes this opportunity to inform the public in a precautionary manner of possible effects and measures to take in the event of an accident.

Information on possibly hazardous plant systems and production activities

COKE OVEN BATTERIES, INCLUDING COKING GAS RECOVERY, CONVEYOR SYSTEM AND GASOMETER

The coke required in the blast furnace is produced in the coking plant. For this purpose, finely ground coal is heated in coking ovens that are arranged in batteries each containing a total of 40 ovens. The coal is heated for approximately 18 hours to a temperature of roughly 1,250 °C. The coal is converted into coke, which means that it is baked until it has released all its gaseous constituents. These gaseous constituents make up the coke gas that is cleaned to a high degree in the coking plant and is then used as a fuel gas in the power plant and other furnace systems throughout the steel works. A gasometer and a network of gas lines store the gas until it is used. The system of course is closed. Coke gas contains approximately 7% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

TAR EXTRACTION AND CRUDE BENZENE PLANT, INCLUDING STORAGE TANK

Crude tar and crude benzene occur as co-products during the high-grade cleaning of the coke gas. Crude benzene is cleaned out of the coke gas by means of wash oil in two scrubbers. It is then removed by means of distillation from the circulating wash oil and stored intermediately in a 2,000 m^3 tank before it is delivered to purchasers. The crude benzene storage tank is suctioned out. The filling process is by means of a gas displacement device to ensure that no emissions can be released. Crude benzene contains up to 85% benzene. The fumes are, as with all other flammable liquids, combustible when mixed with certain amount of air. The crude tar condenses with condensation from the crude coke gas and is separated in tar separators from the condensate. Crude tar is pumped through the intermediate tar containers into the crude tar tanks. The individual parts of the tar separator units are equipped with a liquid-tight bucket system to prevent any emission to the environment. The crude tar and crude benzene are contained in tank railcars until they are used in the closed systems of production lines.

BLAST FURNACES, INCLUDING GAS CLEANING, CONVEYOR SYSTEM AND GASOMETER

Blast furnace gas is a by-product and co-product that occurs during the production of hot metal in the blast furnace. This blast furnace gas is cleaned to a high degree, removing all the dusts, and is used as a fuel gas in the blast furnace itself, the power plant, in the coking plant and other furnace systems throughout the steel works. A gasometer and a network of gas lines store the gas until it is used. The entire network is a closed system. Blast furnace gas contains approximately 25% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

CONVERTER OPERATIONS, INCLUDING CONVERTER GAS CLEANING, CONVEYOR SYSTEM AND GASOMETER

Steel chemically differs from iron primarily in its lower carbon content. The carbon contained in the crude iron produced in the blast furnace is removed from the steel melt by means of the oxygen top-blowing process during steelmaking in the LD steel plant. This process yields the so-called converter gas that is subjected to a high-grade cleaning process in electric filters and then added in a controlled manner to the top gas in order to increase its calorific value. A gasometer and a network of gas lines store the gas until it is used. The system of course is closed. Converter gas contains approximately 60% carbon monoxide and is, as are all flammable gases, combustible with certain amounts of air.

AIR SEPARATION UNIT

Air is divided in air separation units (8 through 10) belonging to Linde Gas GmbH by means of rectification into nitrogen, oxygen and argon constituents. The generated gases are either piped in gaseous form to consumers in the works of voestalpine Stahl GmbH or to the Chemiepark or they are liquefied, stored at super-cooled temperatures and filled into tank cars. In addition to the air as a raw material and different energies, hydrogen is also required in the argon fine cleaning system (8) of the air separation unit. This hydrogen is supplied by the hydrogen production facility at voestalpine.

HYDROGEN PRODUCTION SYSTEM COMPLEX

Natural gas is converted through chemical reactions into hydrogen in the steam reformers (STR A and B) of Linde Gas GmbH. The gaseous hydrogen is used in-house and is supplied to voestalpine Stahl GmbH and Chemiepark in Linz. External customer supply is provided on trailer units.

UNLOADING OF FUEL OIL AND DISTRIBUTION INTO PIPING AND STORAGE TANKS

Light fuel oil is delivered in tank trucks and pumped into the storage tanks at the power station of voestalpine Stahl GmbH. The light fuel oil is pumped through piping from the storage tank to block 7 of the power plant of voestalpine Stahl GmbH. The light fuel oil is used in the event that other fuels, such as the usually used metallurgical gases and natural gas, are temporarily not available. In order to ensure that the light fuel oil is ready for use, it is continuously circulated in piping between the storage tank and the power station in order to maintain the required temperature and pressure.

STORAGE AND DISTRIBUTION LINES FOR CALCIUM CARBIDE IN THE STEELMAKING PLANT

The hot metal is combined with scrap and additives in three converters in the LD steelmaking plant. The mixture is converted in an oxygen blowing process at approximately 1,650 °C to crude steel. Further treatment takes place in the ladle furnace and in the vacuum degassing unit The molten steel is cast in the continuous caster into slabs.

Calcium carbide is used in the steelmaking plant to remove sulfur (desulfurization) and oxygen (deoxidation) from the hot metal.

A high standard of safety is guaranteed by continuous monitoring by plant personnel, regular tests and the safety precautions described above. Should an industrial accident occur, however, in spite of all the technical and organizational preparation made to prevent such an incident, the emission of poisonous substances still poses a possible danger in addition to explosion and fire. In such an instance, affects to human health and the natural environment outside the works premises, especially caused by gas or fumes that may be carried over distances, cannot be excluded.

Information on the types of dangers and their possible consequences

The following substances when emitted into the atmosphere pose a potential danger beyond the premises of the steel works.

CARBON MONOXIDE

Carbon monoxide is contained in

- Coking plant gas (approx. 7 volume percent CO)
- Blast furnace gas (approx. 25 volume percent CO)
- Converter gas (approx. 60 volume percent CO)

The listed process gases are easily combustible and are poisonous because of their CO content. When emitted to the atmosphere, these gases are diluted with atmospheric air to differing degrees that lead to various symptoms depending on the respective concentrations. These symptoms may include headache, dizziness, sickness, sleepiness, asphyxiation, unconsciousness and respiratory paralysis. Patients must be exposed to fresh air, must rest comfortably and tight clothing must be loosened. In the event of apnea, resuscitation is required to introduce oxygen to the brain. Call a doctor. Keep patients warm. In the event of threatening unconsciousness, place the patient on his or her side and transport in stable position.

BENZENE

Patients must be exposed to fresh air, must rest comfortably and tight clothing must be loosened. Resuscitate immediately in the event of apnea. Remove contaminated clothing immediately. Rinse contaminated skin sufficiently with water. Rinse contaminated eyes adequately with water for ten to fifteen minutes. Call a doctor. Keep patients warm. In the event of threatening unconsciousness, place the patient on his or her side and transport in stable position.

ATMOSPHERIC GASES AND HYDROGEN

Because of their volumes and properties (both not poisonous) and distances to other substances, the hazardous substances (oxygen, nitrogen, argon and hydrogen) contained in the air separation and hydrogen production units are not potentially hazardous outside the premises of voestalpine Stahl GmbH.

CALCIUM CARBIDE

The carbide mixture in the hopper contains essential constituents as follows:

Calcium carbide (CaC_2):	63.1%–72.3%
Coal, including volatile constituents:	5.5%
Carbon content:	32.59%–19.14%
Additional fluxes:	3.0%

Calcium carbide is not a flammable substance. Acetylene develops in the presence of moisture and mixes with air to form an explosive gas atmosphere and calcium hydroxide. The humidity from the air is enough to begin the reaction. Under atmospheric conditions, one ton of calcium carbide of technical quality (roughly 68% CaC_2) in reaction with water yields roughly 258 standard cubic meters of acetylene gas.

MEASURES

The measures taken to eliminate accidents and limit the consequences of an accident are regulated in the emergency plan of voestalpine Stahl GmbH. This plan is regularly updated in collaboration with the Municipal Offices of the Provincial Capital City of Linz and the fire department of Linz pursuant to the pertinent official regulations of the provincial capital of Linz.

The measures to be taken in the event of an incident are obligatory. The safety report of voestalpine Stahl GmbH is submitted on a regular basis to the authorities. The report is an integral part of the tests carried out by the responsible authorities that also serve to meet requirements and adaptations pursuant to Section 8a of the Trade and Industrial Code dated 1994.

With respect to the air separation unit, a safety report has also be submitted by Linde Gas GmbH.

EXTERNAL EMERGENCY PLAN

Detailed information on the alarms and measures outside the works premises can be found in the external emergency plan issued by the fire department of the city of Linz. Required measures in the event of Danger Level III are contained in the internal emergency plan. Notification procedures (excerpt from the emergency plan of voestalpine Stahl GmbH). The following measures have been determined in accordance with the emergency plan of voestalpine Stahl GmbH:

- Works fire department responds to the scene with all fire trucks and breathing apparatus vehicle
- Fire department of the City of Linz responds to the scene
- Establishment of a command center on site managed by City of Linz fire department
- Measurements taken to eliminate dangers such as cordoning off the area by a gas search troop, evacuation of the cordoned-off area, radio announcements

Warning

The public is warned by means of sirens in the event of an extraordinary incident. Industrial accidents on the premises of are voestalpine Stahl GmbH and steps to take by the public are announced on public radio and television stations. This procedure and the type of reports required by the authorities are defined in the in-house emergency plan submitted to the authorities.

Note

Please do not call emergency telephone numbers without any important reason. This will ensure that the lines remain open for actual emergencies.

Contact numbers for inquiries and further information

Central office: T. +43/50304/15-5077 or +43/50304/15-2629
Environmental Department: T. +43/50304/15-9806
Occupational Safety Department: T. +43/50304/15-9806
Linde Gas GmbH: T. +43/50/4273-1616

Link to Environmental Report on the Internet:

www.voestalpine.com/group/en/group/environment/environmental-management/

OVERVIEW OF POTENTIAL HAZARDS AND COMPREHENSIVE EMERGENCY PLANS FOR THE FACTORY PREMISES

ADDITIONAL ENVIRONMENTAL IMPACT

PROTECTING OUR NEIGHBORS FROM NOISE AND OBNOXIOUS ODORS IS ONE OF OUR HIGHEST PRIORITIES.

RADIATION

All raw materials at the Linz and Traisen locations are inspected thoroughly for radiation by highly sensitive devices before they are delivered to production facilities. Radioactive tests are conducted on all heats of the intermediate hot-metal product to exclude any risk.

NOISE

The works premises in Linz has been divided into 16 contingency sections according to the environmental impact assessment (L6). Higher noise loads of individual surface areas can be balanced by surface areas that do not reach permissible noise levels. From the perspective of neighborhood protection, limitation of noise emissions is important with respect to on-site expansion. In the event any complaints from residents surrounding the Linz, Steyrling and Traisen locations, a root cause analysis is carried out and, if necessary, appropriate measures are initiated and implemented.

ODOR

Based on measures taken in the past to prevent and minimize emissions at the Linz location, a favorable level has now been achieved to the effect that no adverse odors are produced.

VIBRATIONS

Lime-containing rock is mined from the walls of an open pit at the Steyrling location by means of conventional blasting. This can cause ground vibration. Blasting activities are announced to neighboring parties ahead of time.

Production and transport-related vibrations at the Traisen location are transmitted through the soil as a result of the geological and geographical conditions. Technological and organizational measures are implemented in order to avoid vibrations during operation of various production systems and processing.

BIODIVERSITY

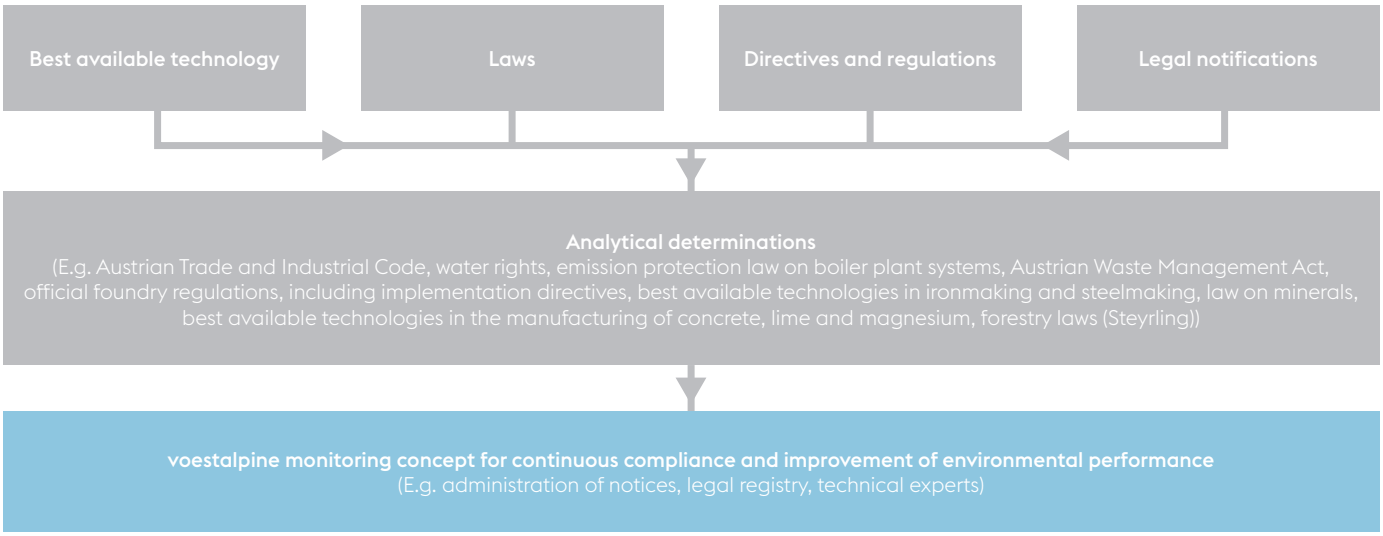
At every production site, voestalpine treats local ecosystems responsibly and actively contributes to the promotion of biodiversity.

At the Linz location, for example, flowering areas have been created on a surface area of roughly 20,000 square meters. The wildflower meadow provides many insect species, especially wild bees, with an additional long-term food source. Insect hotels also offer a breeding location for rare species. A project aimed at the management of several bee colonies on site is currently in the planning stage. Several voestalpine employees with many years of beekeeping experience have provided major support for this project.

LEGAL MANAGEMENT OF ENVIRONMENTAL ASPECTS

The Linz, Steyrling and Traisen locations of voestalpine operate a certified/validated environmental management system pursuant to ISO 14001 and EMAS. As part of the integrated management system, concrete objectives have been identified, a program has been in place to implement measures and regularly audit progress. The same applies to our legal compliance policies that ensure company adherence to all applicable legal regulations. Any non-consensual operation is reported to the authorities, and appropriate corrective measures are taken. Specialized environmental skills and expertise have been made possible only by creating a high level of environmental awareness among the employees throughout the Group.

COMPLIANCE WITH ENVIRONMENTAL REGULATIONS



INFORMATION, CONTACT AND ABOUT US

EMAS
Geprüftes Umweltmanagement
REG.NO. AT-000216

Environmental report

The next consolidated Environmental Report will be submitted for review in October 2022 and published thereafter. In addition, an updated version is created, externally reviewed and published on an annual basis.

Certified environmental experts

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Lloyd's Register

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

Lloyd's Register Quality Assurance Ltd., with EMAS environmental verifier registration number AT-V-0022 and accredited for the scope:

Integrated mill of voestalpine Stahl GmbH and their subsidiaries at site Linz as well as extraction and production of lime at site Steyrling and production of steel castings at site Traisen.
(separate scopes see appendix)
NACE Code: see appendix

declares to have verified:

voestalpine Stahl GmbH, voestalpine Giesserei Linz GmbH, voestalpine Camtec GmbH, Cargo Service GmbH, Logistik Service GmbH, voestalpine Grobblech GmbH, voestalpine Automotive Components Linz GmbH, voestalpine Standortservice GmbH, voestalpine Steel & Service Center GmbH, voestalpine Giesserei Traisen GmbH
Linz, Steyrling, Traisen
Austria

registration number AT-000216
meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS) amended by commission regulation (EU) 2017/1505 and 2018/2026.

By signing this declaration, LRQA declares that:

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information presented in the Environmental Statement of the organisation reflect a reliable, credible and correct image of all the organisation's activities within the scope mentioned in the environmental statement

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

LRQA Ref No: VNA0005063-04

Date of verification:	22 October 2020
Verification Expiry:	21 October 2023
Date of validation:	12 November 2021
Validation Expiry:	11 November 2022

DI Harald Ketzer, Lead Verifier
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on behalf of Lloyd's Register Quality Assurance Limited
Akkreditierungsnummer: AT-V-0022

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Die Gültigkeitserklärung gilt zusammen mit der Validierung als Nachweis über die Verifizierung und Validierung. Sie werden bei der Beantragung auf Eintrag bei der zuständigen Stelle nach Artikel 3 der Verordnung benötigt. Der Text dieser Erklärung muss vollständig in der Umwelterklärung der Firma abgedruckt werden.

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The Linz, Steyrling and Traisen locations have established independent environmental management systems. The public is informed of the environmental measures taken at these locations in compliance with the community systems for environmental management and environmental impact assessment.

Registry number: AT-000216

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voestalpine
ONE STEP AHEAD.