

With integrated
Environmental
Statement for the
Sandoz GmbH Kundl
and Schaftebau
locations

Data updated
as of 2022

2023 Sustainability Report for Novartis Austria

 **NOVARTIS** | Reimagining Medicine

The images in this Sustainability Report show Novartis employees. These are the people who bring our mission and values to life every day.



Sustainable Development Goals (SDG)

The Sustainable Development Goals are the blueprint for a better and more sustainable future for everyone. They address the global challenges we face, including those related to poverty, inequality, climate, environmental destruction, prosperity, peace and justice. The goals are closely linked.

All in all, they are a call to all countries to promote prosperity, protect the planet and take action on climate change and environmental protection.



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Legal notice

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Certifications and awards

The Kundl and Schaftenau research, development and production sites are certified according to ISO 14001, ISO 45001 and ISO 50001. Recertification was carried out by TÜV Austria CERT GmbH in July 2021 and is valid until May 2024. An additional annual monitoring audit ensures compliance with all relevant regulations. In addition to ISO certifications, both sites, Kundl and Schaftenau, are also EMAS certified. By participating in the Responsible Care Programme, an initiative of the chemical industry, we are committed to subjecting the areas of environment, safety and health to a continuous improvement process, irrespective of legal obligations.



2010: Novartis Energy Excellence Award

2011: TRIGOS award for sustainable companies

2012: Klima:aktiv award for an energy-saving project in pharmaceutical production

2015: Novartis HSE & BC Award category "Energy" for the "Fluid Filtration Phenoxy Acetate" project

2017: ÖBB Green Event Award for the most hard-working CO₂ savers

Foreword

Dear Reader,

2022 was a year of major changes for Novartis, both at a global level and for the Austrian organisation. In April, the Group management announced that strategy would focus on five priority therapeutic areas and a corresponding realignment of the organisation in order to further sharpen our focus. In August, the official announcement followed regarding the intention to spin off the generics division of Sandoz as an independent company over the course of 2023 and to float it on the stock exchange. Novartis is thus on the way to becoming a purely innovative pharmaceutical company, while Sandoz is one of the leading generics companies in the world. In line with this, there are plans to also divide the Austrian activities at our research, development and production sites in Tyrol and our sales branch in Vienna in accordance with the proposed spin-off. This Sustainability Report is therefore expected to provide an overview of our consolidated activities in Austria in 2022 for the last time.

Despite the far-reaching changes in our organisation, sustainable action remains a strategic priority for us. Not only because it is in harmony with the environment, but also because it underlines our core goal: To improve and prolong people's lives.

We are therefore taking responsibility for society in areas of environmental, social and corporate governance. As a company, we are responsible for our environmental, social and economic footprint. In what follows, we would like to summarise our actions across all three areas.

As a manufacturing company, environmental impact is particularly important to us in this context, which is why we have made this the focus of this report. We are proud to have been able to further reduce our environmental footprint at the Kundl and Schaftebau locations in 2022 across all three areas – climate, waste and water.

As an employer of our over 5,000 employees, we were able to succeed again in 2022 as an "Employer of Choice".

We see the planned changes to our corporate structure as motivation to continue to live sustainability in the future and to act as a good corporate citizen in every area.



Kuntal Baveja



Anton Gerdenitsch



Wolfgang Bonitz

A blue ink signature of Kuntal Baveja.

Kuntal Baveja
Country President Novartis Austria

A blue ink signature of Anton Gerdenitsch.

Anton Gerdenitsch
CEO Sandoz GmbH

A blue ink signature of Wolfgang Bonitz.

Wolfgang Bonitz
Head of Corporate Social Responsibility



Novartis in Austria

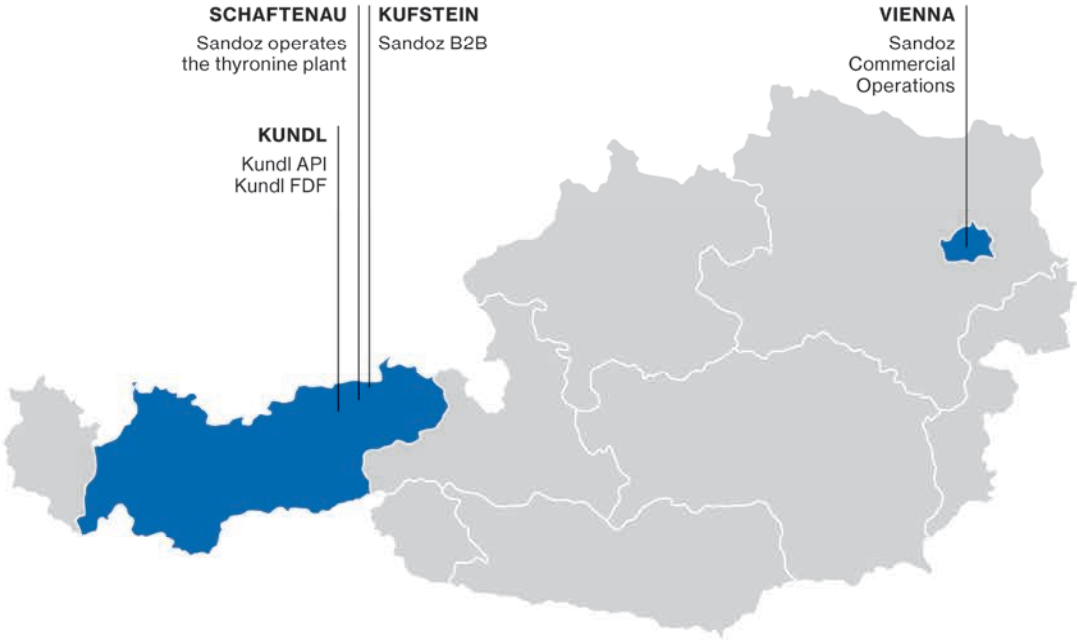
The companies of the Novartis Group in Austria are part of Novartis AG, a multinational Swiss pharmaceutical company based in Basel. In Austria, Novartis is the leading pharmaceutical company and largest private employer in Tyrol. As part of one of the world's largest healthcare companies, we operate through two divisions: Innovative Medicines (Novartis) and Sandoz.

Novartis focuses on innovative, patient-oriented pharmaceuticals with the aim of finding new ways to help people live a longer and better life. As a leading global pharmaceutical company, we

leverage scientific innovation and digital technologies to develop breakthrough therapies in areas of high medical need.

Sandoz, our division specialising in generics and biosimilars, is a global leader in this field and aims to find new ways to give people better access to high-quality medicine and improve the quality of life of patients. Sandoz GmbH is a majority subsidiary of Novartis Austria GmbH (Novartis Länderholding Österreich) and includes the locations of Kundl, Schafftenau and the marketing and sales branch in Vienna, which is responsible for sales activities for the Austrian market.

Our production in Austria includes the Kundl and Schafftenau research, development and production sites, where products are manufactured for Novartis and Sandoz, as well as for numerous renowned partner companies around the world. Together, both Tyrolean locations represent one of the largest production centres within the global Group.



Novartis locations in Austria

With around 5,000 employees, Novartis is Austria’s leading pharmaceutical company. Novartis is the largest private employer in the Tyrol.



1

Vienna

Headquarters of Novartis Austria with business units and sales.

2

Schaftenau

Centre of excellence for the latest cell culture technology, specialising in the development and production of innovative biologics and biosimilars. Production of thyroid hormones, growth hormones and growth inhibitors.

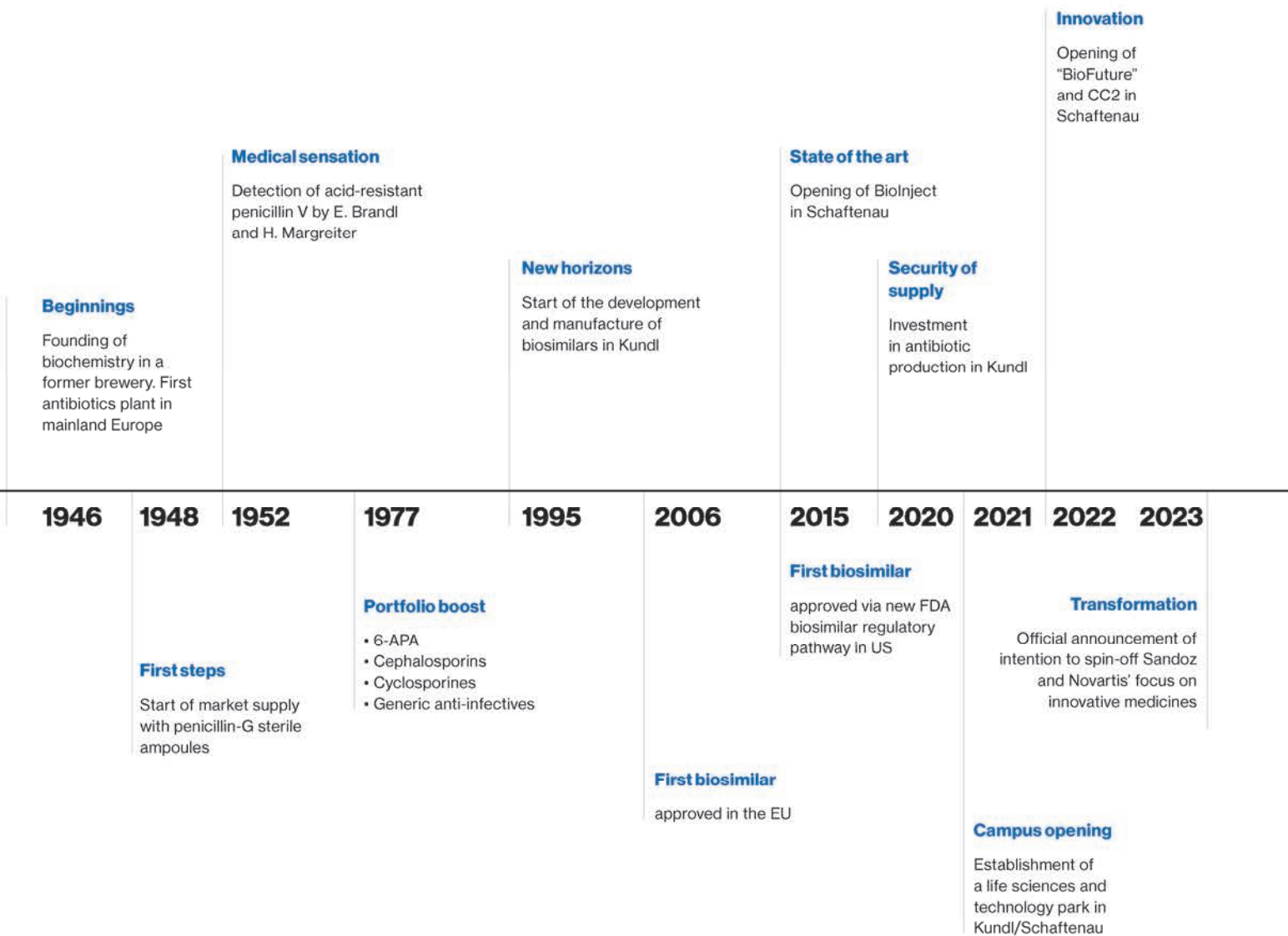
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Kundl

Central development and production site specialising in biotechnologically manufactured drugs – from research and development to production.



Biotechnology innovations are part of our history in Kundl/Schaftenau



Locations



In Schafftenau, we produce highly complex biopharmaceutical substances and active substances, thyroid hormones (thyronines), growth hormones and growth inhibitors, among others.

Kundl

Our plant in the market town of Kundl was built in 1946 from a decommissioned beer brewery. Today, the site covers around 26.8 hectares and has good transport connections thanks to its convenient location by the Inntal motorway and the plant's own railway connection. Kundl is the registered office of Sandoz GmbH and (in conjunction with Schafftenau) the production centre for biotechnologically manufactured pharmaceuticals, such as antibiotics and highly complex biologics. Here, we produce antibiotics from the active substance to the finished form, as well as biologics or biosimilars and nucleic acids for cell and gene therapies. Logistics, engineering, registration, quality assurance and a number of administrative functions, as well as research and development, are also based here.

Schafftenau

Our second Tyrolean location can be found just under 20 kilometres to the east, in Schafftenau (municipality of Langkampfen). The site was acquired in 1958 and covers around 21.3 hectares. Here, we produce highly complex biopharmaceutical substances and active substances, thyroid hormones (thyronines), growth hormones and growth inhibitors, among others.

The location covers the entire value chain for biopharmaceuticals – from the active substance to the finished medicinal product – and therefore plays a central role in the global production network of Novartis.

BioFuture, the world's most advanced biopharmaceutical production facility, was officially opened in May 2022. A new cell culture production line (CC2) enables further capacity increases and consolidates the role of Schafftenau as a Novartis centre of excellence for modern cell culture technology. Total investment amounted to 300 million euros, and around 180 additional jobs overall were created in the two new facilities. This investment makes Schafftenau the largest and most innovative location for the production of biopharmaceuticals in Austria and for Novartis worldwide. Together with Kundl, we refer to the two locations as Kundl/Schafftenau Campus.

Vienna

Our sales office for the Austrian market is located in Vienna-Leopoldstadt. It includes Novartis Pharma, Sandoz Commercial Operations (ComOps), Hexal and 1A Pharma. This is also where our clinical research for Austria, drug safety and drug approval, acceptance and delivery of orders for all Austrian wholesalers, pharmacies and hospitals, and support for doctors by the pharmaceutical sales force are based.



Our plant in the market town of Kundl was built in 1946 from a decommissioned beer brewery.



Our sales office for the Austrian market is located in Vienna-Leopoldstadt.

The context of our organisation



The need for quality healthcare has never been higher. People around the world are living longer, leading to an increase in chronic diseases and putting pressure on healthcare systems to contain spending growth. At the same time, digital technologies and a deeper understanding of the underlying causes of diseases are accelerating medical innovation and opening up new opportunities to improve patients' lives.



The pharmaceutical industry, like many sectors, is facing fierce international competition, where cost efficiency is a key asset. This is especially because it takes a long time for investments in research and development to reach patients in the form of new therapies.



Production in Kundl and Schaftenau, especially the production of bulk goods (active substances and intermediate products), is resource-intensive, which entails among other things high energy use, raw material consumption and transport volumes, as well as larger quantities of wastewater and waste. Resource efficiency and sustainability are therefore of utmost importance. We are constantly striving to make our production as resource-efficient as possible.



Highly qualified employees are a key factor for us. We currently employ around 5,000 people in Austria and over 4,500 in Kundl and Schaftenau alone. Attracting and retaining well-qualified personnel on a long-term basis is a challenge we face with an interesting, professionally appealing, and future-oriented working environment.



The health and safety of our employees are our top priority and for this reason our activities in this area are included in this report.



A stakeholder analysis was carried out to improve communication with our stakeholders, and a communication plan was implemented defining and structuring all relevant processes in the area of occupational health management and environmental issues.



Pharmaceuticals made in Austria

The patient is at the very heart of our work. Our goal is to rethink medicine in order to improve and prolong people's lives. We discover and develop groundbreaking therapies, and find new ways to make them accessible to as many people as possible. With our products, we make a significant contribution across various areas to the "Made in Austria" security of supply.

Generics

Generics are successor products of medicines whose patent protection has expired. As manufacturers we must prove that our drugs are just as effective as the original – and also identical to the previously patented original. In this regard, clinical comparative studies guarantee that our generics have the

- same active ingredient
- same dose
- same efficacy
- the same tolerability as the original.

Every individual step within the production process meets the highest quality standards. This starts with the checks of the raw materials received, continues through the manufacture of the active ingredients as well as through ongoing quality controls throughout the whole production process and ends with a comprehensive analysis of our finished products.

It is only once all the requirements have been fulfilled in every detail that market approval by the regulatory authorities can be given.

Comprehensive development work over many years is required for this, although it is not necessary to repeat basic research. For this reason, generics can be marketed at a cheaper price than the original products, which is a considerable contribution towards the long-term cost-efficiency of healthcare systems.

Antibiotics

Antibiotics are pharmaceutical active substances that hinder bacterial metabolism or kill them. They can thus support the body's own defence system by killing other microorganisms (bactericidal antibiotics) or inhibiting their growth (bacteriostatic antibiotics).

Antibiotics have been produced in Kundl for over 75 years. Our production extends from the development and

production of biotechnological active substances to the production of the finished form. With our expertise, we cover the entire production chain – from the base molecule to the finished drug.

A conscientious approach is crucial to prevent antibiotic resistance. Abuse or excessive use is one of the main drivers of its increase.

As a manufacturing location, we can help prevent antibiotics from entering the environment by ensuring that our wastewater streams are carefully treated as well as properly disposed of in order to minimize the leakage of antibiotics.

Biopharmaceuticals and biosimilars

Biopharmaceuticals and their post-patent successors, so-called biosimilars, have revolutionised modern medicine. As therapeutic proteins, biopharmaceuticals act very specifically in the body. They replace, supplement or block messenger substances and proteins. In this way, they stop pathological processes or activate the immune system against a specific disease.

Biopharmaceuticals come to the rescue when conventional medicines reach their limits. They are often the only treatment option for life-threatening diseases such as cancer, autoimmune diseases or multiple sclerosis. Biopharmaceutical active substances

are produced in living cells that respond very sensitively. Even the smallest deviation in the manufacturing process can affect the efficacy or tolerability of the drug. This makes the manufacturing of biologics more complex and expensive than the production of traditional pharmaceuticals. It requires not only decades of expertise in the field of biotechnology, but also state-of-the-art equipment and personnel. In Kundl and Schafteuau, biosimilars are produced in addition to innovative biopharmaceuticals. Our locations in Tyrol are thus playing a vital role in ensuring that, on the one hand, more people are given access to these modern medicines and, on the other hand, that previously unmet medical

needs are covered by highly innovative medicines.

Schafteuau covers the entire value chain for biopharmaceuticals – from the active substance to the finished medicinal product. In 2022, BioFuture, the world's most modern production facility for biopharmaceuticals went into operation. The parallel launch of the CC2 cell culture production line has significantly expanded the production capacities of the site. This makes Schafteuau the largest and most innovative site for the manufacture of biopharmaceuticals in Austria.

Nucleic acids (plasmids)

Plasmids are ring-shaped DNA molecules required for cell and gene therapies. They are a crucial component of all innovative Novartis cell and gene therapies. In order to

expand the production of nucleic acids for commercial therapies, including for a variety of development projects, Kundl was recently upgraded to a centre of excellence.

Since 2019, plasmids have been produced here for the study medicine of genetically-therapeutic pipeline programs, as well as for commercial supply and mRNA vaccines.

Social benefits of medicines¹⁾

Our approach to doing business is to use innovative science and technology to address some of society's most challenging health issues. We believe that access to medicines is the factor where we can achieve the greatest effect. We systematically integrate access strategies for all of our new pharmaceuticals to reach under-served patients.

Novartis has issued a sustainability-linked bond of more than EUR 1.85 billion. This is linked to social goals that Novartis has committed itself to, in particular, improving access to essential and innovative medicines in lower and middle income regions of the world. If Novartis fails to meet the goals associated with the bond, the company must pay higher interest rates to the investors.²⁾

Therapeutic innovations not only have an effect on health, but also have positive socio-economic consequences. For example, quality of life is increased, follow-up treatment costs can be avoided and years of employment extended. They also make it possible for patients to participate in society.

In a social impact analysis, the interplay of health and wider economic effects was investigated for 121 Novartis pharmaceuticals as an illustration and their health and socio-economic footprint in Austria was calculated. The connections between health and the value chain are particularly interesting: By supplying the Austrian population with innovative and generic medicines, we generate almost 60,000 additional healthy life years.³⁾ These, in

turn, feed into the national value chain as additional work productivity, thus strengthening the Austrian economy.

Twelve percent of the entire Novartis GDP contribution in Austria comes from research and development activities.



In total, almost six million patients – seven out of ten Austrians – are treated with Novartis medicines every year.

1) In 2021, the WifOR Institute performed a study on the impact of Novartis Austria on the domestic economy.

2) <https://www.novartis.com/news/media-releases/novartis-reinforces-commitment-patient-access-pricing-eur-185-billion-sustainability-linked-bond>.

3) The Social Impact of Novartis Medicines in Austria in 2021. Prof. Dr Dennis A. Ostwald, WifOR Institute Darmstadt, May 2022.



Social responsibility

We are reimagining medicine to improve and prolong people's lives. We use innovative science and technology to solve some of society's most difficult health challenges. We discover and develop groundbreaking treatment methods and find new ways to deliver them to as many people as possible.

Our ethical principles



Being open-minded

Do I actively listen
to ideas or concerns?

Do I question
the impact of my decisions?

Do I value
the perspective of others?

Being honest

Do I
make my intentions clear?

Do I avoid
causing harm?

Do I speak up
if necessary?

Being courageous

Do I stand up
for what I believe in?

Do I put
patients first?

Do I
make a positive difference?

Being responsible

Do I take
responsibility for my decisions?

Do I treat
others as I would like to be treated?

Do I
put the team first?

Doing the right thing: Ethics and transparency

Novartis is committed to enabling its employees to do the right thing. On 1 September 2020, we introduced a new Code of Ethics for Novartis. This was compiled by our employees for our employees and is a summary of our commitments to ethical standards within our company.

All employees receive this Code when joining the company and are obliged to comply with it. The Code is designed to meet the expectations of the top five stakeholders: Patients, employees, shareholders, partners in healthcare, as well as society as a whole.

Culture, values and conduct

Our culture is the way we interact and conduct business. In this, we strive for an inspired, curious, unbiased and inclusive culture so that we can unleash the potential of our employees in the best possible way.

Inspired

We need inspired employees for reimagining medicine. We want people to see meaning and fulfilment in their work, and empower them to do their best every day to achieve their personal and professional goals.

Curious

To achieve our purpose, we need curious people with the constant desire to learn, a passion for developing innovative medicines and finding new and better ways of doing things in healthcare.

Unbossed

Our employees are most creative and productive when they are empowered to shape their work environment and pursue their ideas.

Integrity

In all of this, our employees should be defined by honesty and having the courage to do the right thing.

Working at Novartis

Our employees, their diversity, energy and creativity, are our greatest strength and the prerequisite for our success. They play a significant role in the responsibility that we have towards patients. A “healthy” working environment is therefore our top priority.

Workplace safety with the clear objective of minimising risks to the safety and health of our employees is a basic requirement. In addition to ensuring the technical safety of the systems and safe process management by trained personnel, aspects such as further training and instruction of employees are also involved. In addition, there are workplace evaluations, regular safety inspections and an active culture of safety.

We are committed to driving diversity and inclusion and to establishing an inclusive culture in which different perspectives are valued and appreciated.

Studies show that diverse teams, i.e. working groups consisting of employees with different perspectives and views, deliver better results. The better diversity and inclusion are practiced, the better and faster we can promote creativity, innovation and growth and respond to the needs of patients.



Topics that we focus particularly on in this context are:

- Generational management (promoting collaboration between generations)
- Integration of persons with disabilities
- Support for international employees
- Measures to balance work and family life
- Childcare (Minis@Novartis offers 120 childcare places at our Tyrolean locations)

In addition, we encourage the creation of Employer Resource Groups (ERG), which are voluntary networks connecting employees with similar interests, experiences and perspectives.

Social commitment

Since 2022, Novartis has been following the Skill-Based Volunteering concept. Using a global database, selected NGOs are put into contact with volunteers who provide their special knowledge and expertise to the NGOs. This can also be done virtually. For example, a logistics expert from Novartis Austria can use his or her expertise to assist a team in Africa in organising distribution of medicines.

Independently of this, we also support selected non-profit organisations. Some examples:

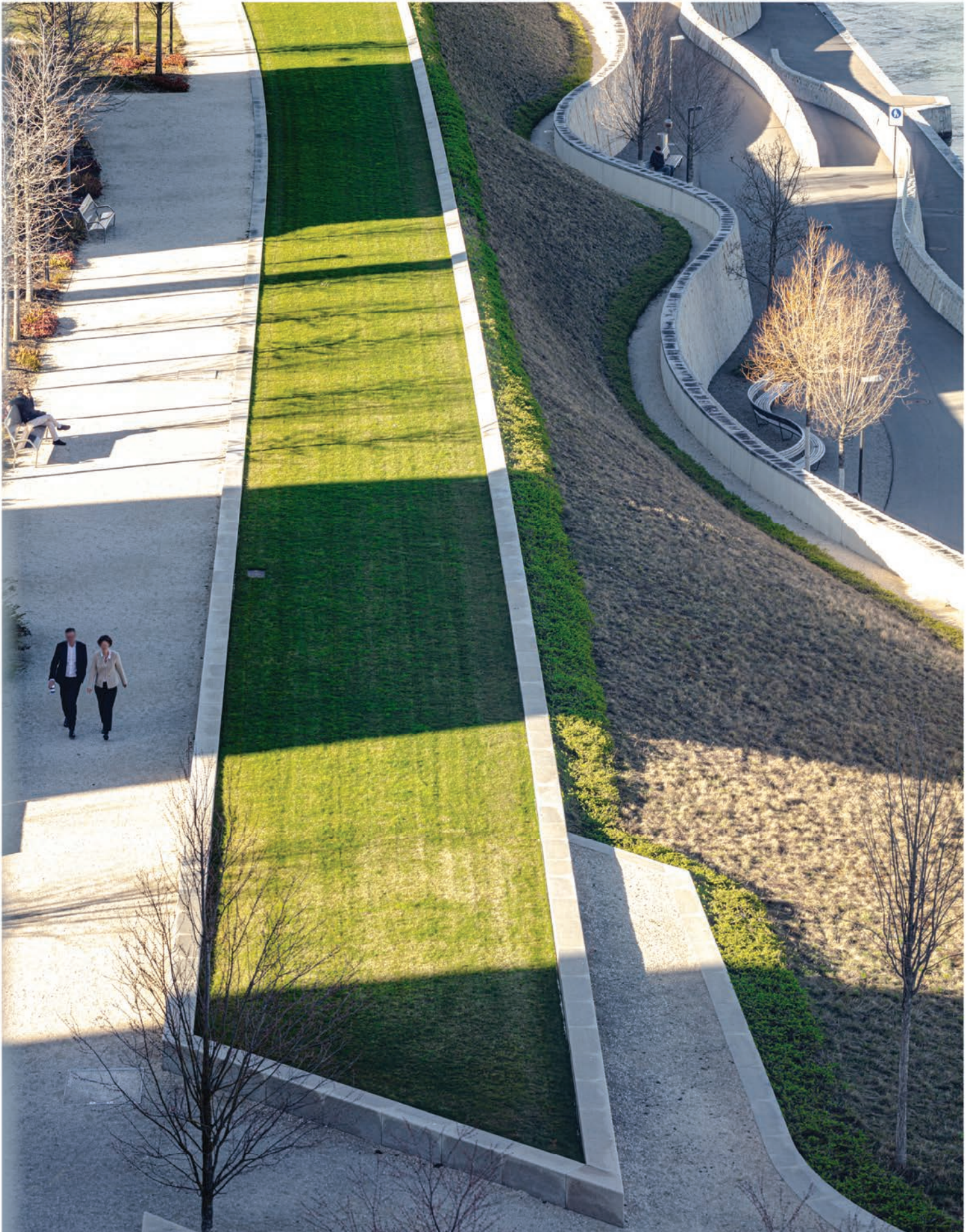
- Association Roll-On (supports persons with disabilities and increases public awareness)
- Donation to the Austrian Red Cross for the integration and family reunification of Ukrainian refugees
- Vienna headquarters involvement in the “Play the Christ Child” Christmas campaign of the Austrian Samaritan Association.
- Donations of laboratory equipment to local schools and universities (including HTL Kramsach (glass and chemicals) or MCI (Management Centre Innsbruck))
- Oro Verde (conservation organisation for the restoration of rain forests)
- “It’s in our blood” (annual blood donation campaign). With more than 120 litres of donated blood, we are helping to increase blood reserves in Austrian hospitals.



Our ERGs

Employee Resource Group

- PRIDE Network**
- Working Parents Connection**
- EWIN – Empowering Women to Impact Now**
- Creative Community**
- Tierfreunde@Novartis**
- [Animal Friends@Novartis]**
- Green Team**
- Werksmusik [Works Music]**
- Diversability Network**
- “Internationals” ERG**
- Men Community Novartis**





Our understanding of sustainability

In the Brundtland Report (original title: “Our Common Future”), a definition of sustainable development was first formulated in 1987 by the UN World Commission on Environment and Development:

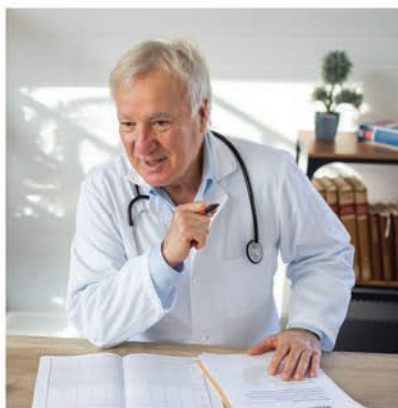
“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainable action therefore means balancing economic and social developments with environmental

protection and social interests. Satisfying the needs of the current generation must not be at the expense of future generations.

As a global company, we bear a great responsibility for creating positive social changes. We can help address complex challenges, such as the Covid-19 pandemic or climate change, by taking responsibility for social impact. We want to strengthen society’s trust in us and implement environmental, social and governance (ESG) issues into the core of our business strategy and business operations.⁴⁾

We believe that a company can only act sustainably if it succeeds in taking long-term and responsible action in the three areas of social, ecological and economic sustainability that synergistically complement each other across the entire value chain.



Social sustainability

Social sustainability includes Novartis’ responsibility towards employees, patients and society. This includes, among other things, the goal of improving access to medicines worldwide.



Ecological sustainability

Protection and conservation of natural resources are the focus of ecological sustainability. We pursue our climate goals across the entire value chain.



Economic sustainability

Economic sustainability encompasses the long-term success of the company, benefiting the economy, the labour market and public revenues as well as supply.

4) <https://www.reporting.novartis.com/2022/novartis-in-society.html>

Sustainability management



Management systems for health, safety and the environment (HSE) at Sandoz GmbH
Energy management (SIEM)
HSE management Vienna

21
23
23

We are committed to the basic concept of sustainable development and the responsible care programme of the chemical industry. This is reflected in our health, safety and environmental policies. Health, safety and environmental protection (HSE) are thus also part of our business strategy in the interests of increasing the value of the company, controlling risks and strengthening the good reputation of Novartis and Sandoz.

For us, sustainability means ensuring the high quality of our pharmaceuticals combined with the highest standards of patient and employee safety and the environment through every action we take and through sophisticated management systems, from planning, material procurement and production to final control.

Quality, risk and knowledge management are integral parts of our management system. In this respect, we follow the internationally applicable GMP guidelines (Good Manufacturing Practice guidelines) with our quality management to assure the quality of the production processes and environment in the manufacture of active substances and pharmaceuticals.

For the alignment of production processes and environment, we also follow the guidelines of the health authorities, including the U.S. Food and Drug Administration (FDA), the European Medicines Agency (EMA) and AGES (Österreichische Agentur für Gesundheit und Ernährungssicherheit GmbH [Austrian Agency for Health and Food Safety]). In addition, there are other national public health authorities,

as well as Group guidelines, to which our quality management is subject. Our quality management is closely linked to Health, Safety and Environment (HSE) management, which plans, records and controls key aspects of the work processes and itself is closely linked to energy management, which focuses on the resource of energy.

In addition to the two production sites of Kundl and Schaftenau, our 2022 Sustainability Report also addresses the sales office in Vienna. The GMP quality management system mentioned here is of course of primary relevance to the production processes in Kundl and Schaftenau. The HSE management system for the environment, employee protection and energy management described below has also only been implemented for Kundl and Schaftenau.

Management systems for health, safety and the environment (HSE) at Sandoz GmbH

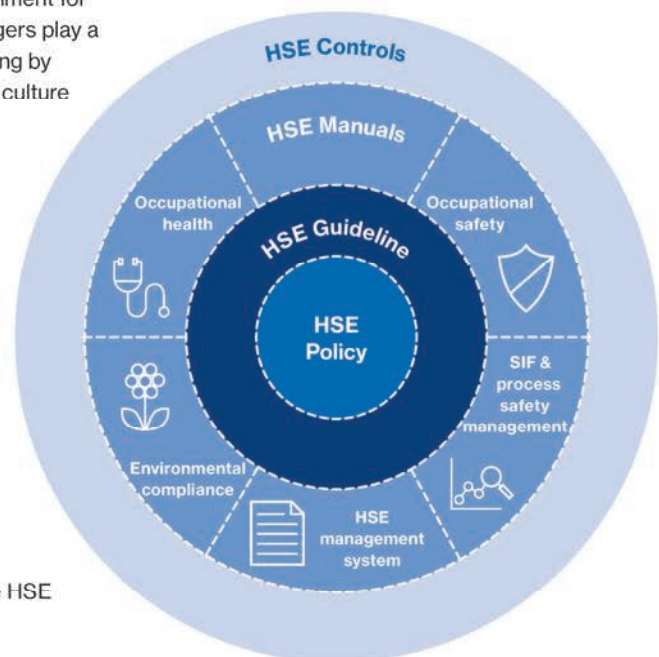
Protecting the health and safety of employees, neighbours and other stakeholders affected by our business activities, as well as environmental protection, are core values of Novartis. To ensure consistent standards at all Novartis locations, around 50 global guidelines, known as HSE Global Operating Procedures (GOPs), specify minimum requirements and performance expectations for the HSE management systems that Sandoz GmbH implements at its locations and especially in Kundl and Schaftenau, alongside international standards such as ISO 14001: 2015 (environmental management system), ISO 45001: 2018 (occupational health and safety management system) and ISO 50001: 2018 (energy management system).

All Novartis employees are responsible for health, safety and the environment. Accordingly, all employees are expected to contribute to this commitment by

taking care of themselves and others and protecting the environment for future generations. Managers play a critical role in this by leading by example and putting HSE culture into practice.

The central campus HSE department is particularly important in this context, as are the site HSE departments in the individual production areas, responsible for the local coordination or monitoring of HSE activities and for elaborating site-specific Standard Operating Procedures (SOPs) in the HSE field.

Our HSE management systems are guided by the following principles:



We comply with local laws and regulations and meet internal requirements

Regular audits, reviews and self-inspections are conducted to ensure compliance with applicable local laws and regulations as well as Group requirements. The obligation to comply with internal and external requirements is part of our culture and is strengthened through communication and accountability, as well as frequent interaction with authorities. By participating in various working groups, current legal developments are monitored in full and implemented within the company. The Register of Legal Sources and Legal Obligations is updated annually. In addition, the existing systems are periodically reviewed for the notice of compliance pursuant to Section 82 b GeWO (Gewerbeordnung [Austrian Trade Act]).

We are committed to HSE resilience

Management is accountable for implementing and maintaining health, safety and environmental practices and leads by example.

We take care of the health and safety of our employees

We promote and support the implementation of programmes to maintain and improve the physical and mental health and well-being of our employees and contractors. We offer our employees safe working conditions and strive to protect them from potential health hazards and injuries. A risk assessment is carried out prior to performing potentially hazardous work. If necessary, suitable protective measures are taken so that work can be carried out safely. Employees must familiarise themselves with and comply with local safety regulations. A Speak Up Office is our best way of ensuring that any misconduct is documented and that appropriate processes are adapted on a sustainable basis.

We are environmentally conscious

We implement and maintain processes and procedures that ensure the relevant environmental regulations and compliance obligations are met. We also take steps to minimise the environmental impact of our activities. We support initiatives to reduce our carbon footprint, waste generation and water consumption in our business activities. All legally mandated emission measurements are carried out and the results are checked for compliance with the legally defined limits. Through additional voluntary analyses and measurements, we also ensure compliance with international specifications and recommendations.

We consider the HSE impact when developing products, processes and technologies

Our employees participate in HSE hazard assessments and risk analyses that are coordinated by the HSE departments. Potential risks are systematically identified according to our specifications. This ensures that HSE considerations are integrated early on into product and process development, procurement, manufacturing and investment projects. For many years, potential risks from new production processes have been systematically investigated using the process risk analysis method (PRORA). The results may, for example, trigger process optimization or supplementary safety equipment in the facilities. Protection of the environment is of particular importance in process risk analysis: resource-conserving use of raw materials and energy, but also minimisation of wastewater and waste. We distinguish between health risks, safety risks, environmental risks and business continuity risks.

Business Continuity Management (BCM) is carried out across the company for patients' security of supply and to avert economic risks for the company in the event of an interruption in operations (e.g. fire at a production facility or warehouse, but

also interruption of the raw material or energy supply chain). BCM focuses on precautions aimed at safeguarding the supply chain even in the event of an unforeseeable interruption of operations. This is intended to ensure patients are supplied with important medicines, even in exceptional situations.

The most important of these risks, where active management involvement is required to eliminate or control them, have been managed in the Group-wide HSE platform "HSE Net" since 2020.

We participate in scientific reviews and consider the HSE and business benefits and risks of innovation in a structured, scientific and transparent way.

We are building a responsible network of suppliers

Suppliers are expected to meet the HSE requirements set out in the Novartis Third-Party Code and in our Third-Party Risk Management Policy (TPRM Policy). We promote good HSE management practices with our partners across the entire supply chain and work with them as closely as possible. Procurement promotes environmentally responsible suppliers, goods and services. This includes working with suppliers who go beyond legal compliance and actively minimize the environmental impact of their activities. Suppliers that drive the reduction of environmental impacts are given priority consideration. Sustainability is taken into account in the selection criteria for suppliers. We conduct supplier audits on the basis of risk to ensure compliance with TPRM and good industrial practice.

We drive continuous improvement of our HSE management systems and performance

In accordance with any recommendations for improvement from the internal and external HSE audits and based on Novartis initiatives and targets, objectives are defined

each year through the HSE plan and new programmes are set up, as well as deadlines and responsibilities defined to ensure continuous improvement of the systems. Management supports the annual HSE objectives and targets and regularly assesses HSE performance based on these objectives and targets.

In the event of deviations, measures are taken at an early stage. Actions are derived from incidents and events to prevent recurrence, including, where appropriate, incidents and events outside Novartis. HSE expertise is ensured through appropriate training.

We communicate transparently

HSE results are communicated openly, both internally and externally. Proactive contact with internal and external stakeholders, including the local community, is sought and their concerns regarding HSE issues are raised.

Energy management (SIEM)



The task of energy management is to ensure the energy supply of the Kundl and Schafteu locations via agreements with reliable energy suppliers under the best possible conditions. The use of renewable energy sources is being urged. In doing so, we are striving for a phased reduction in energy consumption across all production processes.

Despite further expansion of our production facilities, we are therefore aiming to achieve a reduction in total energy consumption and CO₂ footprint long-term.

In addition, the focus is on the following tasks:

- Promoting and strengthening awareness of energy efficiency in the company – through information, communication and motivation, combined with training and use of the in-house employee ideas system, Th!nk Novartis, from which ideas are constantly being generated

- Checking existing processes and production systems for energy efficiency and optimising them according to the latest state of the art
- Constructing new buildings and facilities in compliance with high energy efficiency standards
- Further development and phased implementation of the decarbonisation strategy

Energy management for the Kundl and Schafteu locations is integrated into the HSE Manual and also serves as a reference for the energy management system according to ISO 50001.

HSE management Vienna

At our sales office in Vienna, the HSE activities are also managed by the Country HSE Manager with the activities to be carried out having a different focus than at our research,

development and production sites due to the purely office-based nature of the operations. In Vienna, the focus is on ergonomic workplace design, employee health, compliance with legal

regulations and the sustainable energy and environmental management of our office buildings.

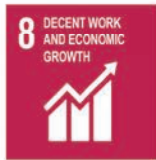
Our contribution



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Measures for our employees



Energised for Life

Since 2011 (back then “Be Healthy”), this initiative has provided an opportunity to participate in programs and activities that promote a healthy and conscious lifestyle. In Austria, this initiative is supported by Corporate Health Management, which ensures the anchoring of health as a company goal. Since the Covid-19 pandemic, we have also increasingly offered psychological advice and seminars on the topic of resilience/handling difficult situations.

Flexible working models

We continuously evaluate how we can offer our employees flexible opportunities for how, where and when they perform their work. We are convinced that a flexible working model allows us to improve the well-being of

employees while contributing to the company’s success – by ensuring close cooperation as well as the relationship with our customers.

Paid parental leave

Since 2021, we have offered every mother and father who is employed by us the opportunity to use paid parental leave for a maximum of 14 weeks in the first twelve months after the birth, adoption or fostering of a child. In detail, this means: Following the eight-week maternity leave period after birth, Novartis will continue to pay the salary to mothers for a period of six weeks during their parental leave. Fathers receive 14 weeks of paid parental leave.

Social benefits

We provide our employees with significant additional employment benefits. In 2022, around 15 million

euros were invested in the following benefits:

- Own company pension, combined with disability and widow/widower or orphan’s pension, including additional endowment and term life insurance
- 24-hour accident insurance for occupational and leisure accidents
- Company restaurants
- Free company and shift buses
- Voluntary travel allowances
- Double night shift allowance (pilot project)

In addition, for the pension fund to cover pension obligations, we also ensure that the majority of the fund is invested in sustainable products.

We are proud that our efforts in this regard are regularly recognised with the “Employer of Choice” award.

OUR STRENGTH IS THE DIVERSITY AND CREATIVITY OF OUR EMPLOYEES

69 nationalities

34.4% women in leadership positions

49.3% female employees

51.5% female managers in the Innovative Medicines division



“Top Employer Austria” for 3 consecutive years (Novartis Pharma GmbH, Sandoz ComOps)⁷⁾

Top Employer Europe 2021

Top Employer Global 2021

Measures for the safety of our employees

Kundl and Schafftenau



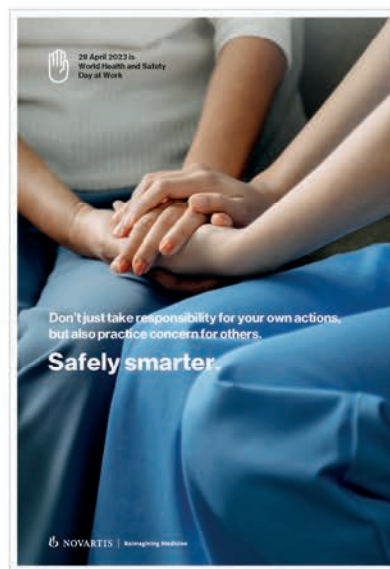
The health and safety of our employees is our top priority. This starts with the safe handling of microorganisms (issue of biological safety), extends over the systematic review of production processes by means of process risk analysis (PRORA) and continues until the technical safety of all facilities and systems is guaranteed. Numerous initiatives help us to keep accident numbers sustainably low with the aim of preventing them entirely.

We not only rely on technical and organisational measures, but also on a lived and successful safety culture with behaviour-based safety, a model from behavioural sciences. With appropriate resources and clear communication, we promote safe behaviour – also with the desired side effect of transferring this behaviour to private life. The convincing and authentic behaviour (“leadership”) of superiors is part of our leadership approach.

The central element of our safety management is regular safety inspections. All production buildings are inspected periodically by trained safety experts. Another component of our safety management is accident analysis. Occupational accidents that entail sick leave, as well as significant accidents and incidents with risk potential are analysed and documented according to a special methodology (Root Cause Investigation – RCI), and follow-up activities and measures are derived.

The “Mit Sicherheit klüger” [Safely smarter] campaign is designed to enhance employees’ safety awareness on a continuous basis by way of mailings, presentations on screens, and safety discussions.

Safety when working with microorganisms is equally important. A classification into four groups posing different risks has become established worldwide for handling genetically modified microorganisms. We work with genetically modified organisms of risk group 1, a group from which the lowest



risk is assumed, both in development and in production. Nevertheless, we work largely in closed systems to safely prevent releases. Activities relating to new organisms are periodically reviewed by the Biological Safety Committee and then approved.

Environmental measures



Careful use of resources and environmental protection

The production of active substances and intermediates requires a high input of resources such as solvents, water and energy. In addition, wastewater, exhaust air and waste are produced during production, which must be minimised or treated in the best possible way. The acquisition of usable by-products, as well as reuse and recycling, play an important role

in this. Due to the special design of production and processing methods, we obtain high-quality by-products as recyclable materials. One example of this is fertiliser.

Waste, recyclables and recycling



It is our priority to avoid or reduce waste as much as possible. Waste that is unavoidable is – if environmentally reasonable – recycled externally. If this

is not possible, waste is disposed of in an environmentally friendly manner, for example by incineration in modern waste incineration plants. Today, more and more economically and ecologically viable recycling options are available, even for hazardous waste. This includes the external distillation of solvent waste.

Non-hazardous materials such as paper, cardboard boxes, plastics, styrofoam, waste metals, waste glass and biodegradable waste are collected separately and introduced

into the various recycling channels by our disposal partners, which means that the volume of industrial waste generated to be disposed of externally (thermally) similar to household waste can be kept low. All waste that is generated in Kundl and Schaftenuau is not treated by the company itself, but is handed over to authorised waste collectors and waste treatment companies. These are largely EMAS-certified and are regularly audited in accordance with our guidelines.

Annual evaluations of the volume of hazardous and non-hazardous waste from Kundl and Schaftenuau reveal the processes and areas in which waste is generated. A few processes determine the amount of waste.

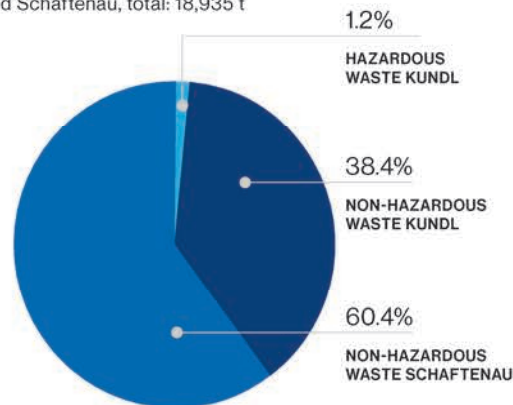
In Kundl, the “Central Waste Collection Centre (ZASS, Zentrale Abfallsammelstelle)” was established in 1991 as the most important tertiary collection point and hub of waste logistics. A new location for ZASS is currently being evaluated in order to further improve waste logistics and adjust for the site development in Kundl. At the end of 2013, the dynamic site development at Schaftenuau was taken into account through the commissioning of ZASS Schaftenuau.

In 2021, waste logistics for the Kundl location was handed over to an external company. The new partner brings decades of experience in waste management. However, this company does not act as a collector or processor, but rather supports Sandoz GmbH in internal and external logistics or in various improvement and optimisation processes. In 2022, our waste logistics partner also took over the Schaftenuau location.

In 2022, Kundl was still significantly involved in its site transformation. In this context, production facilities were dismantled or completely removed in order to continue to support

WASTE VOLUME GENERATED FROM CONSTRUCTION AND DEMOLITION ACTIVITIES IN 2022

Kundl and Schaftenuau, total: 18,935 t



future site development. In addition to construction site waste from new construction projects in Schaftenuau, significant quantities of waste were also generated in 2022 with these activities. A large proportion of this waste (33%) could be recycled. Waste generated for these activities was approximately 19,000 tonnes in 2022. Since this waste is not generated as standard in normal operations, it is not shown in the data at the end of the report. This makes sense in order to be able to provide a more transparent representation of waste trends over the years. Above is a division of the proportion of hazardous and non-hazardous waste from construction site activities. The hazardous waste from Kundl is mostly artificial mineral fibres and polystyrene foam.

The focus for waste management in 2022 was the separation of waste that can be recycled into types. For example, aluminium was divided into various categories. The aluminium cans for sterile active substances and aluminium-coated blister waste from finished mould production were disposed of separately. In addition to more effective recovery of raw materials, a higher price for the waste metal can be achieved at the same time.

Other measures for reducing waste in recent years:

- Delivery of raw materials in tanks to save empty containers
- Use of larger containers
- Recycling process for reusing IBC containers
- Increase in the concentration of substances (reduction in the number of empty containers)
- Ongoing inspection of the disposal containers on site for improper disposal and retraining of employees and external contractors if necessary

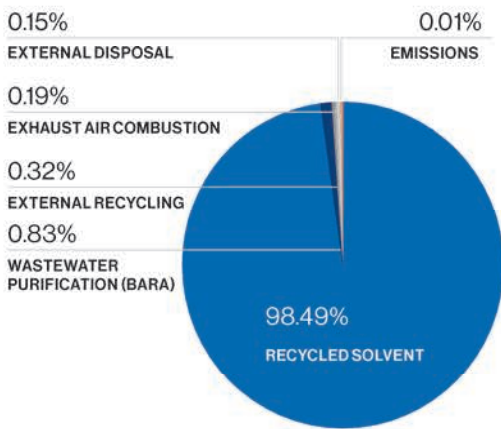
The processes for solvent recovery and technologies for the production of by-products such as Biosol® and Biosol forte® significantly help to prevent large amounts of waste year after year.

Biosol® and Biosol Forte® – organic fertilisers from Sandoz

The recycling of the fungal mycelium produced during penicillin production yields an effective fertilizer. Fungal mycelium is a biomass that is cultivated during the fermentation of penicillin and excretes penicillin as a metabolic product. After separation of the active substances, the remaining biomass is processed by drying and inactivation to obtain Biosol®, a valuable fertilizer.

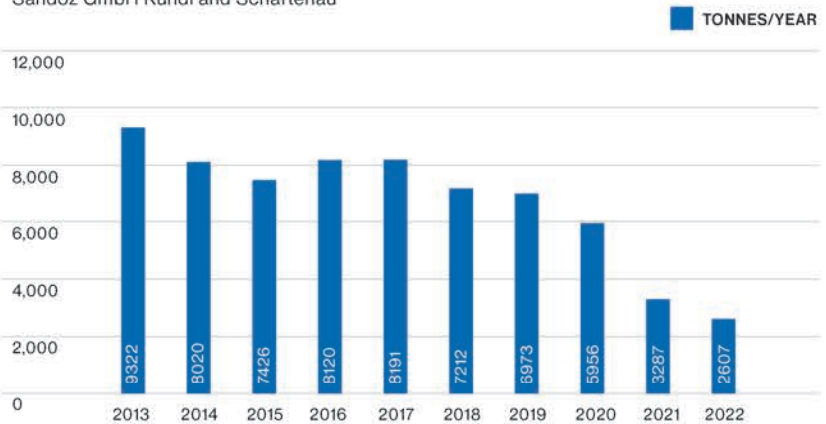
2022 SOLVENT USE AND LOSSES

Sandoz GmbH Kundl and Schaftenu Total:
172,894 tonnes



SOLVENT CONSUMPTION

Sandoz GmbH Kundl and Schaftenu



Biosol Forte®, which is obtained by processing biomass from the company's own wastewater purification plant, is also approved as a fertiliser for integrated agricultural production – Biosol® is also approved for organic farming, which is checked and certified annually by the Austrian certification body (Austria Bio Garantie [Austria Organic Guarantee]).

Biosol® and Biosol Forte® increase the humus content of the soil due to their high organic substance content, contribute to optimal plant nutrition and activation of soil life and are marketed worldwide. In 2022, almost 12,000 tonnes of fertiliser were produced for sustainable agriculture.

Solvent recycling

Solvents are volatile, organic compounds that dissolve substances without chemically altering them. Among other things, we use solvents to extract active substances after fermentation.

The most important solvents are butyl acetate, isopropanol, ethanol and acetonitrile. Since the 1960s, we have been using solvents at our Tyrolean locations within the framework of processes that permit repeated use. Sophisticated, closed systems, special distillation systems for used solvent mixtures and extensive

circulation systems now enable a recycling rate of well over 98%. For example, we can use solvents about 66 times on average before they are broken down in our in-house biological wastewater treatment plant (BARA, Betriebseigene Abwasser-Reinigungsanlage), incinerated in the exhaust air incinerator plants, or sent to external disposal or recycling companies. In total, the use of solvents was around 173,000 tonnes in 2022. Without efficient recycling methods, economically sensible production of penicillin would hardly be feasible.

The trend of recent years towards organically produced active substances, intermediates and raw materials has significantly reduced the need for solvents and chemicals.

For example, the 10-year comparison shows that the consumption of fresh solvent could be reduced by over 70%.

The Schaftenu plant plays a rather subordinate role in the use of solvents compared to Kundl.

Protection of soil and groundwater

Our production buildings and utilities are connected to each other by a dense network of pipelines. To protect soil and groundwater, we have always consistently avoided storing

or transporting hazardous media in underground tanks or pipelines. Hazardous media, such as acids, alkalis and solvents, are transported for safety in pipelines located above ground on pipe bridges so that leaks can be detected immediately. Lines for process wastewater run underground in the energy line tunnel (ELT) or also via pipe bridges. In principle, only pipes for drinking and utility water, ducts for rainwater and individual sections of sanitary wastewater pipes are laid underground. With our own monitoring system, combined with a long-term maintenance plan, we ensure that there is no unnoticed leakage of any contaminated wastewater into the subsoil. Traffic areas of the campus and all areas on which equipment or waste is handled are surface-sealed, so that efficient protection of soil and groundwater is also ensured here. In contrast to Kundl, small amounts of dichloromethane are still used in Schaftenu. Regular analyses of soil air samples are carried out here to ensure that they are free from harmful substances.

Since systems at the Kundl and Schaftenu plants are classified as IPPC (Integrated Pollution Prevention and Control) systems, reports on the initial state are required. When IPPC-relevant systems are rebuilt and in the event of significant

Overall, water consumption has been reduced by more than 20% over the last ten years.

changes to existing IPPC systems, the initial status reports are updated and transmitted accordingly to the competent authority or are part of the submission documents for necessary official approvals. The current results of the periodic groundwater monitoring embedded in the initial status reports are also incorporated into the reports. No impurities were detected with the hazardous substances used. The body of groundwater is of drinking water quality throughout.

At the Schaftenau location, there is small-scale soil contamination due to the activities of a company that was previously located at the site, which is being thoroughly remediated in agreement with the authorities. Otherwise, similar precautions for soil and groundwater protection apply in Schaftenau and Kundl. A difference to Kundl is that in addition to sanitary wastewater pipes (WAS) in Schaftenau, sewers for less contaminated production wastewater (WAW) are also laid underground, since there is no energy line tunnel like the one in Kundl. The sewers for WAS and WAW are periodically checked by means of camera inspection, and damaged sewer sections are subsequently refurbished.

In 2022, Phase 1 of the supplementary investigations pursuant to Section 13 ALSAG (Altlastensanierungsgesetz [Austrian Act on the Remediation of Contaminated Sites]) was completed for the former sites of the Kundl plant and Schaftenau. In the final report, the locations were issued with a pass.

Water – a finite resource

We also exercise great care when handling water – both in terms of supply and disposal. For active substance production in Kundl, we need large quantities of cooling water, which is pumped via our own wells, which are

largely located near the Inn river. This allows us to extract mainly bank filtrate and thus conserve groundwater. The drinking water required for production and sanitary facilities comes from our own deep well.

Measures to reduce consumption, such as the re-use of cooling water, have been established in Kundl for many years.

In Schaftenau, we source the drinking water required for production processes from the municipal drinking water network. The need for cooling water and water for thermal use in highly energy-efficient refrigeration machines or heat pumps for building heating and air conditioning is covered by the plant's own groundwater well. Despite the dynamic growth of the Schaftenau location, water consumption remained almost constant in 2022.

Wastewater and protection of the aquatic environment



In Kundl, five separate sewer systems are available for water disposal, one for rainwater, one for cooling wastewater,

one for more heavily contaminated process wastewater, one for slightly contaminated wastewater from the production plants and one for sanitary wastewater. By consistently separating all wastewater flows, we ensure the targeted treatment and purification of all wastewater.



Rainwater is collected in a separate sewer system and normally discharged directly into the Inn river. In

the unlikely event of contamination, a 2.4-million-litre retention basin is

in place which retains potentially contaminated water for subsequent targeted supply to the plant's own wastewater treatment plant or for external disposal. By means of appropriate detection systems in the retention basin, leaks at the plant premises, e. g. in the area of pipeline routes, can be reliably identified. This can safely prevent discharge into the Inn.

Seepage of rainwater at the Kundl and Schaftenau locations into non-critical buildings and plant areas, such as infrastructure buildings or parking spaces, has gained in importance in recent years. In the case of changes, rainwater seepage is preferred, if possible for safety reasons, in order to minimise overloading the receiving watercourse during heavy rain.

Cooling wastewater is also discharged directly into the Inn, with a maximum temperature of 35°C. This causes the flow to warm by less than 0.1°C. The cooling water is periodically inspected for hydrocarbons in order to detect possible leaks at heat exchangers. However, this can almost be ruled out by an established design for such devices that has been used for many years.

Process wastewater and slightly contaminated wastewater from the production facilities in Kundl are biologically cleaned in an in-house, two-stage wastewater treatment plant (BARA – Betriebseigene Abwasser-Reinigungsanlage). Highly contaminated process wastewater from Schaftenau is also transported to this wastewater treatment plant for purification. A few years ago, the second purification stage was partially supplemented by a membrane activation system.

The daily checks of BARA in Kundl also confirm the excellent purification

The chemical oxygen demand load in the Kundl wastewater to the Inn river has fallen by over 60% since 2011.

performance for 2022. Details on this can be found in the data at the end of the report.

Wastewater from sanitary facilities is collected separately from production wastewater and discharged to the Kirchbichl wastewater treatment plant.

The various types of wastewater are also disposed of in **Schaftenau** according to requirements. Rainwater is allowed to seep into the ground or is introduced into the Gießenbach stream, depending on the location of the precipitation. Schaftenau also has a retention tank that prevents any contaminated surface water from flowing into the ground or the Inn river in the event of an incident (for example in the event of a fire or transport accident on the plant premises).

Highly contaminated production wastewater is fed into collection tanks and is transported by truck to Kundl, where it is introduced into the company wastewater treatment plant. This relieves the load on the municipal sewage treatment plant in Schaftenau and also supports the denitrification process in the operational wastewater treatment plant in Kundl.

Less heavily contaminated production wastewater and sanitary wastewater are introduced into the municipal sewer system. Cooling wastewater is captured separately and, in compliance with strict requirements, is fed directly to the local Gießenbach stream and via a newly constructed canal to the receiving watercourse, the Inn river.

Preventing active substance releases into the aquatic environment has been an essential component of our HSE activities at the Kundl and Schaftenau locations for many years. This is needed, on the one hand, to counteract the worldwide problem of antibiotic resistance and, on the other hand,

to protect the aquatic environment from harmful influences. As a large producer of antibiotics, Sandoz GmbH assumes its responsibility through appropriate risk management, periodic measurements and the raising of awareness through training programmes. When establishing new processes or adapting existing production processes, preventing active substances in wastewater is a key element of the process risk analysis (PRORA). The periodic monitoring of the BARA process for relevant active substances introduced a few years ago proves that these are also almost completely broken down in the BARA and that recorded levels are significantly below the internationally applicable limit values for active substances in wastewater systems and the restrictive Novartis specifications.

By participating in the PSCI programme (Pharmaceutical Supply Chain Initiative Programme), we are committed to sustainability in the areas of social, health, safety and environmental protection. PIE (Pharmaceuticals In Environment) is an essential part of this initiative.

Since autumn 2016, the infrastructure facilities (mainly systems for water supply, wastewater disposal, fertiliser production and steam boiler systems or central exhaust air purification systems) have been operated by an external partner company, whereby the systems themselves remain the property of Novartis. The Novartis operating personnel were taken on by the partner company in the course of this transition.

Below are the most important projects in the wastewater sector in 2022:

- In order to be able to comply with the much stricter wastewater limits in the future, and to meet the expected increasing wastewater load and wastewater volumes due to the

opening of the Kundl location as an Infrapark, an expansion project was submitted to the authority for approval in 2021. The key aspect of the project is the expansion of the company's own wastewater treatment plant to a 100% membrane process. In addition to better purification performance, positive effects are also expected in BARA operations. This is, for example, the reduction of the C source dosage due to the currently unfavourable C/N ratio. The progress of construction is exactly on schedule. The final commissioning of this pioneering technology is planned for the second half of 2023.

- The Kundl and Schaftenau locations operate a large number of water treatment plants for their sterile and non-sterile production facilities. The retentate in reverse osmosis systems has been routed to wastewater treatment to date. Since this water (apart from a higher salt load, which could hardly be eliminated, even in wastewater treatment) does not have any impurities, it can be routed directly into the receiving watercourse from an ecological point of view. In 2022, this measure achieved a reduction in wastewater volume in Schaftenau sent to the Kufstein wastewater treatment plant of 60,000 m³.
- Sterile water is used as the last rinse water when purifying system parts for finished mould production in Kundl. This purification water, which in principle has no contamination, is now used for steam production and relieves the load on the BARA in Kundl. The amount is also around 60,000 m³/year.
- In 2022, a consolidated wastewater notice was obtained for the Schaftenau plant and represents a milestone for being able to build on a corresponding basis for future plant expansions. Currently, in cooperation with the Kufstein wastewater

The solvent emissions of Sandoz GmbH were reduced by more than 70% compared to 2011.

treatment plant, a consensus increase is being sought with regard to load and quantity.

Exhaust air – preventing air emissions



The use of solvents, as well as the company wastewater treatment plant at the Kundl plant, produces exhaust air

flows contaminated with odours and solvents. For many years, the exhaust air in Kundl and Schafftenau has been recorded via closed systems and company-wide exhaust air networks.

The exhaust gas flows are predominantly processed thermally to be able to reduce emissions to a minimum. However, purification procedures, such as activated carbon adsorption, cryo-condensation or scrubber systems, are also used. These systems are specifically used if secondary emissions (e.g. NO_x) would occur in the event of any possible combustion.

For one production process in Schafftenau, a small amount of dichloromethane must still be used as a halogenated hydrocarbon. The outdated exhaust air purification system for the exhaust air from this process was replaced by a state-of-the-art modern exhaust air purification system.

Emissions of chlorinated and fluorinated hydrocarbons from refrigeration plants represent significant greenhouse gas potential. Sandoz undertakes to replace these substances in the medium term as far as possible. If, for technological reasons, replacement with ammonia or CO₂ is not possible, then less climate-damaging alternatives will be used. Emissions from climate-damaging

refrigerants (based on the greenhouse potential) have almost been halved, despite extensive expansions at the sites since 2011.

Odour

The mainly biological processes in Kundl also generate highly odorous waste gas flows. In the past, this has led to corresponding complaints from neighbours. Sustainable improvement was achieved through a variety of optimisation measures.

The exhaust air from the Kundl wastewater treatment plant with the highest odour pollution is controlled by closed systems or housing and is incinerated in its own regenerative post-oxidation plant (RNO, regenerative Nachoxidationsanlage). Exhaust air from fertiliser production (Biosol® and Biosol forte®) is also incinerated in this RNO or in the boiler house.

Due to the combustion of these highly odorous exhaust gases complaints from neighbours regarding the odour are now at a consistently low level. Despite the very good situation these days, any complaints are pursued vigorously in the spirit of sustainable quality of life in the community. Significant attention is still being paid to the topic of "odour".

Noise

The noise level of the Kundl plant is in the range of the basic level in the Inn Valley, which is caused by railways, motorways and by nearby facilities. This has been achieved through a number of measures in recent years, including the installation of silencers in exhaust ducts or sound-insulating facades. For new installations, correspondingly strict construction regulations apply.

In Schafftenau, the situation is less sensitive due to its location in a purely

industrial zone, but the same strict specifications apply.

Sustainable use of energy



Energy source

Natural gas and electrical energy – exclusively from renewable sources – are our main energy sources. Since 2014, electricity from our electricity supplier has come from renewable energy sources, predominantly hydropower (around 85%), making it almost CO₂ neutral. By using electricity primarily from hydropower, the Tyrolean locations are supporting Novartis' goal of greatly reducing CO₂ emissions. In addition, diesel is also used to operate emergency power units. The main consumers of electricity are compressors and electric motors, a large proportion of which are for agitators and the compressed air supply, especially for fermentation plants.

Energy consumption



While total energy consumption has continuously increased up to 2003, a significant reduction in energy consumption has been achieved to date by switching to energy-saving production methods and energy-saving measures. Today, the consumption of energy (natural gas and electricity) is around 500 GWh/year. Since 2009, savings through energy saving projects have been documented separately. The documented measures now total over 150 GWh/year. This amount of energy could cover the energy requirement of approx. 10,000 detached homes.

In Schafftenau, energy consumption

has been increasing continuously since 2012 due to the dynamic growth of the site. The commissioning of additional production facilities is planned for 2023, which will further increase energy consumption in Schafftenau.

District heating for Kundl

Company waste heat is used both internally and externally as district heating. The primary sources of waste heat are the drying plants for the Biosol® and Biosol Forte® fertilizers as well as the air compressors, mainly used to supply the fermentation process with compressed air. A municipality-owned district heating company was founded in 1996 to exploit waste heat as district heating. Today, more than 70% of Kundl's households use this environmentally friendly heating source. We currently provide about 29 million kilowatt hours of energy per year. In-house, operational waste heat is fed into a separate hot-water network at a temperature of 90°C, which on the one hand serves to heat buildings, and on the other hand is fed into production, wherever a heat supply can be used at a reduced temperature level.

Efficient process steam production

In Kundl and Schafftenau, we use natural gas to produce process steam and rely on high efficiency so that as little energy is lost as possible in steam generation. Several boilers are equipped with economizers, designed to extract residual heat from the exhaust gas. The consistent return of steam condensate further increases the efficiency of the entire steam process. The residual heat is used to preheat boiler feed water or heat is transferred into the internal hot-water networks (WW90 or W55).

Individual projects – energy saving measures

Our energy management aims to gain an in-depth understanding of which processes contribute to overall

consumption, and to what extent, and to identify energy efficiency measures. We do this by recording and measuring, as well as analysing significant energy consumers and evaluating economically possible measures. The potential and projects are documented in a continuously updated energy saving project list. Through the implementation of numerous measures, 1-1.5% of the site energy requirement can be saved annually. In 2022, over 30 energy-saving projects were successfully implemented at the Kundl and Schafftenau locations.

Below is a selection of projects in energy saving activities in 2022:

- By optimising the stirrer configuration during the fermentation of penicillin, a reduction of the stirring energy by up to 15% was achieved on the pilot scale. Subsequently, a large fermenter was equipped with the corresponding stirrer setup, and subsequently, it showed energy savings as high as 25%. As a result of this great success, all ten major fermenters were optimised in 2022 for energy use. The savings in electrical energy correspond to the level of demand of more than 1,000 average households.
- The installation of a large-scale heat pump system in Kundl was successfully completed in 2022. The savings correspond to the heating energy requirements of an average of 1,000 detached homes.
- Sterile water is used as the last rinse water when purifying system parts for the finished mould production. There is basically no contamination of this rinsing water. The warm purification water, like the feed water already used in the steam boiler systems, is treated and used for steam production. The energy savings are in the order of 2500 MWh/year.

For 2022, the focus in the sustainability area is on the implementation of the next steps of the decarbonisation strategy for the Kundl and Schafftenau locations. After the successful elimination of CO₂ emissions from electricity, the aim is to also further reduce CO₂ emissions from the combustion of natural gas as a fossil-fuel energy source and ultimately eliminate them. Long-term technical measures such as the complete conversion of the fertilizer drying process from steam to a low-temperature line, as well as the company's own biogas production from wastewater and the possibilities of using biomass for steam generation, are currently being examined for this purpose. There is also additional potential in terms of optimising the production processes.

Despite the purchase of electrical energy already being CO₂-neutral, the expansion of photovoltaics will be intensively pursued in 2023. Every kilowatt hour we can produce in an environmentally friendly way reduces the need for fossil fuel instead in Austria and Europe.

Transportation, logistics and traffic

Warehousing and logistics play an important role due to the high demand for raw materials and are subject to strict internal guidelines with goods to be stored clearly classified by category, as well as a requirement for separate storage and safety measures that are aligned to the warehouse category. These guidelines are consistently implemented in daily practice. Our competent external logistics partners also undertake to comply with all relevant Sandoz/Novartis regulations and are audited accordingly at regular intervals.

The delivery of bulk goods is largely by rail. The Kundl plant has its own rail connection for this purpose. With our own plant transport, we offer

our employees from the region the opportunity to leave their car at home and conveniently ride to and from work by bus. In addition, we were able to extend the offer to our shift employees in 2022.

Fire protection and plant fire brigade

Every year, we respond to around 250 emergency calls at the two Kundl and Schaftenau plants. These are mostly false alarms and mistaken alarms from the fire alarm systems, as well as responses by our first aiders to provide first aid. There have been hardly any serious incidents in recent years, which is also due to the existing facilities for early fire detection and alarm systems. Our production and warehouse buildings have around 16,000 fire and gas detectors. In addition, there are regular fire protection training courses and building evacuation drills for employees.

The in-house plant fire brigades represent an essential part of our safety system. They are involved in managing responses to major incidents at the regional control centre and receive support from external fire brigades as required. Of the voluntary members of the Kundl and Schaftenau plant fire brigade, the majority are trained in the use of heavy respiratory equipment and can be deployed in an emergency after passing the annually required medical examinations.

Our plant fire brigades are also integrated into the Transport Accident Information System (TUIS, Transport-Unfall-Informationen-System) as a HAZMAT team. We thus support the voluntary regional fire brigades in deployments to larger fires and also in transport accidents outside the plant premises by providing advice via our chemical experts or special equipment.

In 2022, an additional large-tank fire extinguishing vehicle was commissioned for the Schaftenau plant.

Indirect environmental aspects



While the direct environmental aspects are subject to our direct operational control, our interface management with

partners and stakeholders addresses indirect environmental aspects.

Examples of indirect environmental aspects that we take into account in our actions and decisions include quality-related, commercial, health-related, safety-related and ecological procurement criteria.

Novartis is also a member of the Pharmaceutical Supply Chain Initiative (PSCI) and supports the principles for responsible supply chain management in the areas of ethics, labour, health and safety, and environment.

An example in this context is the purchase of electricity. Since 2014, the electrical energy consumed in Kundl and Schaftenau has come exclusively from renewable energy sources.

We inform our patients about the correct, environmentally-friendly disposal of waste medicines through package inserts. Commercial customers receive all the necessary information using Safety Data Sheets.

Environmental measures at the Vienna location

At our Vienna location, we keep our ecological footprint small through sustainable initiatives. Some examples are:

Think small: More effective use of space in the office in 2020 has reduced floor space by 50%. This also includes savings for electricity, heating costs and all other consumables.

Regional and fair trade: We pay attention to sustainability when

supplying our employees. Fruit baskets are stocked with regional and seasonal produce and only fairtrade coffee is provided.

Preventing waste and plastics: We do not use PET bottles, disposable cups and other disposable tableware in our offices.

Waste separation: Is compulsory at all locations and is supported by the appropriate infrastructure.

Electric and hybrid cars: Novartis has set itself the goal of becoming CO₂ neutral globally by 2025. We are supporting this by gradually switching our fleet to emission-free or hybrid vehicles in Austria as well.

What we are particularly proud of in 2022 in terms of the environment

By opening the location and the associated establishment of external companies within the framework of the newly implemented technology and life science park, the existing research, development and production sites at Kundl or Schaftenau are being further developed, which at the same time will result in increased capacity requirements for infrastructure facilities. To be able to ensure the purity requirements for the wastewater from the Technology Campus at all times, the operational wastewater treatment plant (BARA) is currently being expanded in a sustainable manner and brought up to date with the latest technology. In the future, 100% of the resulting wastewater will be membrane-filtered at one of Austria's largest industrial treatment plants.

Energy savings of 11,000 MWh were achieved in 2022 through implemented energy saving projects. This is a CO₂ saving of 1,600 tonnes per year, or 13 million kilometres not driven by an average small family car.



The protection of soil and groundwater is one of the essential aspects of a sustainable environmental policy. As part of the transformation projects in Kundl, extensive soil investigations were also carried out in 2022. No relevant contamination in the ground was detected in any analysis. Accompanying analyses of the groundwater for potential contamination confirm these investigations again. The sustainable protection of soil and groundwater was also confirmed to us in the course of the ALSAG survey of suspected areas. The decades of consistent implementation of primary and secondary protective measures for groundwater and soil are paying off.

In mid-2021, the ground-breaking ceremony for a modern penicillin processing plant also took place thanks to the corresponding investment funding by the Austrian Federal Government. The new enzymatic process replaces a current chemical

synthesis process and should be fully implemented by the end of 2023. Through the new process, we expect the following sustainable improvements:

- Reduction of thermal energy requirements by 40 GWh/year
- Reduction of power consumption by 16 GWh/year
- Reduction of wastewater volume by approx. 137,000 m³/year
- Additional reduction of CO₂ footprint by around 8,000 t/year during production (raw materials, chemicals, etc.)
- Reduction in transport requirements: 330,000 km/year (257 t CO₂/year)
- Significant reduction in generated waste through the use of reusable transport containers within the plant

Our plans for 2023



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HSE Management/Kundl and Schafftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Strengthen HSE culture at location	Revision of the general HSE training for new hires and campus-wide roll-out. Continuation of the "Safely smarter" initiative with a consistent layout across all communication channels, e. g. screens and mailings, to increase recognition value among employees.	100%	Establishment of a new HSE organisation due to the forthcoming separation of Sandoz and Novartis, as well as the establishment of a company-wide HSE company culture	Deadline: 31/12/2023 Responsibility: Campus & site HSE
Development of an HSE communication plan including all relevant HSE stakeholders	HSE communication plan compiled for the Kundl and Schafftenau locations of Sandoz GmbH. Includes evaluation of the requirements and expectations of employees and other interested parties, as well as an overview of stakeholder communication.	100%	Adaptation of the HSE communication plan due to the forthcoming spin-off and establishment of a forum for cross-company information exchange	
Revision of the HSE manual	Manual on the HSE management system of Sandoz GmbH Kundl & Schafftenau completely revised with integration of the Energy Manual	100%	Adjustment of the HSE communication plan due to the forthcoming spin-off	
Management of all HSE-related obligations and tasks, as well as implementation of a Legal Compliance Workshop	Legal Compliance Workshop held with support from ConPlusUltra. HSE legal obligations register updated. Regular information about legal changes to relevant experts. Standardised processes introduced for Section 82 b Reviews and Official Procedures in accordance with GewO (Gewerbeordnung [Austrian Trade Act]).	100%	Re-distribution of the delegated functions and tasks due to the forthcoming spin-off	

Employees/Health/All locations

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Energised-for-Life Initiative (EfL): Continuous further development of the culture through EfL activities with the focus topics of raising awareness, prevention and support of specific target groups at the locations	In 2022, EfL was once again rolled out further at country level and aimed at different target groups according to employee needs. Particular attention has been paid to promoting mental health. A new, globally established training course – MHFA/Mental Health First Aiders – has been introduced.	100%	In 2023, EfL will present a global rebrand on wellbeing with the following mission: Reduce exposure to mental health risks Promote mental health and wellbeing at work Support employees and leaders to participate and thrive at work	Deadline: 31/12/2023 Responsibility: Company health management
Nutrition: Adapt catering to the Choice with Responsibility initiative	Responsibility for the catering offering was divided into two core areas with clear responsibilities: Firstly, offering and developing a healthy food selection on campus.	100%	Nutrition: Having food options according to individual needs correlates closely with employee satisfaction. There are therefore plans to continuously develop the nutritional concept in close cooperation with the canteen provider. Supplementation of the programme by working with dieticians.	

5) Target achievement in percentages

Employees/Health/All locations

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁹⁾	2023 PLAN	WHO & WHEN
<p>Movement & mobility: Balanced training concept with on-site and online training and focus on stabilisation exercises, core stability, ergonomics and cardiovascular system (prevention)</p>	<p>The Movement programme was once again implemented this year with digital offers and on-site offers on campus: The focus was on back health and prevention, as well as on activities to support the cardiovascular system.</p>	75%	<p>Movement & mobility: Training concept with on-site and online training and focus on stabilisation exercises, core stability, ergonomics and cardiovascular system. Shiatsu units are planned at the campus as a common focus on mindfulness.</p> <p>Offer of a campus charity run for employees as well as their family members, including supporting programme with EFL focus topics.</p>	<p>Deadline: 31/12/2023 Responsibility: Company health management</p>
<p>Culture & communication: Storytelling at our locations, awareness campaigns in multiple languages, training and workshops for managers and employees</p>	<p>The EFL programme is showcased in the communication campaign with a regular newsletter, information about plasma screens, poster stories and intranet (EFL business card). The EFL programme reached around 2997 employees in 2022. In order to continue to strengthen the culture in communication, communication will take place in several languages (English, German, Russian, Ukrainian).</p>	100%	<p>Culture & communication: Further development and adaptation of the communication strategy in order to reach different target groups in various languages in the best possible way. Presentation of the EFL programme via various communication channels.</p>	
<p>Stakeholder management: Intensification of cross-departmental cooperation and coordination with the Occupational Health team</p>	<p>Cross-departmental cooperation was also strengthened in 2022: Facility Management, HSE, Human Resources and CSR (Corporate Social Responsibility) are among our strongest cooperation partners.</p>	100%	<p>Stakeholder management: The One Novartis concept should also be visible in the implementation of EFL: The Vienna, Kundl and Schaftebau locations will be serviced with a wellbeing programme in accordance with the 2023 action plan.</p>	
<p>Mental health prevention: Continuation of the concept for mental health prevention</p>	<p>We place a special focus on mental health within the EFL initiative: A new, globally established training course – MHFA/Mental Health First Aiders – has been introduced. The EAP (Employee Assistance Programme) has been further expanded to provide the best possible support for our employees and their relatives living in the same household: The consultation service can also be used by telephone or, upon request, in a psychological practice. The EAP is anonymous; the company medical service can also be contacted upon request.</p>	100%	<p>Mental health focus is to be expanded even further in 2023: Reduction of risks to mental health Promotion of mental health and wellbeing in the workplace Support for employees and managers for successful reintegration into the workplace</p>	
<p>Ergonomics: Continuation of ergonomics advice for employees at the locations and in the home office. Setup of ergonomic zones (standing workstations) at the locations</p>	<p>Implementation of an ergonomic film about correct settings for the workspace – available online at any time. Ongoing advice with physiotherapists in the office and production area; individually or as a group. Control room project (together with the Works Council and HSE): Inspection and review of control room equipment with experts. Measures were defined in a process and the implementation was initiated.</p>	100%	<p>Ergonomics: Implementation of ergonomic zones Pilot project at the Schaftebau campus. Ongoing advice with physiotherapists in the office and production area; individually or as a group. Emphasis/themed days with ergonomic focus.</p>	

Employees/Occupational Safety/Kundl & Schafftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Implementation of the updated Novartis HSE requirements (GOP) at the location in accordance with the implementation plan	Implementation of the Novartis HSE requirements already shows initial successes in the complete implementation of GOPs, e. g. Contaminated Site Management GOP or Working with Hazardous Energies GOP. The comprehensive implementation of SAMACO GOP is progressing well.	100%	Finalisation of the Novartis GOP implementation	Deadline: 31/12/2023 Responsibility: All areas
Management walk-through rate of 15 (based on 200,000 working hours)	The management walk-through rate was significantly exceeded at a value of 30 (based on 200,000 working hours).	100%	Management walk-through rate of 15 (based on 200,000 working hours)	
Investigation of all pSIF events (potential Serious Injury Fatality) and relevant LTI cases (Lost Time Injury), including corrective measures derived and exchange within the Novartis network	All pSIF events and LTI cases were investigated in accordance with GOP Incident Management; measures were derived and shared in the Novartis network. The work inspectorate also highlighted the processing of the incidents very positively.	100%	90% of all pSIF and LTI cases are investigated using RCI (Root Cause Investigation) and findings are shared in the network.	

Employees/Occupational Safety/Vienna

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Continuation of driver safety training for all new company car drivers	A total of four training courses were carried out	100%	Permanent continuation of driver safety training	Deadline: 31/12/2023 Responsibility: Vehicle users, Fleet Management
Secure and medically supervised use of offices according to the respective pandemic situation, avoidance of clusters in the office	Gradual resumption of office operations in accordance with public requirements. Increased use of hybrid meetings. Clusters in the office were avoided.	100%	Further optimisation of the working model.	Deadline: 31/12/2023 responsibility: NEM Team, Occupational Health Service
No occupational accidents in 2022	One occupational accident: a traffic accident involving a field sales employee through no fault of her own, twelve days of lost time	N/A	No 2023 occupational accidents with a special focus on field sales employees	Deadline: 31/12/2023 Responsibility: All areas

Employees/Diversity & Inclusion (D&I)/Vienna

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Continuation of training in the office and virtually, depending on the pandemic situation	Further training in the office on D&I and gender, no virtual training	100%	Continuation of training in the office and virtual	Deadline: ongoing responsibility: D&I champion

5) Target achievement in percentages

Employees/**Diversity & Inclusion (D&I)**/Kundl & Schafftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Accessibility: Further implementation of accessibility in DS Schafftenau	Construction of an accessibility ramp B502, provision of disabled parking spaces, e. g. for buildings B520, B542 and outside the company premises at B541, offering consultation hours (alternating every week on Wednesday in Kundl & Schafftenau)	100%	Accessibility: Further implementation of accessibility at the Kundl and Schafftenau locations	Deadline: ongoing responsibility: P&O Country Head, P&O Site Heads
ERGs: Founding of the "Caring for Ukraine" ERG: Integration and assistance for Ukrainian refugees working at the Kundl/Schafftenau location	Appointment of an Integration Coordinator and establishment of the "Caring for Ukraine" ERG (employee resource group), which was honoured with the CEFIC (European Chemical Industry Council) Responsible Care Award 2022. Support for the integration of Ukrainian employees: Organisation of German courses; support from authorities, help finding housing (for employees from Ukraine, the costs of the housing for the first three months were covered), further qualification	100%	ERGs: Integration and further development of existing Ukrainian employees	

Employees/**Training and further training**/Kundl & Schafftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Revision and adaptation of HSE training SOP-8008885 (training matrix)	In the revision of SOP-8008885, the training requirements of external service providers were also specifically addressed. A matrix structure was established in training matrices to simplify the allocation of training to the various stakeholders.	100%	Offer of a management seminar with a special focus on responsibilities of the supervisor. Training focus with regard to VEXAT and dangerous material	Deadline: 31/12/2023 Responsibility: Campus & site HSE
Roll-out of the new Novartis safety database (HazCom) for the management of safety data sheets and material information	The roll-out of the new HazCom safety database has been completed, but there are still outstanding questions that are currently being resolved.	50%	Full availability of the new Novartis safety database (HazCom) for the management of safety data sheets and material information	
Expanded training and further education for Novartis employees, and also for companies that are located on the Kundl/Schafftenau campus. The Academy for Excellence in Life Sciences (AXILS GmbH) acts as an external partner.	The Academy for Excellence in Life Sciences (AXILS GmbH) was founded together with WIFI Tirol. The expertise of the Sandoz training centre was seamlessly transitioned to the new set-up on 01/03/2022, with the resources located in Kundl remaining fully integrated. Apprentices of Sandoz GmbH benefit from the extended services of AXILS GmbH.	100%		

Employees/Training and further education/Vienna

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Regular training of all employees according to specified standards via the Group's own learning system, external courses, work placements and foreign rotations.	Further courses and training were held and documented electronically.	100%	Regular training of all employees according to specified company standards (Group's own learning system, external courses, work placements and foreign rotations)	Deadline: ongoing responsibility: Employees, supervisors, HR

Environment/Kundl & Schafftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁵⁾	2023 PLAN	WHO & WHEN
Switch to environmentally friendly/sustainable hygiene products in the social areas	In cooperation with the Green Team ERG, we have switched to environmentally friendly products in the social areas. In addition to soap, only biodegradable tablets and detergents will be used at the locations in the future.	100%	Finalisation of the Novartis GOP implementation	Deadline: 31/12/2023 responsibility: CBRE
Reduction of waste to be disposed of by a further 4% through implemented projects	Waste generation was reduced by 8%.	100%		Deadline: 31/12/2023 responsibility: NTS, Veolia, Site Engineering, Production Operations
Finalisation of planning activities incl. start of construction of the new waste collection site in Kundl	The envisaged new site had to be redefined again due to transformation activities at the location; planning activities were able to be completed; construction only started in 2023	50%	Completion of the new central waste collection site and implementation of the additional measures required to be able to support several companies at the location with waste logistics	Deadline: 31/12/2023 responsibility: NTS, Veolia, HSE
Creation of a new waste logistics concept for the biologics area in Kundl	Due to new investment projects in the area of biologics, the concept could only be partially compiled and implemented.	50%	Finalisation of the waste logistics concept and start of operational implementation	Deadline: 31/12/2023 responsibility: NTS, Veolia, HSE
Continuation of the support of the Federal Environment Agency within the framework of ALSAG (Altlastensanierungsgesetz [Austrian Act on the Remediation of Contaminated Sites])	Support for phase 1 of the ALSAG investigation completed; very positive investigation result for Sandoz GmbH	100%	Continuation of support for phase 2 of the ALSAG investigation	Deadline: 31/12/2023 responsibility: HSE
Further implementation of the Green Team initiative to replace numerous lawns at the Kundl/Schafftenau campus after finalisation of investment projects	A larger area on the site in Kundl (approx. 7,000 m ²) could now be designated as an additional green area after corresponding demolition work.	100%	Recultivation (green spaces) of former container stations at the Kundl location	Deadline: 31/12/2023 responsibility: Green Team KUSCH, NBS REFS, CBRE
Final acquisition of the wastewater notice for the Schafftenau location	Final wastewater notice received	100%	Submission of a consensus increase to the water authority in 2023	Deadline: 31/12/2023 responsibility: NTS, Veolia
Implementation of the BARA extension according to schedule	Implementation despite difficult framework conditions (delivery times/pandemic/delivery bottlenecks) precisely on schedule	100%	Completion of the BARA extension	Deadline: 31/12/2023 responsibility: NTS, Veolia, HSE

5) Target achievement in percentages

Environment/Kundl & Schaftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁸⁾	2023 PLAN	WHO & WHEN
Reduction of wastewater volume to BARA Kundl by 4%	10% reduction could be achieved.	100%	Reduction of the wastewater volume by a further 4% through implemented projects (in total, the volume will increase due to the commissioning of new production processes)	Deadline: 31/12/2023 Responsibility: Operations, Veolia, HSE

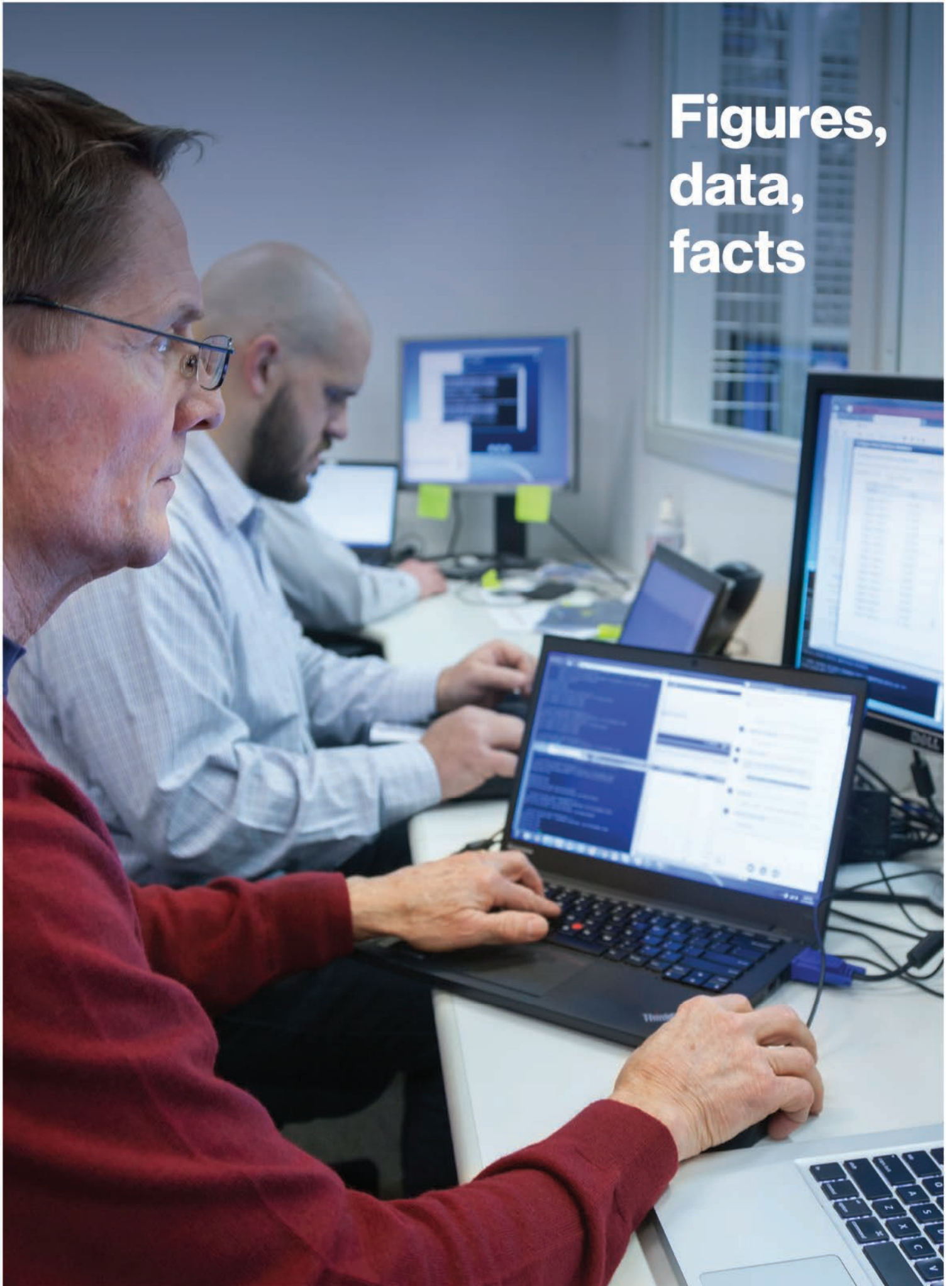
Environment/Vienna

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁸⁾	2023 PLAN	WHO & WHEN
Approval of the plan by Management NVS Austria (CLT), communication and training for drivers, roll-out of the first phase of the change	Approval of the plan by the new management of NVS IM, preparation of communication and roll-out, trial order and pilot deployment of BEVs (Battery Electric Vehicle)	50%	Implementation of the new car policy, communication to employees, start of regular ordering of BEVs	Deadline: 31/12/2023 responsibility: Country Head P&O, Country Head CSR

Energy/Kundl & Schaftenau

2022 GOALS	2022 RESULTS	TARGET ACHIEVEMENT [%] ⁸⁾	2023 PLAN	WHO & WHEN
Further reduction of energy consumption (electricity & gas) by 4% through implemented projects	Energy saving projects of 16,912 MWh were realised at the Kundl location in 2022. This corresponds to 4.3% of the energy requirement (based on 2022). In 2022, energy saving projects of 261 MWh were realised at the Schaftenau location. This corresponds to 0.23% of the energy requirement (based on 2022). At both locations together, 17,173 MWh were saved, which is 3.4%.	85%	Reduction in energy consumption (electricity & gas) by 6% through implemented projects	Deadline: 31/12/2023 responsibility: NTS, Site Engineering, Production Plants, HSE
Start of planning activities and creation of a detailed implementation plan for the decarbonisation initiative at Kundl and Schaftenau	Implementation plan for decarbonisation compiled.	100%	Detailed review of two selected projects from the decarbonisation plan: 1. Natural gas substitution by biomass at the Schaftenau 2 site. Low-temperature drying of fertilisers at the Kundl location	
Start of implementation of an initial photovoltaic system at the Kundl/Schaftenau location	The construction of two PV systems was commissioned in 2022. Installation will be in the 1st half of 2023 in Schaftenau (canteen and office building, total: approx. 200 kWp).	90%	Construction of at least one photovoltaic roof system in Kundl	Deadline: 31/12/2023 Responsibility: NTS, Site Development, HSE
Evaluation of additional energy saving projects in the processing of penicillins	Evaluation of the use of low-temperature hot water for drying sludge from the wastewater purification plant and mycelium completed (Bachelor's thesis).	100%	Evaluation of energy saving potential in the area of clean utilities (WFI, DBR)	Deadline: 31/12/2023 Responsibility: NTS, Veolia, Site Engineering, Production Operations

Figures, data, facts



Environment and resources

Kundl and Schaftenau

Resource use and production quantities

In 2022, Sandoz GmbH produced a quantity of 3,932 tonnes of active substances and intermediate products for pharmaceuticals at the Kundl and Schaftenau plants. Production of finished moulds was able to be raised again to pre-Covid-19 pandemic levels.

Growth inhibitors, thyronines, various biologic active substances and autoinjectors as modern dosage forms for

biologics were produced at unchanged levels in 2022. The production of 11,600 tonnes of fertiliser (Biosol® and Biosol Forte®) is in addition to this.

The following list provides an overview of the most important key figures that reflect the production output and the required use of resources.

SUBSTANCE AND ENERGY QUANTITIES	2016	2017	2018	2019	2020	2021	2022	2021 vs 2022
Production of active substances and intermediates Kundl [tonnes]	5687	5993	5048	4992	4498	4179	3903	-6.6%
Production of active substances and intermediates Schaftenau [tonnes]	1056	1050	924	1056	31	25	29	+18.0%
Fertiliser production [tonnes]	18,691	17,180	14,344	13,582	13,803	12,266	11,610	-5.4%
Raw material quantities [tonnes]	115,982	120,932	101,596	112,219	116,348	101,983	98,345	-3.6%
Electricity consumption [GWh]	323	331	294	278	264	239	240	+0.4%
Natural gas consumption [GWh]	326	353	319	317	309	284	271	-4.6%
Other heat energy sources [GWh]	11	11	10	11	8	4	3	-16.0%
Diesel for company vehicles [GWh]	2.1	2.8	2.5	1.5	1.1	1.1	1.0	6.3%
Total calorific energy [GWh]	339	367	332	330	319	289	275	-4.8%
Water use [million m³]	36.96	38.15	34.03	34.50	33.18	27.60	29.27	+6.0%

Raw materials

The most important raw materials used are sodium hydroxide, sucrose, glucose syrup, hydrochloric acid, sulphuric acid, organic solvents, lactose permeate, corn steep water and urea.

The following diagram shows the development of raw material consumption for Sandoz GmbH from 2016–2022 (annual mass flow of the key materials used in accordance with Appendix 4 of the EMAS III Regulation).

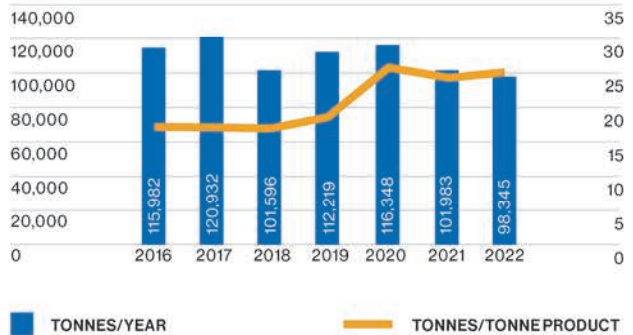
In 2022, the fermentation cycle for penicillin was extended from seven to nine days. This made it possible to achieve relevant savings in raw materials. The fungal mycelium now processes the raw materials even more efficiently. Conversely, this ultimately also means a reduced amount of fertiliser produced (Biosol). With a slightly reduced amount of 1.3% of penicillin in the fermentation broth, the amount of Biosol decreased accordingly by 6.6%. In addition, a significant amount of energy was saved for the required sterilisation processes during fermentation.

After the decline in raw material consumption in 2021 due to the transformation projects, the raw material demand in 2022 stabilised at just under 100,000 tonnes. The main driver for material use is the fermentation and processing of penicillin at the Kundl location. A significant increase in raw material requirements is expected with the start of full operation of the new penicillin production plant in Kundl in 2023.

The partially significant increase in the relative quantities in 2020 is mainly due to the above-mentioned adjustment of the coating system for veterinary antibiotics, which had led to a high product output with comparably low use of resources until 2019 in Schaftenau.

RAW MATERIAL USAGE

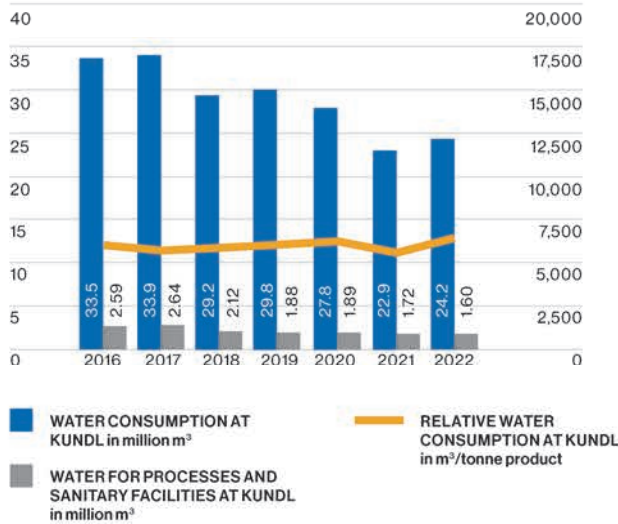
Kundl and Schaftenau



Water

WATER CONSUMPTION KUNDL

Absolute and relative



Despite almost the same production volumes, the consumption of process water was around 6% higher in 2022 than in the reference period for 2021.

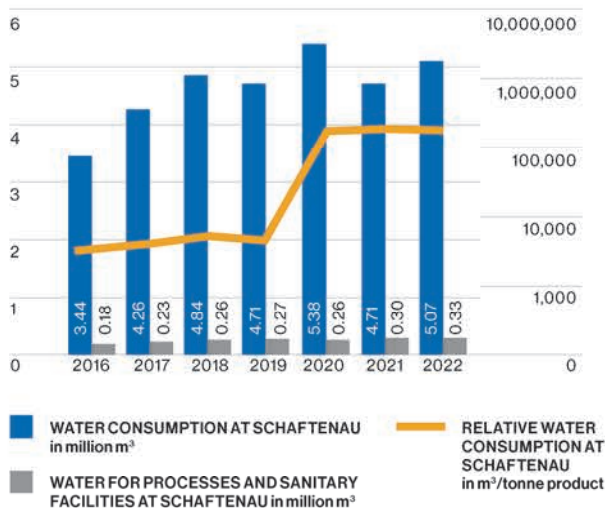
2022 was the warmest year in Kundl since 2010 on an annual average. From this point onwards, temperature data will be available continuously online within the company. The air conditioning systems and room ventilation systems for clean rooms of the production plants are operated almost exclusively using process water (directly or indirectly via refrigeration machines). The above-average outside temperatures have therefore had a noticeable effect on the use of process water.

In accordance with the notice, Sandoz GmbH Kundl has consent to use 1,730 l/s of process water. This consent is currently being exploited at around 45%. The process water in Kundl comes from eight in-house wells.

In accordance with the notice, Sandoz GmbH Kundl has consent to use 5186 m³/day of drinking water, which is extracted from two in-house deep wells.

WATER CONSUMPTION AT SCHAFTENAU

Absolute and relative



In accordance with permits under water legislation, Sandoz GmbH Schaftebau has consent to use a total of 417 l/s of process water. The Schaftebau location sources the process water from six in-house deep wells. The sixth deep well was successfully put into operation in 2022. Thus, sufficient capacities are available for the future development of the Schaftebau location.

The Schaftebau location sources its drinking water or water for the processes from the municipal water network. The amount of drinking water removed from the municipal network is already reaching its limits. An additional in-house deep well for drinking water is in the final planning phase in order to take into account future challenges.

The increase in relative water consumption results from the discontinuation of the very high volume coating plant for veterinary antibiotics in 2020.

Wastewater

The wastewater volumes and contaminate load shown below refer to process wastewater generated in Kundl and the associated contaminate load in the Inn river after wastewater treatment. Cooling wastewater, rainwater and sanitary wastewater are not included in the specified quantities.

The majority of the wastewater from Sandoz GmbH (approx. 80%) comes from the company's own wastewater purification plant in Kundl (BARA). The process wastewater of the production facilities from the Schaftebau plant is introduced into the Kufstein municipal wastewater purification plant and is not considered in more detail due to the relatively lower load rates.

All official permits required for these systems are available for the Kundl BARA. The runoff from the BARA is sampled and analysed daily. In addition, monthly analyses are carried out by an external laboratory. The table below shows a selection of the most important limits and parameters for discharge into the receiving watercourse of the Inn river and the results for 2022. The Kundl BARA showed excellent performance in 2022. The key figures prove that the organic load of the production wastewater in the Sandoz wastewater treatment plant is almost completely degraded. No limits were exceeded in 2022.

Description of limits	Limits Discharge parameters	2022 results
Total bound nitrogen TNb minimum efficiency	75%	Total efficiency 88.8%, all daily average values complied with
Ammonium concentration	≤20 [mg/l NH ₄ -N]	average concentration 2.4 [mg/l NH ₄ -N] All daily average values complied with
Ammonium monthly average load value	≤0.17 [t/d NH ₄ -N]	Average load 0.011 [t/d NH ₄ -N] All monthly average values complied with
Nitrite concentration	≤5 [mg/l NO ₂ -N]	Average concentration 0.63 [mg/l NO ₂ -N] All daily average values complied with
Nitrite monthly average load value	≤0.085 [t/d NO ₂ -N]	Average load 0.041 [t/d NO ₂ -N] All monthly average values complied with
Phosphorus total concentration	≤5 [mg/l P]	Average concentration 1.5 [mg/l P] All daily average values complied with
Sulphate concentration	≤9 [g/l SO ₄]	Average concentration 2.6 [g/l SO ₄] All daily average values complied with
Total organic carbon TOC minimum efficiency	90%	Overall efficiency 95.6% All daily average values complied with
Total organic carbon TOC concentration	≤300 [mg/l C]	average concentration 124 [mg/l C] All daily average values complied with
Chemical oxygen supply minimum efficiency	90%	Overall efficiency 95.4% All daily average values complied with
Chemical oxygen supply concentration	≤900 [mg/l O ₂]	Average concentration 378 [mg/l O ₂] All daily average values complied with
Chemical oxygen supply monthly average load value	≤6.60 [t/d O ₂]	Average load 4.1 [t/d O ₂] All monthly average values complied with
BSB5 concentration	≤40 [mg/l O ₂]	Average concentration 9.6 [mg/l O ₂] One-time breach of daily mean value (45 [mg/l O ₂])
BSB5 monthly average load value	≤0.51 [t/d O ₂]	Average load 0.04 [t/d O ₂] All monthly average values complied with
Undissolved solids monthly average value load	≤1.25 [t/d]	Average load 0.07 [t/d] All monthly average values complied with
pH value	6.5–8.5	One-time breach of a daily mean value (pH 8.7)
Temperature	≤35°C	<35°C

Since 2017, the total wastewater contaminate load has been declining, on the one hand due to the lower process-related load on the raw wastewater and, on the other hand, due to the improvement in purification performance of the Kundl BARA. The increased effluent load for the nitrogen parameter since 2019 is mainly associated with a slightly less favourable C/N ratio in the influent to the Kundl wastewater treatment plant. As already mentioned, BARA will be expanded by no later than December 2023 through the construction of a multi-strand “membrane activation system” with simultaneous conveyance of conventional secondary clarification.

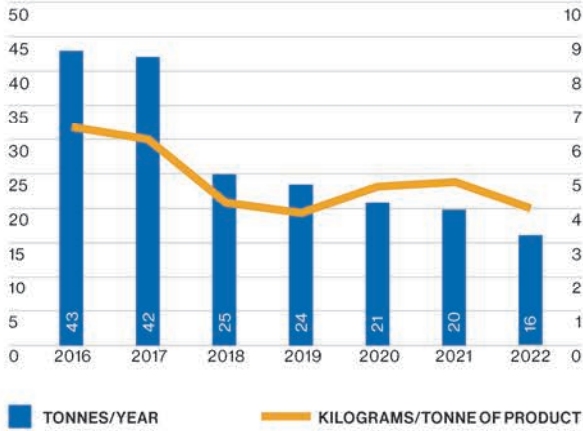
This enables the unfavourable C/N ratio to be effectively counteracted. Simultaneous to the commissioning of the membrane system, the limits in accordance with the notice will be significantly tightened.

WASTEWATER EMISSIONS

Runoff after wastewater treatment	2016	2017	2018	2019	2020	2021	2022	2021 vs 2022
Process wastewater/wastewater for treatment [1000 m ³ /year]	2684	2790	2294	2151	2147	2017	1932	-4.2%
Biochemical oxygen demand BOD5 [tonnes/year]	43	42	25	24	21	20	16	-20.8%
Chemical oxygen demand COD [tonnes/year]	1343	1294	777	709	658	625	636	+1.8%
Undissolved solids [tonnes/year]	106	95	44	35	35	38	27	-29.6%
Total nitrogen [tonnes/year]	133	136	93	106	115	120	141	+17.5%
Total phosphorus [tonnes/year]	6.6	7.6	4.0	3.5	3.0	3.4	3.0	-13.6%

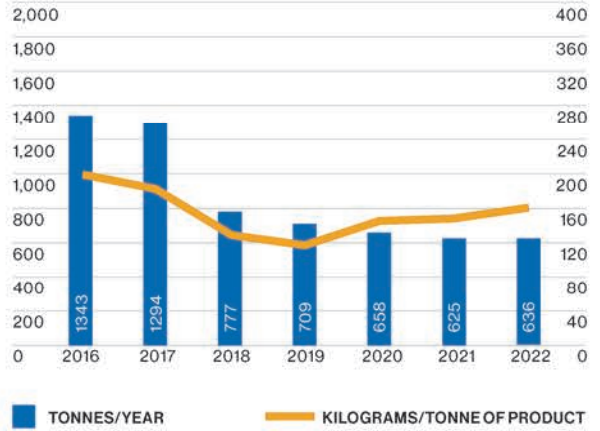
BIOCHEMICAL OXYGEN DEMAND (BOD5)

Discharge after Kundl BARA



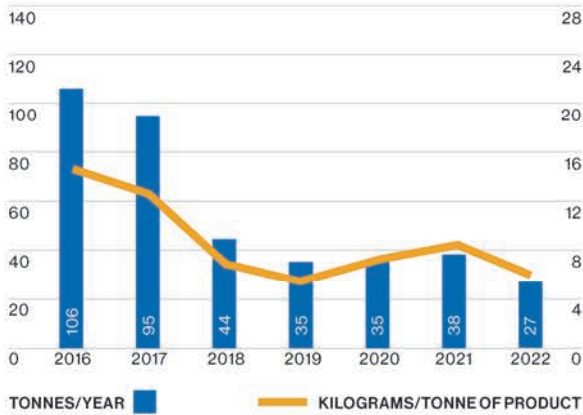
CHEMICAL OXYGEN DEMAND (COD)

Discharge after Kundl BARA



UNDISSOLVED SOLIDS

Discharge after Kundl BARA



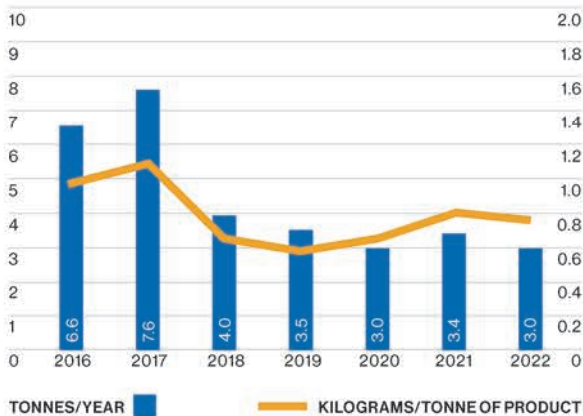
TOTAL NITROGEN

Discharge after Kundl BARA



TOTAL PHOSPHORUS

Discharge after Kundl BARA



Emissions into the atmosphere (exhaust air)

The amount of total direct annual emissions of greenhouse gases (Global Warming Potential GWP – indicated in CO₂ equivalents) into the atmosphere was 55,406 tonnes in 2022 for the Kundl and Schaftenu locations. Compared to 2021, this value means a reduction of 5%. The majority of this reduction can be attributed to the successful energy saving measures. In Schaftenu, an increase in gas consumption due to the continuing dynamic development of the site or production expansion in biologics was recorded. Since the production volume in Schaftenu is very low compared to Kundl, changes have an above-average effect on the volume-related emission factor. However, a slightly higher gas demand had to be accepted due to the significantly lower solvent load burned in the boiler houses.

The consistent implementation of energy efficiency projects is being continued.

Emissions of nitrogen oxides (NO_x) have not changed significantly in 2022 compared to 2021 and are at a level of approx. 38 tonnes/year.

Combustion gases are produced in the boiler houses when process steam is generated for production and in the exhaust air incineration plants to reduce solvent and odour emissions. The emissions of CO₂ and NO_x are largely determined by the total amount of thermal energy required in Kundl and Schaftenu for the produced amount of active substances and intermediates. With NO_x, the combustion conditions, such as oxygen content, temperature and dwell time in the combustion chamber play a role.

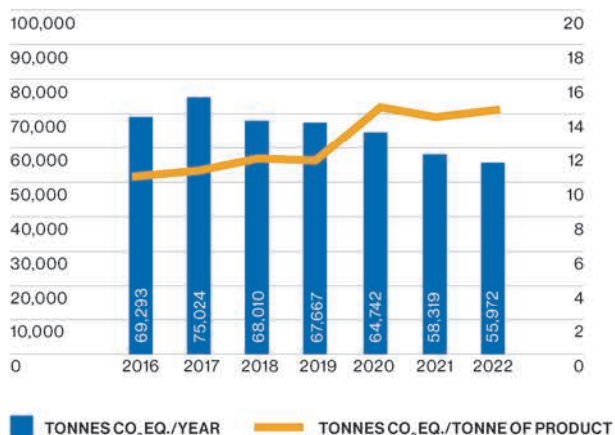
Sandoz GmbH has been using natural gas to generate steam energy for many years. Diesel is only used for the test operation of the emergency generators, apart from the operation of vehicles.

As a result of the Ukraine conflict and potential disruption to the natural gas supply, two steam boilers were converted to a dual fuel supply (natural gas/heating oil EL) at Kundl in 2022 and a mobile steam boiler was also installed. Dual fuel supply was already installed at Schaftenu in previous years. No heating oil needed to be burned in 2022 except for testing purposes.

The boilers and the exhaust air incineration systems are checked for nitrogen oxides (NO_x), carbon monoxide (CO) and dust in the exhaust gas at the intervals specified in the notice. Sulphur dioxide (SO₂ emissions) does not occur to a significant extent in either Kundl or Schaftenu because natural gas and no heating oil is used in normal operation. SO₂ emissions occur to a minimum extent during trial operation of the emergency generators. Dust emissions into the atmosphere are irrelevant due to the use of natural gas and highly efficient dust filters in the production facilities. Fortunately, there are also no significant emissions from electricity consumption since electricity has been purchased from 2014 that, in accordance with the proof of origin ordinance (Stromkennzeichnungsverordnung), is generated 100% from renewable energy sources and was therefore produced almost CO₂-neutrally.

TOTAL EMISSIONS OF GREENHOUSE GASES (CO₂ EQUIVALENT)

Kundl and Schaftenu



TOTAL ANNUAL EMISSIONS OF NITROGEN OXIDES (NO_x)

Kundl and Schaftenu



The total annual emissions of greenhouse gases (tonnes of CO₂ equivalents) include emissions of CO₂ and other greenhouse gases in accordance with the Kyoto Protocol⁶⁾, in particular refrigerants and SF₆ (CH₄ and N₂O not relevant for Sandoz GmbH).

Emission factors used: Natural gas: 0.0554 t CO₂/GJ; extra light heating oil/diesel: 0.0737 t CO₂/GJ; VOC: stoichiometrically evaluated factor depending on the solvent burned.

Absolute GHG emissions have declined since 2017.

Land usage

The Kundl plant premises comprise a total area of 268,061 m². Of this, 73,679 m², which is around 27%, has been built on.

green areas left in their natural state. Due to local conditions, the Schaftenau location offers more free space for future developments.

The premises in Schaftenau comprise 213,333 m² and are thus about a quarter smaller than the premises in Kundl. Of this, about 35,000 m² have been built on, which is only 16% of the total area. In addition to this information, the following table also shows the asphalted areas and the

As part of the restructuring measures at the Kundl location, an older production building will also be completely dismantled. By 2023, approximately 6,000 m² can be converted back into natural areas.

	TOTAL AREA USAGE [m ²]	BUILT-UP AREA [m ²]	ASPHALTED AREA [m ²]	TOTAL AREA USAGE [m ²]	TOTAL SEALED AREA [m ²]	PROPORTION SEALED [%]
Kundl	268,061	73,679	93,261	166,940	101,121	62
Schaftenau	213,333	34,776	63,583	98,359	114,974	46
Total	481,394	108,455	156,844	265,299	216,095	55

6) <https://unfccc.int/resource/docs/convkp/kpger.pdf>

Waste

In the past, the volume of waste produced by Sandoz GmbH has been largely determined by a few production processes with comparatively high specific volumes of waste generated. The number of such processes has significantly reduced in 2022. Only two production processes in Kundl still generate a high volume of specific, hazardous waste during seasonal operation. Most of the production processes are run throughout the year.

The total waste volume of Sandoz GmbH has been significantly reduced compared to the previous year from 7,103 tonnes to 6,452 tonnes. The reasons for this are various savings projects and the product portfolio in 2022.

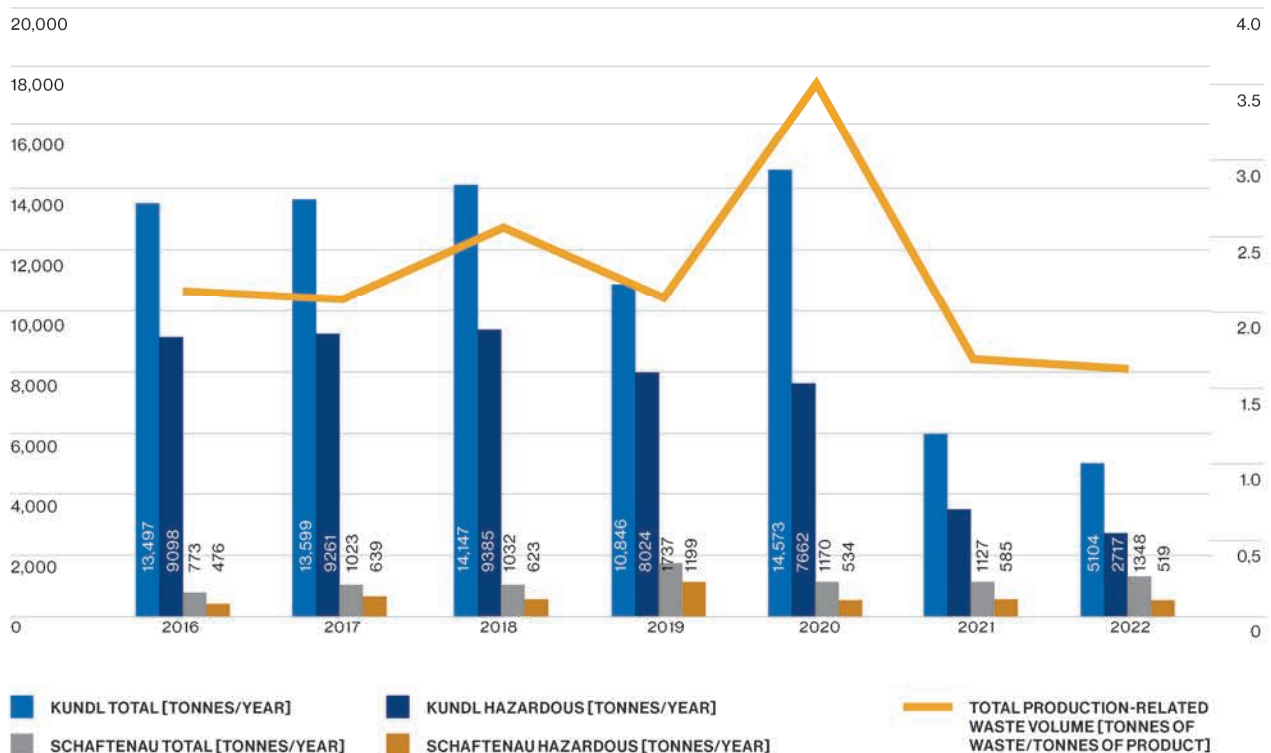
The tables on the following page provide an overview of the generation of the most important portions of waste.

The generation of hazardous waste is dominated largely by solvent waste, pharmaceutical waste, ethanol and “other aqueous concentrates”. Ethanol is added to an external distillation process as a large portion of waste.

The non-hazardous waste consists primarily of industrial waste similar to household waste and packaging waste (wood, plastics).

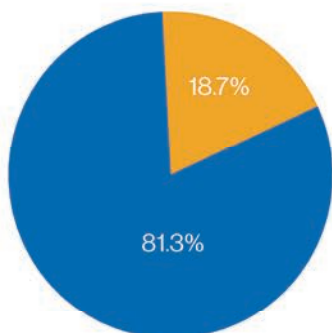
On average, 34% of the waste generated was able to be recycled in 2022, the rest was thermally processed. Thus, the recycling rate increased by approximately 6% compared to 2021. No waste from production reaches a landfill.

TOTAL WASTE VOLUME AT KUNDL AND SCHAFTENAU



DISPOSAL OF HAZARDOUS WASTE

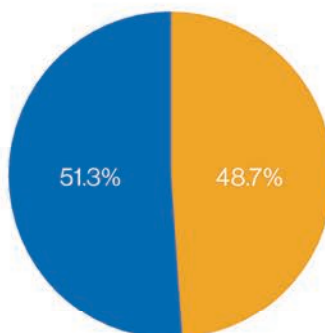
Kundl and Schaftenau 2022
Total: 3236 tonnes



■ INCINERATION
■ RECYCLING

DISPOSAL OF NON-HAZARDOUS WASTE

Kundl and Schaftenau 2022
Total: 3216 tonnes



■ INCINERATION
■ RECYCLING

MOST SIGNIFICANT PORTIONS HAZARDOUS WASTE

Kundl and Schaftenau 2022

Key no.	Waste type	Tonnes
55374	Solvent-water mixtures halogen-free	1011
53510	Pharmaceuticals, hazardous to water	938
55351	Ethanol	583
58201	Filter cloths, filter bags	215
53502	Production waste from the production of pharmaceuticals	181
57127	Plastic packaging and containers with hazardous residual contents	73
54122	Silicone oil	66
55370	Solvent mixtures without halogenated organic components	62
Various	Other hazardous waste	108

MOST SIGNIFICANT PORTIONS NON-HAZARDOUS WASTE

Kundl and Schaftenau 2022

Key no.	Waste type	Tonnes
91206	Construction site waste	1128
18718	Waste paper	745
57129	Other hardened plastic waste	330
91201	Packaging material and cardboard boxes	198
57118	Plastic packaging	121
35103	Iron and steel waste	117
17202	Construction and demolition wood	86
17201	Wood waste	85
Various	Other non-hazardous waste	405

Energy

Energy consumption

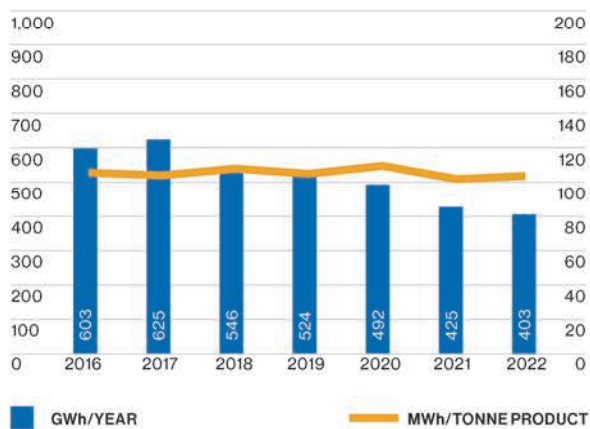
The table on page 54 summarises all significant energy sources for the Kundl and Schafftenau locations since 2016.

The total energy consumption in Kundl has been significantly reduced in recent years by a large number of energy efficiency projects. In addition, the elimination of particularly energy-intensive processes in the course of the transformation in Kundl has led to a significant reduction in the total energy demand.

In Schafftenau, the dynamic development of the site is also reflected in a corresponding increase in total energy consumption. Additional large cell production facilities have been put into operation in the last two years. A slight increase is also expected at this location in 2023.

The following diagrams summarise the changes in total direct energy consumption in Kundl and Schafftenau since 2016.

TOTAL ENERGY CONSUMPTION SANDOZ KUNDL



TOTAL ENERGY CONSUMPTION SANDOZ SCHAFTENAU



Energy

Natural gas	[GWh/year]						[%]		[GWh/t product]
	2016	2017	2018	2019	2020	2021	2022	2021 vs 2022	Relative 2022
Kundl	294	311	274	268	256	221	204	-7.7%	52
Schaftenau	31	42	45	49	53	63	69	+9.1%	2345
Total	326	353	319	317	309	284	273	-4.0%	69
Heating oil for boiler Schafteuau & Diesel for emergency power units									
Kundl	0.06	0.06	0.06	0.12	0.09	0.09	0.20	+116.8%	-
Schaftenau	0.06	0.08	0.42	0.62	0.30	0.05	0.04	-19.5%	-
Total	0.12	0.15	0.47	0.73	0.39	0.14	0.24	+68.7%	-
Energy release from combustion of exhaust air containing VOC									
Kundl	10.70	10.44	8.97	10.45	7.72	3.49	2.79	-20.0%	-
Schaftenau	0.12	0.24	0.06	0.01	0.01	0.01	0.01	-1.1%	-
Total	10.82	10.68	9.02	10.46	7.73	3.49	2.79	-20.0%	-
Diesel (for company vehicles)									
Energy consumption diesel	2.07	2.85	2.52	1.52	1.13	1.11	1.10	-0.8%	-
Electrical energy									
Kundl	296	300	260	244	227	200	195	-2.5%	50
Schaftenau	27	32	34	35	37	40	43	+7.0%	1446
Total	323	331	294	278	264	240	237	-1.0%	60
Total direct energy consumption									
Kundl	603	625	546	524	492	425	403	-5.3%	103
Schaftenau	59	74	80	84	90	103	112	+8.3%	3793
Total	662	698	626	608	582	529	514	-2.7%	131
Percentage of electricity from renewable energy sources according to TIWAG (Tiroler Wasserkraft AG) [%]	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		
Percentage of total consumption from renewable energy sources [%]	49%	47%	47%	46%	45%	45%	46%		

Electricity - supply mix

Power consumption in Kundl has been falling significantly for years due to many energy saving initiatives. In Schaftenau, electricity consumption has increased noticeably in recent years due to the continuous expansion of the location, although a large number of energy saving measures are also being implemented at our plant in Schaftenau.

For several years, the electricity used in Kundl and Schaftenau has come exclusively from renewable energy sources, as reported by the electricity supplier. In 2022, over 87% of the electricity was generated from hydropower, with the remainder coming primarily from wind energy and photovoltaics.

The proportion of renewable energy consumed in 2022 in total energy consumption (electricity + natural gas + other energy sources) was thus around 46%.

2022 SUPPLY MIX REFERENCE

in accordance with Electricity Labelling Ordinance (Stromkennzeichnungsverordnung)

Energy source	2022
Hydropower	87.29%
Wind energy	8.56%
Photovoltaics	1.44%
Solid or liquid biomass	1.45%
Other eco-energy	0.96%
Total electricity from renewable energy sources	100%

Effectiveness of energy saving measures

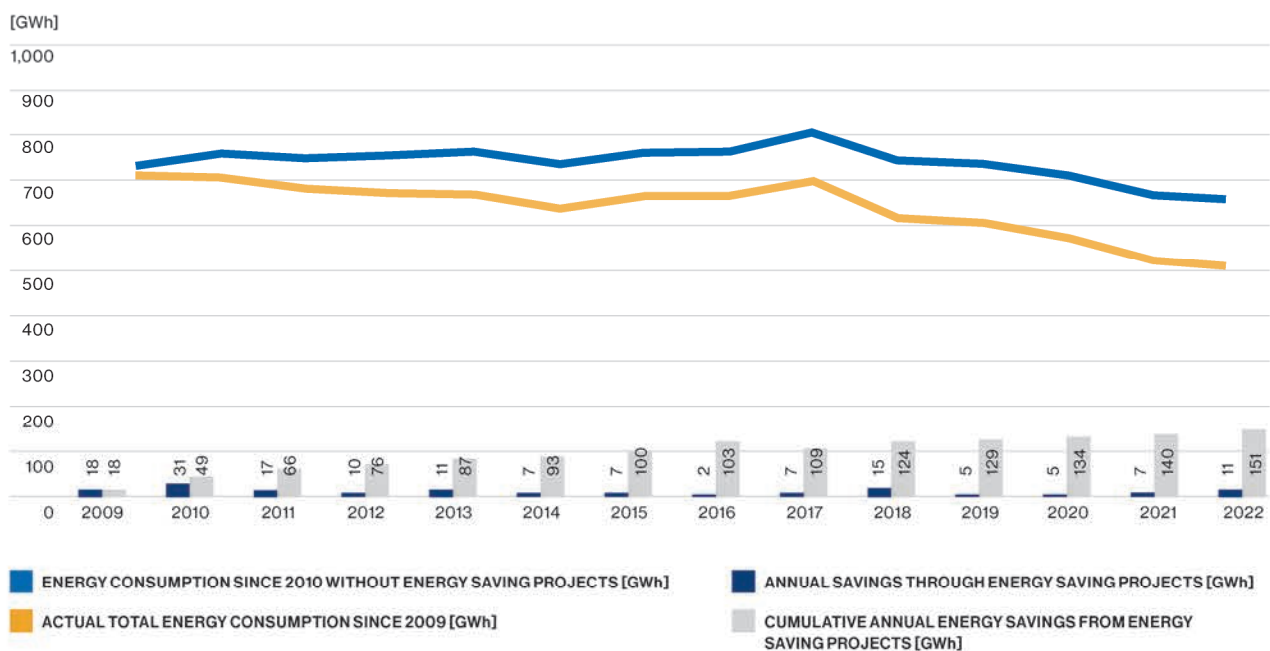
Energy saving measures have always been at the forefront of annual targets. However, due to the low energy prices, the economic conditions were very unfavourable. Since mid-2021, energy prices have risen significantly at an above-average rate. The Ukraine conflict has once again fuelled this trend to a great extent. This is why energy saving measures, which were put on hold in the past due to poor economic grounds, have been put back on the agenda. The Group requirements are also significantly more ambitious.

It is worth highlighting that energy efficiency projects amounting to around 1-1.5% of Sandoz GmbH's total energy requirements are being implemented every year in Kundl and in Schaftenau, otherwise energy consumption would make much less progress. In 2022, energy saving projects were able to deliver savings of 11 MWh/year.

The following diagram shows how energy optimisation measures have affected the total energy consumption of Sandoz GmbH since 2009.

TOTAL ENERGY CONSUMPTION SINCE 2009 / CUSTOMER AND SCHAFTENAU

with and without energy saving projects



Occupational health and safety

Key data for work-related accidents and illnesses are recorded at Novartis in a database (HSE-NET) in the same way as environmental data. Occupational safety data is recorded both for Sandoz GmbH employees and for leased employees and external company employees working on site. Since 2014, the most important key figures have been evaluated overall, i.e. including leased employees.

The significant increase in the total number of work-related injuries in 2020 could be brought back to a very low level by means of suitable countermeasures, such as raising awareness and strengthening the safety culture.

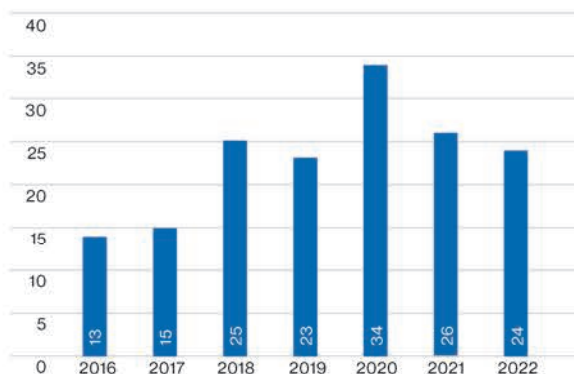
The increased rate in lost days is due to a work accident with a long recovery time. However, it is significant that there has been no work accident with fatal consequences at Sandoz GmbH in 2022, as has been the case for many years.

Justification as to why accident figures have jumped from 2017 to 2018:

By eliminating the key figures in the area of occupational safety, it was possible to include minor accidents in the statistics; this explains the jump in 2018.

NUMBER OF WORK-RELATED INJURIES FOR SANDOZ GMBH EMPLOYEES

Since 2014 incl. leased personnel



OCCUPATIONAL SAFETY INDICATORS FOR SANDOZ GMBH EMPLOYEES

(incl. leased personnel)

	2016	2017	2018	2019	2020	2021	2022
Total number of work-related injuries [number]	13	15	25	23	34	26	24
Lost days due to injuries [days]	49	31	62	128	99	197	251
Occupational accidents resulting in death [number]	0	0	0	0	0	0	0
Work hours completed [hours]	7,132,937	7,362,940	7,489,758	7,284,889	7,450,509	7,328,469	7,698,337
Injury rate – Total recordable case rate TRCR	0.36	0.41	0.67	0.63	0.91	0.71	0.62
Lost time injury and illness rate LTIR	0.11	0.24	0.40	0.44	0.59	0.41	0.47

Key internal indices LTIR and TRCR

Lost time injury and illness rate (LTIR)

This indicator expresses the number of work-related accidents and illnesses with lost working hours in relation to the total working hours worked. The reference value at Sandoz GmbH is 200,000 working hours.

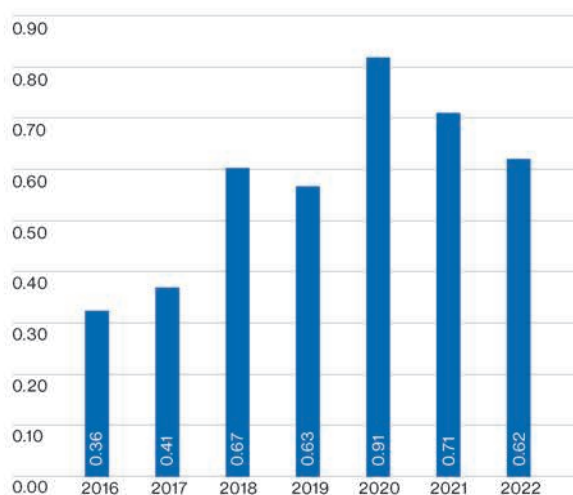
A look at the accident statistics for all participants in the Responsible Care programme of the chemical industry shows that Sandoz GmbH is at a pleasingly low level in terms of accident figures. For example, for this sector in 2022, which tracks approximately 900,000 employees in Europe, an LTIR value of 1.18 based on 200,000 working hours is given. Sandoz is well below the industry average across Europe with a value of 0.47 in 2022.

Injury rate – total recordable case rate (TRCR)

The injury rate (TRCR), which is calculated in the same way as the LTIR value using the reference value of 200,000 working hours, also includes accidents without lost working hours. The negative trend of 2020 was successfully counteracted by appropriate safety campaigns.

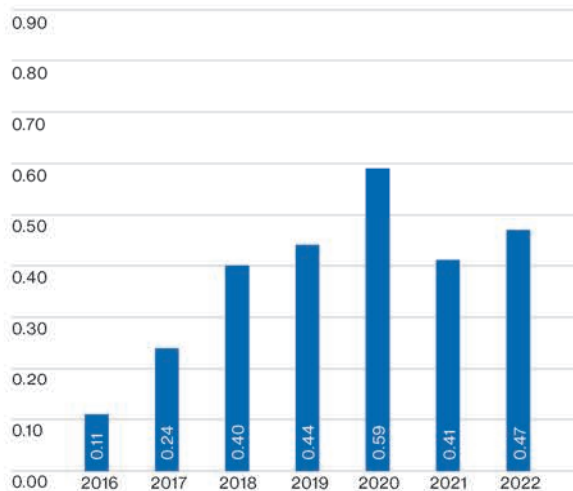
EMPLOYEE INJURY RATE SANDOZ GMBH

Total recordable case rate (TRCR)



RATE OF WORK-RELATED INJURIES AND ILLNESSES WITH LOST WORKING TIME

Lost time injury and illness rate (LTIR)



HSE key figures for the Vienna location

The company's registered office in Vienna has been in a new office since September 2020, which now only accounts for 50% of the previous space. This significantly reduces the ecological footprint. In running the office, care is taken to prevent waste and plastic, e. g. by avoiding PET bottles and disposable cups or disposable ballpoint pens. Coffee and fruit are provided to employees free of charge and come from regional sources or are fair trade.

All electricity is obtained exclusively from hydropower; the building is heated via district heating. The significantly reduced energy consumption in 2022 is due to the arrangement for working from home during the coronavirus pandemic.

In 2023, a new vehicle fleet arrangement is to come into force, according to which new vehicles purchased will be largely emission-free. This should reduce CO₂ emissions from the company fleet by 40% by 2025.

ENVIRONMENTAL AND OCCUPATIONAL SAFETY INDICATORS

INDICATOR	2020	2021	2022
Water consumption [m ³]	4908 m ³	3445 m ³	4167 m³
Wastewater discharge channel [m ³]	4908 m ³	3445 m ³	4167 m³
Gas consumption [GJ]	0	0	0
Electricity consumption [GJ]	3264 GJ	732 GJ	2778 GJ
of which electricity from renewable energy [GJ]	3264 GJ	717 GJ	2722 GJ
Greenhouse gas emissions [t CO ₂ equivalents]	728 tCO ₂ e	1110 tCO ₂ e	1298 tCO₂e
of which CO ₂ emissions from the fleet [t CO ₂ equivalents]	728 tCO ₂ e	1110 tCO ₂ e	1298 tCO₂e
Hazardous waste ⁷⁾	No data	0	0
Non-hazardous waste ⁷⁾	No data	28	42
TRCR Novartis employees & leased employees	0	0	0.26
LTIR employees & leased employees	0	0	0.26
Novartis employees (FTE)	423 no.	402 no.	371 no.
Hours worked	790,570 h	807,900 h	743,985 h
Occupational accidents resulting in death	0	0	0
Number of accidents at work without lost working time	0	0	0
Number of accidents at work with lost working time	0	0	1
Number of work-related illnesses without lost working time	0	0	0
Number of occupational illnesses with lost working time	0	0	0

⁷⁾ Collection of waste by Vienna municipal waste collection service

Environmental expert statement on the assessment and validation activities

The undersigned, Dipl. Ing. Peter Kroiß, Head of the EMAS environmental verifier organisation, TÜV AUSTRIA CERT GMBH, located at Deutschstraße 10, 1230 Vienna, Austria, an EMAS environmental expert with registration number AT-V-0008, accredited for the

Area of “21 Manufacture of pharmaceutical products” confirms to have verified whether the entire organisation, as described in the updated Environmental Statement of

Sandoz GmbH, 6250 Kundl, Biochemiestraße 10 and Sandoz GmbH, 6336 Schaftenau, Biochemiestraße 10

with registration number AT-000123, meets all of the requirements of Regulation (EC) No. 1221/2009 of the European Parliament and of the Council of 25 November 2009 in the version dated 19 December 2018 (Document EU-2018/2026) on the voluntary participation by organisations in a community eco-management and audit scheme (EMAS).

By signing this declaration, I hereby declare that:

- The verification and validation has been executed 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 the applicable environmental regulations,
- The data and information in the updated Environmental Statement of Sandoz GmbH provide a reliable, credible and truthful picture of all activities of the organisation within the area specified in the Environmental Statement.

This declaration is not equivalent to EMAS registration. EMAS registration can only be granted by a competent authority in accordance with Regulation (EC) No. 1221/2009. This declaration may not be used as an independent basis for informing the public.

This Sustainability Report goes beyond the requirements of the EMAS regulation. In particular, it contains information on the topics of occupational safety and social responsibility and, additionally since 2021, information on the sales office in Vienna not covered by the certification. Sandoz GmbH is also certified by TÜV Austria in accordance with ISO 45001. The lead auditor for EMAS is himself a safety expert and senior auditor for health and safety management systems. The statements in the Sustainability Report on occupational safety and social responsibility were therefore audited as part of the certification in accordance with ISO 45001.

Vienna, 03/07/2023



Dipl. Ing. Peter Kroiß, Senior Auditor


Anton Gerdenitsch,
MSC Management Board of Sandoz GmbH


Dr Wolfgang Bonitz,
Head of Corporate Social Responsibility


Manfred Paulitsch,
Environmental & Sustainability Manager

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