Consolidated Environmental Statement 2025

Bayer Bergkamen site

To improve readability, this brochure uses gender-neutral language.

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Dear reader,

At the heart of Bayer's actions lie two major social challenges – providing health care and securing food supplies for the world's growing population. We firmly believe that we can only help tackle these challenges if economic success and sustainability go hand in hand. This is why sustainability is part of Bayer's corporate strategy and firmly integrated into our day-to-day workflows.

We can only be successful if what we do benefits both our customers and society as a whole. In particular, these benefits include the health and safety of everyone employed at the Bergkamen site and the people living in the surrounding area, protecting the environment and conserving natural resources. To do justice to the full scope of this commitment, Bayer not only produces active pharmaceutical ingredients at its Bergkamen site in compliance with clear legal requirements and self-imposed rules, but also exercises corporate responsibility along its entire value chain.

When it comes to environmental protection, every single step is governed by the requirements of our systematic environmental management system. This extends from the procurement, processing and use of raw materials and energy to the storage and shipment of finished products. In this way, we pursue business practices that center on collaboration and dialogue in favor of protecting the environment and integrate everyone involved – including external partners. The safety of our employees, our products, the environment and our neighbors in the area surrounding the site has top priority in this respect.

Adopting an economical approach to resources and energy constitutes another key focus for us. You can find detailed explanations and examples of Bayer's commitment to these issues inside this brochure. We regularly commission independent institutions and external auditors to scrutinize our efforts to further advance environmental and climate protection through innovations and improvements to processes.

We document our achievements by publishing this Environmental Statement. At the same time, we undertake to further improve safety, environmental protection and sustainability and, in particular, to further contribute to reducing greenhouse gas emissions. The site management team – and, indeed, all managers – have a particular responsibility in this respect to continuously develop the safety programs and environmental initiatives organized at the Bergkamen site.

The considerable progress our company has made over the past 160+ years strengthens our resolve to continue with our strategy that is focused on sustainability. Our corporate mission puts it in a nutshell – with our products and services, we aim to help improve the lives of people around the world and protect our essential natural resources. "Health for all, Hunger for none"

Dr. Thomas Wessa
Head of Supply Center Bergkamen

Denis Panknin
Bergkamen Site Manager

Thomas Wessa, Head of Supply Center Bergkamen (left) and Denis Panknin, Bergkamen Site Manager

The Bayer Bergkamen site

Site

Bergkamen is home to Bayer AG's largest site for manufacturing active pharmaceutical ingredients. Around 1,500 employees work here, manufacturing ultrapure active ingredients and intermediates for further processing at the company and also, to a limited extent, for third parties. The works premises cover just under 110 hectares and are located in the north-eastern part of Germany's Ruhr region between the cities of Dortmund and Hamm. Active ingredients have been manufactured here for over 60 years.

A good two thirds of the over 100-hectare site has been developed. The remaining area is available for expanding existing installations and building new ones.

In 1959, Schering AG purchased Chemische Werke Bergkamen to expand its production beyond the narrow confines of West Berlin, which was an exclave of West Germany at the time. The production of active pharmaceutical ingredients started two and a half years after the foundation stone had been laid on April 2, 1962. This marked the start of an industrial company that is now firmly established as the region's largest employer and one of its biggest training providers. Having become part of Bayer AG in 2006, Supply Center Bergkamen, which focuses on hormones and contrast media and also includes a micronization facility in Berlin, is not only Bayer's biggest production site for active pharmaceutical ingredients, but also one of the world's largest and most state-of-the-art production sites. Active ingredients for innovative treatments have also been manufactured in Bergkamen to a greater extent for a few years now.

In Bergkamen, Bayer currently operates four chemical production facilities that were combined to form the "PUABE" operational cluster when the new Bayer-wide "Dynamic Shared Ownership (DSO)" operating model was created out of the PUA, PUB and PUE facilities at the start of 2025. The PUF X-ray contrast media facility was also merged with the distillation facility to create the "Radiology + Solvents" cluster. The aim of these organizational measures is to ensure even greater speed and efficiency in production.

There is also a microbiological production/processing facility, as well as a microbiological Technical Service Center, in which new processes are prepared for use in production and established processes are enhanced – including with genetically modified organisms. According to § 7 of Germany's Genetic Engineering Safety Ordinance (GenTSV), the relevant premises are classified as safety level S1 (no risk).

Besides the chemical production facilities and the microbiology operations, there are various supply and disposal facilities, in particular the power plant, the thermal afterburner for exhaust gases, the hazardous waste incinerator and the central wastewater treatment plant. These facilities are sometimes also made available to LANXESS Organometallics GmbH and Huntsman Advanced Materials Deutschland GmbH, other companies based at the works premises.

Products with active ingredients "Made in Bergkamen"

Numerous Bayer products contain active pharmaceutical ingredients (APIs) produced in Bergkamen. In total, the active ingredients for products manufactured by Bayer in Bergkamen generate global sales in the mid-single-digit billions of euros.

Over recent decades, the Bergkamen site has developed outstanding expertise in the production of steroid active ingredients and X-ray contrast media. The steroid active ingredients are used for various hormone replacement therapies and contraceptives, while the contrast media are used in medical imaging to support diagnostic tests.

Recently, this product portfolio has been expanded to include therapeutic agents as the "third pillar" at this site. These include an active ingredient used to treat patients with chronic kidney disease and an active ingredient (currently in clinical development) that is intended to treat vasomotor symptoms (VMS, hot flashes) associated with the menopause.

Product stewardship

As a manufacturer of active pharmaceutical ingredients, we feel especially committed to human health and environmental protection, over and above the scope of legal requirements. In addition to innovation, growth and cost-efficiency, sustainability is therefore an equally important part of our corporate goals.

For around three decades now, the issue of pharmaceuticals in the environment has occupied scientists and the general public alike. Concerns regarding the environmental impact of pharmaceutical substances have led to numerous studies being conducted at national and international level. Bayer started providing the responsible authorities with environmental risk assessments of pharmaceuticals for human use at an early stage. Active ingredients that have already been launched on the market are also assessed on an ongoing basis.

Bayer has set itself the goal of analyzing potential environmental risks of active pharmaceutical ingredients even more closely so as to produce a more differentiated evaluation. To this end, we are systematically expanding the database of environmental properties – for example, with tests on pharmaceuticals' ecotoxicity, spreading patterns and degradation behavior. In connection with the approval process for human and veterinary pharmaceuticals in Europe and the United States, an environmental risk assessment is also conducted for all new active ingredients. Active pharmaceutical ingredients can enter the environment through human and animal excreta, through improper disposal or during production. Surface waters are particularly relevant here. Our compliance with wastewater thresholds is reviewed by supervisory authorities and external auditors, as well as by internal experts who conduct on-site audits at regular intervals. To further reduce or completely exclude the release of traces of active ingredients into the environment, we take further action in our production facilities.

Beyond this, Bayer participates in various research projects to develop further reduction measures, such as PREMIER (Prioritisation and Risk Evaluation of Medicines in the EnviRonment), a project initiated with the IMI (Innovative Medicines Initiative) in 2020 that focuses on assessing and reducing the risk posed by pharmaceuticals in the environment.

In recent years, Bergkamen has made substantial investments in optimized technological solutions for treating waste air and wastewater. One example is the modernization of our wastewater treatment plant, with a particular focus on the retention of hormone active ingredients and iodized X-ray contrast media.

Ultrafiltration is setting new standards. The plant is able to retain all biomass from biological wastewater treatment.

Environmental protection investments

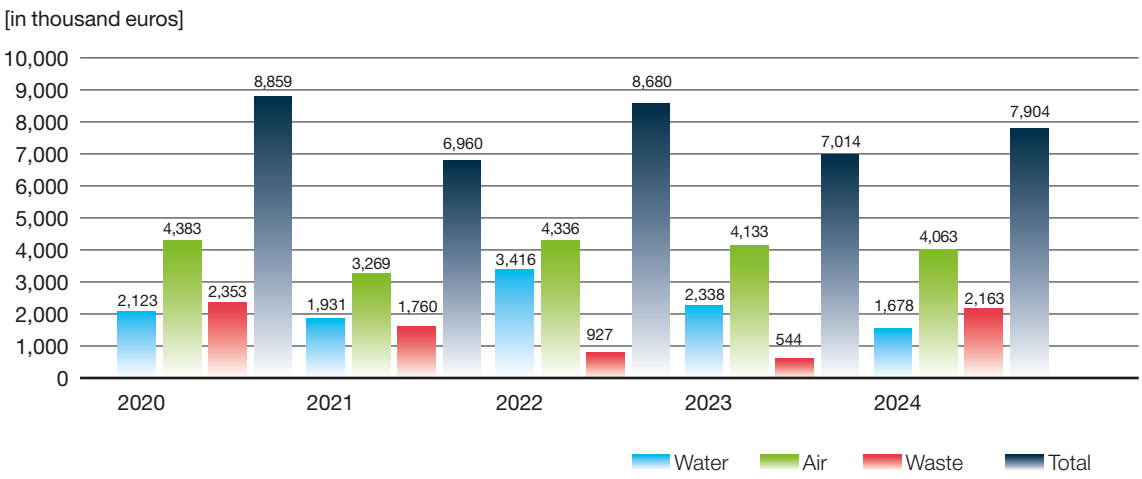


Fig. 1: Environmental protection investments by purpose in the period 2020 to 2024.

Despite numerous studies on the presence of active ingredients from hormone production in the aquatic environment, it has not yet been possible to produce a conclusive assessment of the impact on aqueous ecosystems. As early as 1998, we therefore resolved in Bergkamen to collect all wastewater from ethinyl estradiol production separately and incinerate it. This rules out any emission of artificial hormone components from these operations.

Wastewater is also generated during the manufacture of X-ray contrast media. As diagnostic agents, the iodized contrast media that may still be contained in this water in trace form are biologically inert because of the way in which they work. Despite the fact that they have been shown to be ecotoxicologically safe, we assess the wastewater from each iopromide stage separately as a precaution. In recent years, we have also developed processes to significantly reduce the discharge of iopromide stages into the wastewater treatment plant while also enabling the iodine they contain to be recycled. In addition to this, we have installed a plant specifically to recover organically bound iodine from the wastewater.

We have worked with an external partner to develop an appropriate plant concept that will also enable us to recover gadolinium from the wastewater produced during contrast medium synthesis. The approval documents are currently being drawn up and we are working on the contract with the external partner for the recovery process, which is scheduled to start in 2026.

Our efforts to avoid having an environmental impact are not restricted to our production operations. We take the same approach throughout the product life cycle – all the way through to safe disposal or recycling. As part of our re:contrast program, for example, we take back product residues of our iodinated X-ray contrast medium and our gadolinium-containing contrast medium from our customers. This makes it possible to avoid unnecessary environmental discharges and to reuse the iodine or gadolinium properly in an industrial cycle.

Collecting unused contrast media residues from medical practices, hospitals and radiology centers in this way makes it possible to reuse the iodine or gadolinium they contain.

Production processes

There are virtually no overlaps between the manufacture of hormones and contrast media. When it comes to X-ray and MRI contrast media, handling large volumes safely is a key aspect of operations. As much iodine as possible needs to be incorporated into the contrast medium molecule so as to optimize the contrast for the doctor performing the examination.

The situation for hormones is completely different. These active ingredients are produced in comparatively small quantities, in an extremely complex process with up to 19 different synthesis stages. The close networking of microbiological and chemical

production is vital, because key intermediate stages during the long process of creating the finished active ingredient involve microorganisms such as bacteria, fungi and yeasts.

Depending on the active ingredient to be manufactured and the quantity required, reactors, centrifuges, dryers and other equipment are combined to create various production lines. Several such lines are normally operated in parallel. In some cases, their outputs vary significantly according to the batch size, run time and yield of the individual synthesis stages.

The duration of a campaign – i.e. the period during which a product is manufactured – is equally variable. It can take anything from a few days to several months. The individual plant components need to be cleaned before a new campaign starts. The scope and intensity of this procedure depend on the international requirements of pharmaceutical legislation. In recent years, a number of plants have been taken into operation where production is no longer in campaigns but more or less continuous.

At most active ingredient facilities, the production flow runs from top to bottom to make use of gravity. The upper floors are used for chemical reactions and product processing, while isolation, drying and filling operations are located on the lower floors. This means the entire production process, including packing, takes place in a largely closed system.

Planning and licensing legislation

The works premises are surrounded by areas with different classifications – the Beversee conservation area to the north, a landscape conservation area and two settlements to the east, a commercial and residential area to the south, and a landscape conservation area and a slag heap designated as a local recreational area to the west.

The site is designated as an industrial area in the town of Bergkamen's land utilization plan. The companies LANXESS Organometallics GmbH and Huntsman Advanced Materials Deutschland GmbH account for 15 of the 67 hectares that have been developed.

Automated plants with cutting-edge process control systems help minimize waste volumes by ensuring an efficient production process – from the very first batch to filling of the finished active ingredient.

Implementing Article 13 of the Seveso III Directive (settlement monitoring)

The Seveso III Directive takes its name from a town in northern Italy where a serious industrial accident occurred in 1976. Its aim is to prevent such incidents and limit their consequences. To this end, Article 13 stipulates that areas with large quantities of hazardous substances must be located a reasonable distance away from any schools, kindergartens, major transport routes, etc. that require particular protection.

The Seveso III Directive and the equivalent German legislation – the “Störfallverordnung” (StörfallV = Major Incidents Ordinance) – apply equally to Bayer AG, LANXESS Organometallics GmbH and Huntsman Advanced Materials Deutschland GmbH.

With the approval of Arnsberg District Authority, the companies and the town of Bergkamen have reached an agreement for implementing the Directive. The purpose of this agreement is to ensure their safe coexistence as envisaged in the Directive. The Directive not only safeguards existing buildings and current construction projects, but also offers legal security for future plans, without affecting the high level of safety and protection for employees and the local community. The agreement between the companies involved and the municipality thus forms the basis for urban development in the immediate vicinity of the works and the development of the chemical site. Since other measures have been implemented to increase safety standards, including by Bayer AG, it was possible to reduce the safety buffer in one area. In 2021, this led to an amendment to the agreement, providing the town of Bergkamen with additional development options in the area around the site. The precise course of the SEVESO-III-compliant safety buffer between the town of Bergkamen and the chemical industry is shown in the land utilization plan.

Industrial Emissions Directive (IED)

The Industrial Emissions Directive (Directive 2010/75/EU) sets out the regulations pertaining to the control of emissions in Europe. It covers the approval, operation, monitoring and decommissioning of industrial installations. This directive further develops the guiding principle of sustainable production, with the aim of achieving a high level of protection for the environment as a whole. Besides harmful emissions into air, water and soil, other aspects of production processes also need to be taken into account in order to reduce use of resources and lessen other forms of environmental impact, both during operations and after the decommissioning of an industrial installation.

Bayer currently operates 11 installations in Bergkamen that come under the Industrial Emissions Directive, including all the active ingredient facilities, the microbiology facility with Technical Service Center, the wastewater treatment plant, the power plant, the distillation facility, the hazardous waste incinerator and the new waste interim storage facility. Our management system covers all these plants and facilities.

In 2024, a new version of the Industrial Emissions Directive was enacted (Directive (EU) 2024/1785), setting out new requirements for operators of installations. These include the mandatory implementation of an environmental management system. The environmental management system that Bayer rolled out in Bergkamen back in 1999 in conformity with EMAS (the EU Eco-Management and Audit Scheme), and which it has continuously developed further, complies with these requirements.

The IED also sets out specific requirements as regards monitoring by the state. For example, the installations undergo environmental inspections by the authorities at regular intervals. During thorough on-site inspections, monitoring priorities are set and particular attention is paid to parts of the installation that the completed risk assessment has identified as being particularly relevant in terms of environmental risk. Other elements, including reports and the management system, are also inspected. During the period 2022 to 2024, a total of 13 such environmental inspections were conducted at the Bayer Bergkamen site. No deficiencies were found at any of these inspections.

The inspection reports are published online by the competent authority – Arnsberg District Authority – and are available to view there.

Environmental policy and other aspects of the management system

Encouraging sustainable development is an integral part of Bayer's corporate policy. We consider economy, ecology and corporate social responsibility to be equally important in all our activities. By voluntarily taking part in the chemical industry's "Responsible Care" initiative and implementing Bayer's own HSE (health, safety and environment) regulations, as summarized in the document "HSE Key Requirements Act Safe and Sustainable!", we aim to achieve continuous improvement in the fields of health, safety and the environment.

For the Bergkamen site, this means:

- Continuously improving environmental protection, climate protection and occupational safety.
- Conserving natural resources and using energy efficiently so as to reduce environmental pollution.
- Seeing occupational health & safety and environmental protection as a management task. Our management staff encourage employees to demonstrate a personal sense of responsibility toward the environment and make them more aware of possible environmental pollution and safety risks.
- Ensuring strict compliance with laws, ordinances, our voluntary undertakings and guidelines.
- Preventing accidents, guarding against occupational diseases and designing workplaces in line with ergonomic principles.
- Going beyond technical and economic requirements to support the physical and social well-being of our employees by applying occupational health management principles when designing workplaces.
- Endeavoring to optimize safety when planning, procuring, installing and operating our plants, and to improve their energy-related performance.
- Taking environmental protection and occupational safety requirements into account when assessing and selecting service providers, suppliers, freight companies, dealers and other partners. In this regard, we prefer to acquire and use products and services that are energy-efficient.
- Engaging in open dialogue with the workforce, our neighbors and the public so as to improve mutual understanding and strengthen trust in our responsible actions.
- Ensuring the availability of information and all resources needed to achieve our strategic and operational objectives.
- Reviewing this corporate policy on a regular basis and updating it where necessary.

The entire management team at the Bergkamen site has undertaken to uphold this corporate policy.

Motivated staff are key to a successful management system.

Organizational measures

As a global company, Bayer has set itself high standards for achieving its objectives and regularly checks they are being complied with. All relevant requirements resulting from the quality, safety and environmental standards are described in a management system that takes into account international standards such as the EMAS regulation and DIN EN ISO 14001 (both for environmental protection), DIN EN ISO 45001 (for occupational safety) and DIN EN ISO 50001 (for energy).

The management system focuses in particular on the clear assignment of responsibilities. Member of the Board of Management Stefan Oelrich is responsible for environmental protection, health and safety.

On January 1, 2024, the Site Management & Infrastructure Services (SM&IS) function was set up, merging the infrastructure and service divisions of the Bergkamen, Berlin and Wuppertal pharmaceutical sites at an organizational level.

At the Bayer Bergkamen site, Site Manager Denis Panknin and Head of Supply Center Thomas Wessa are responsible for the application and practical implementation of the management system.

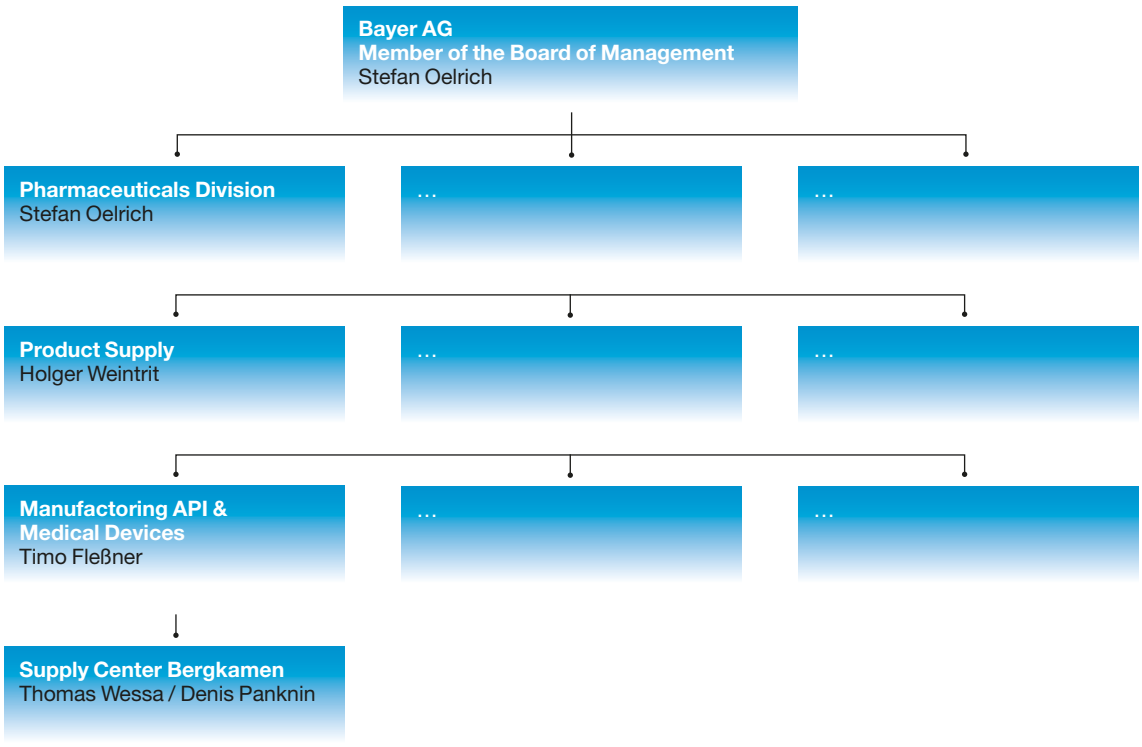


Fig. 2: Safety and environmental protection are an integral part of management tasks and therefore apply equally to all levels in the management hierarchy.

EMAS

The heads of the PUABE cluster, Radiology + Solvents and Microbiology report to Thomas Wessa, while the heads of the Infrastructure cluster – Incineration Plants, Wastewater Treatment Plant + Pipe Network, Power Supply and Engineering + Technology – report to Denis Panknin. Support for implementing the management system is provided by additional functions within Site Management & Infrastructure Services (SM&IS), such as HSE (Health, Safety, Environment), Plant Security + Fire Service and Technology + Maintenance. Over and above the aspects already mentioned, the management system also includes other functions, such as the Quality Unit and Systems & Infrastructure.

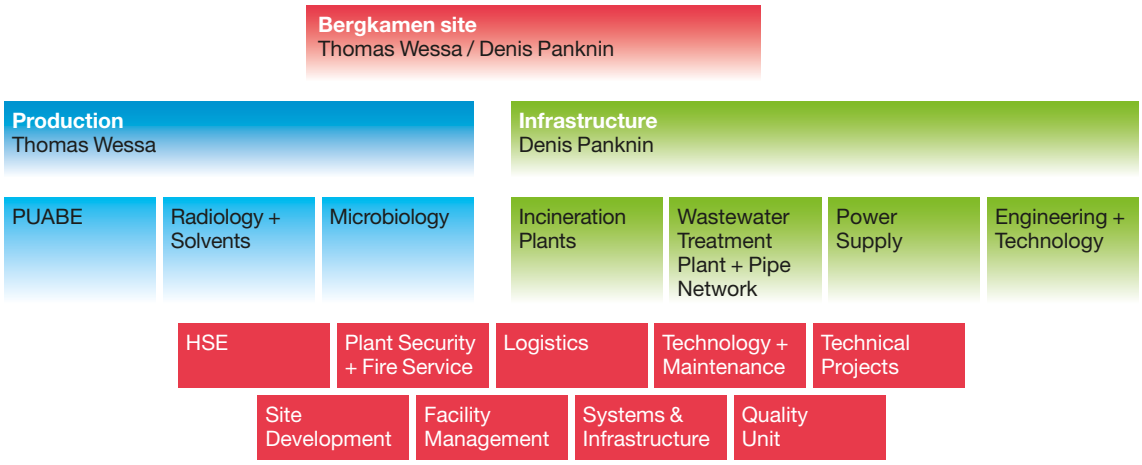


Fig. 3: The function managers report directly to site managers Thomas Wessa and Denis Panknin – including on all issues relating to the management system.

Officers

Supply Center Bergkamen has appointed officers for aspects such as water pollution control, air pollution control, waste, incidents, biological safety, transportation of hazardous goods, fire safety, radiation protection and environmental protection, occupational safety and energy management. Wherever necessary, it notifies the responsible authorities accordingly. These officers advise decision-makers and employees on all issues that are of relevance to safety and environmental protection, monitor compliance with existing requirements under public law for building and operating plants, and notify the relevant people in the event of changes to legislation. They are involved in the planning of projects that affect their area of responsibility at a sufficiently early stage to enable their input to be factored into the decisions that need to be taken.

Internal safety, environmental protection and energy audits

The officers for the various specialist areas regularly perform joint safety, energy and environmental protection audits. Audits are a systematic and documented method for checking compliance with internal and statutory safety and environmental protection requirements, and also for identifying weaknesses and potential for improvement. These audits cover all areas that are relevant to safety and environmental protection:

- Production and technical operations
- Laboratories
- Warehouses
- Energy and water supplies
- Disposal
- Waste air and wastewater purification plants

Material flow management

At the Bergkamen site, the material flow and disposal management system determines what happens to residual materials and wastewater:

- Recycling/reuse
- Incineration (internal or external)
- Landfill
- Local wastewater pre-treatment before being discharged into the central wastewater treatment plant
- Direct discharge into the wastewater treatment plant[1]

Continuous improvement

The regular collection and evaluation of HSE (health, safety and environment) data identifies trends early on, which enables corrections to be made promptly. This collection and evaluation of data ensures compliance with laws, ordinances, technical regulations and company directives. It also supports the continuous improvement process.

Context analysis

An annually updated context analysis determines the overarching topics and developments relevant to Supply Center Bergkamen and its management system. The extent to which environmental changes (e.g. consequences of climate change or overusage of natural resources) could affect the organization is also assessed during this process.

The context analysis also considers various interest groups, or stakeholders, who are directly or indirectly affected by the company's activities or who could influence such activities. The relevance of topics and stakeholders is rated on a scale from 0 to 3 (0 = irrelevant, 1 = low, 2 = medium, 3 = high).

At present, the context analysis addresses 17 stakeholders and 20 topics overall, recording the opportunities and risks for each topic and stakeholder, deriving appropriate measures and citing any binding obligations.

Excerpt from the context analysis

Stakeholder/topic	Authorities (incl. Arnsberg District Authority, Bergkamen Building Inspection and Consultancy Department, etc.)
Expectations/requirements/influence	Approved and compliant operations, compliance with all ancillary provisions and public law requirements relevant to Supply Center Bergkamen
Opportunities/risks	Opportunities: Good connections to authorities, positive collaboration; faster approval procedures Risks: Delays in approval procedures, regulatory offense proceedings, etc.
Measures	Measures (opportunities): Inviting authorities and involving them in certain matters; scoping in relation to the approval procedure; regular meetings with authorities Measures (risks): Internal environmental audits, approval management and discussions, tracking and evaluating regulations, official representation
Binding obligations	Statutory obligations, e.g. 17th & 13th Federal Immission Control Ordinance (BImSchV); ancillary provisions of approval bodies

[1] For further details, see the section on "Waste avoidance and recycling measures".

Dialogue

Objective dialogue in a spirit of trust with staff, customers and the public about environmental issues is very important to us. Consequently, it is also one of the basic principles anchored in our environmental policy. We ensure such dialogue takes place at Supply Center Bergkamen by offering the following practical initiatives, for example:

- Open days
- Bayer Safety Day
- Brochures such as this Environmental Statement
- Annual neighborhood dialogue with local residents
- Information for neighbors of the Bergkamen site in accordance with the Major Incidents Ordinance (StörfallV)
- Regular exchange of ideas with politicians, government representatives and officials from the responsible supervisory authorities
- Internal training and advanced training events on HSE issues
- News on the intranet
- “Standort-Info Bergkamen” staff magazine
- Project-specific info sheets relating to measures at the site
- Safety data sheets and product information documents for customers

The new “Standort-Info Bergkamen” format, which was launched in July 2024, provides staff with the latest news about Supply Center Bergkamen every two weeks.

Environmental impact

Determining and assessing environmental aspects

We interpret environmental impact as all changes to the environment resulting from our activities. To minimize this impact, we need to identify all activities that are of relevance to the environment and assess the associated consequences.

Environmental aspects are assessed using a matrix that considers the following criteria:

- Potential for damaging the environment
- Environmental impact (local, regional, global)
- Degree of frequency
- Environmental, official and internal regulations
- Significance to stakeholders and employees

Criteria are rated on a scale from 1 to 3 according to their extent or frequency (1 = low, 2 = medium, 3 = high). The points are then added up and the environmental aspect is classified as major or minor according to a predefined scale. The environmental aspects identified as being major (direct and indirect) are set out in the following sections.

During this analysis, the following environmental aspects in particular were classified as being especially relevant:

- Direct emissions of carbon dioxide from incineration processes
- Direct emissions of organic substances from active ingredient production (solvents)
- Energy consumption in the infrastructure and active ingredient facilities
- Wastewater from the wastewater treatment plant
- Waste from the infrastructure and active ingredient facilities

In addition to the method of assessment described above, Bayer requires ecological assessments to be performed for all new investment projects exceeding EUR 10 million, examining the impact on humans and the environment of both the production processes at the site (process assessment) and the products associated with the investment project (product assessment).

The process assessment includes resource consumption, the emissions situation and an assessment of feedstock, intermediates and end products to establish their risk potential and ascertain whether sufficient data is available. Depending on the potential danger and the local circumstances, assessments of the risks for humans and/or the environment may need to be performed for some materials with hazardous (eco)toxicological properties.

Such ecological assessments were carried out, for example, for the modernization of the preliminary treatment facility in 2020 and the construction of the storage facility shared with the Wuppertal plant (combined Bergkamen warehouse) in 2023.

A change management process also exists for “everyday business”, i.e. for minor changes to plants and processes. This ensures the environmental officer is involved in all projects. A checklist process is followed to assess all environmental aspects and, if necessary, measures are determined to avoid or minimize the associated risks. Site officers for tasks such as air and water pollution control are also involved in this process.

Overview of environmental KPIs from 2020 to 2024 [t = metric tons]

	Unit	2020	2021	2022	2023	2024
Production volumes[1)]						
Production volumes, total	t	13,717	13,579	12,180	14,256	14,906
Energy						
Energy usage, total	TJ	1,201	1,249	1,142	1,138	1,128
... related to entire production volume	TJ/t	0.088	0.092	0.094	0.080	0.076
... proportion of renewable energies in total energy	%	3.5	4.0	5.1	9.7	9.1
Energy used from waste and exhaust gas	TJ	366	415	359	356	349
Natural gas used	TJ	697	724	659	626	616
Energy used from liquid fuels	TJ	21.6	13.6	19.5	14.3	6.1
Electricity from external sources	TJ	116	97	105	142	156
Electricity consumption, total	TJ	292	296	266	269	264
... related to entire production volume	TJ/t	0.0213	0.0218	0.0219	0.0189	0.0177
... Proportion of renewable energies in total electricity	%	14.5	16.7	22.0	41.2	38.9
In-house electricity generation	TJ	176	200	161	127	108
Electricity from external sources	TJ	116	97	105	142	156
... Proportion of renewable energies in electricity obtained externally	TJ	42.4	49.4	58.6	110.7	102.9
... Proportion of renewable energies in electricity obtained externally	%	36.7	51.1	55.9	77.9	65.9
Biodiversity (land usage)						
Total area	ha	110	110	110	110	110
Developed & sealed areas	%	40.8	40.8	40.8	40.8	40.8
Near-natural areas		56.0	56.0	56.0	56.,0	56.0
Areas, not near-natural and not sealed	%	3.2	3.2	3.2	3.2	3.,2
Material efficiency						
Solvent usage	t	45,771	44,307	41,982	45,351	43,114
... related to entire production volume	t/t	3.34	3.26	3.45	3.18	2.89
Recycling volume, solvents	t	22,179	22,019	22,641	23,112	25,242
Recycling rate, solvents	%	48.5	49.7	53.9	51.0	58.5
Waste						
Waste, total	t	58,347	57,877	57,671	56,418	50,620
… related to entire production volume	t/t	4.3	4.3	4.7	4.0	3.4
Production waste, hazardous	t	45,506	44,219	38,354	43,810	40,067
… related to entire production volume	t/t	3.3	3.3	3.1	3.07	2.69
Production waste, non-hazardous	t	959	1.080	987	1.036	936
… related to entire production volume	t/t	0.07	0.08	0.08	0.07	0.06
Waste from wastewater treatment, hazardous	t	6,002	6,662	4,808	4,911	5,436
Rubble, non-hazardous	t	5,654	5,767	13,381	6,575	4,029
Rubble, hazardous	t	226	149	142	86	152
Recycling rate	%	63.6	65.6	60.1	67.0	73.4

[1] With intermediate stages

	Unit	2020	2021	2022	2023	2024
Emissions						
Carbon dioxide	t	74,222	72,850	68,246	74,942	73,624
… related to entire production volume	t/t	5.4	5.4	5.6	5.3	4.9
Nitrogen oxides	t	66.5	63.4	68.9	61.5	67.4
… related to entire production volume	kg/t	4.8	4.7	5.7	4.3	4.5
Carbon monoxide	t	1.9	2.1	1.4	0.7	1.1
… related to entire production volume	kg/t	0.1	0.2	0.1	0.1	0.1
Organic substances (VOCs)	t	17.0	14.0	14.9	16.2	24.2
… related to entire production volume	kg/t	1.2	1.0	1.2	1.1	1.6
Sulfur dioxide	t	1.03	0.55	0.32	0.08	0.36
… related to entire production volume	kg/t	0.07	0.04	0.03	0.01	0.02
Dust	t	0.26	0.31	0.33	0.31	0.18
… related to entire production volume	kg/t	0.02	0.02	0.03	0.02	0.01
Special greenhouse gases[1] or ODS[2]	t	0	0	0	0	0
Water/wastewater						
Total water consumption	m^3 x 1000	1,509	1,461	1,238	1,460	1,397
… related to entire production volume	m^3/t	110	108	102	102	94
Wastewater volume	m^3 x 1000	1,342	1,350	1,114	1,398	1,343
Nitrogen discharge	t	35.5	32.1	25.4	26.4	24.9
… related to entire production volume	kg/t	2.59	2.37	2.08	1.85	1.67
TOC discharge	t	36.0	35.2	23.2	36.9	33.8
… related to entire production volume	kg/t	2.62	2.59	1.90	2.59	2.27
Phosphorus discharge	t	1.65	1.43	1.02	1.29	1.25
… related to entire production volume	kg/t	0.120	0.106	0.084	0.090	0.084
Discharge of heavy metals	t	0.17	0.23	0.15	0.20	0.16
… related to entire production volume	g/t	12.7	16.6	12.2	14.3	10.8
TOC inflow incl. sludge	t	2,906	2,634	2,039	1,827	1,499
TOC breakdown in PWA	t	1,648	1,289	1,034	703	246
TOC breakdown in wastewater treatment plant	t	1,211	1,299	971	1,076	1,208
Level of TOC breakdown, wastewater treatment plant	%	98.4	98.3	98.4	97.4	97.0

[1] Special greenhouse gases such as methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride are not emitted.
[2] ODS = ozone-depleting substances as listed in Annex I of Regulation (EU) 2024/590

Direct environmental impact

Direct environmental impact is subject to operational control and can therefore be directly influenced. This includes the following examples:

- Emissions of substances into the air
- Other emissions (e.g. odors, noises, vibrations, light, heat and radiation)
- Wastewater
- Waste
- Energy consumption
- Consumption of resources (raw materials, water)

Environmental impact from production should be avoided wherever possible or kept to a minimum. For example, water, solvents and gases reach the production processes via closed pipeline systems. Waste air from equipment is collected and incinerated at the power plant or in the thermal afterburner.

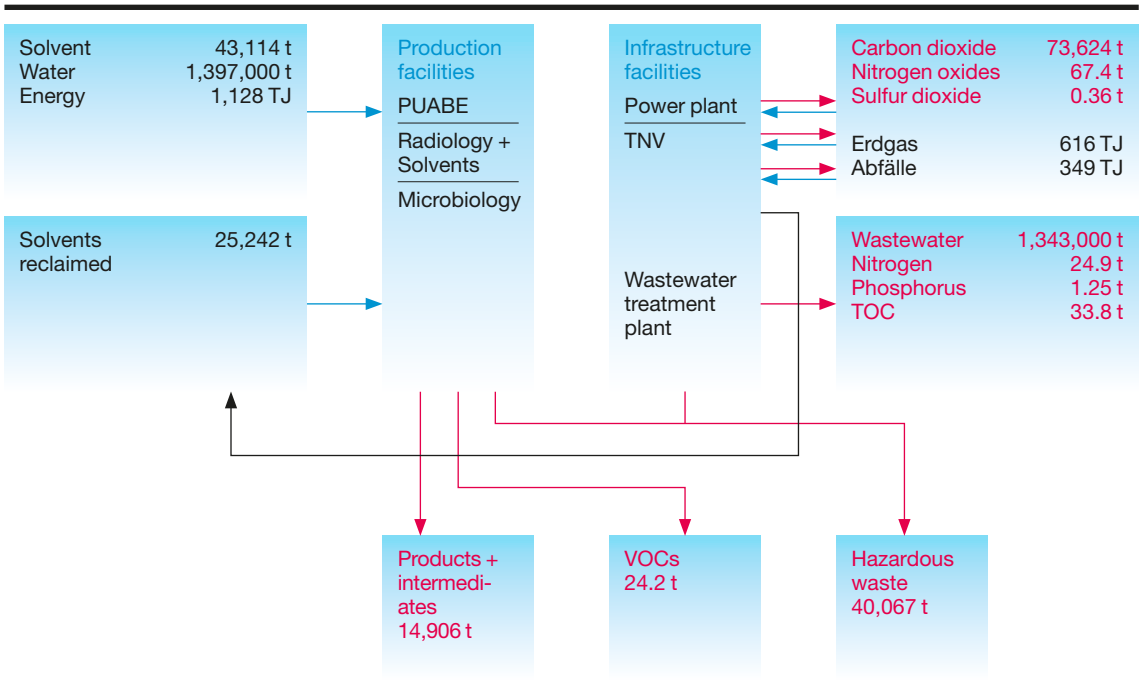


Fig. 4: Simplified overview of incoming and outgoing material flows in 2024 [t = metric tons; TNV = thermal afterburner; SAV = hazardous waste incinerator; PWA = process water treatment plant].

One of the distillation facility's main tasks is separating substance mixtures so that the individual substances can be recycled.

Scrubbers and similar plants are used to clean some waste air streams. This applies in particular to waste air containing hydrogen, which cannot be combined with other waste air streams for safety reasons. To ensure continued compliance with legal requirements in the future, a new thermal waste gas purification plant is currently being constructed in production facility A in order to dispose of exhaust gas that contains hydrogen.
Startup is planned for the end of 2025. This project is also listed under Objectives.

Depending on the level of contamination, process water is routed to a special treatment plant (PWA) or the process wastewater network. As a general rule, process water containing volatile chlorinated hydrocarbons, strong-smelling substances or substances that are hard to break down goes to the PWA.

Water circulating in a closed circuit is the main energy carrier for cooling. The steam used for heating is also available in the works network in a closed system.

The distillation facility processes contaminated solvents. The purified distillates are subsequently returned to the production process. If recycling is not possible due to material-related or economic criteria, solvents are incinerated – as far as possible utilizing the energy they contain – or disposed of.

Production volumes

The environmental impact of the Bergkamen site depends, among other things, on the volume of intermediates and end products manufactured. This production volume rose by approximately 9% from 13,717 metric tons in 2020 to 14,906 metric tons in 2024. There was a drop in production in 2022 due to a decrease in the production of X-ray contrast media.

Despite efforts to work efficiently, an increase in resource consumption and emissions cannot always be prevented when production expands. Consequently, where expedient, the following figures indicate both absolute values and the relative changes in these parameters in relation to the production volume.

Production volume

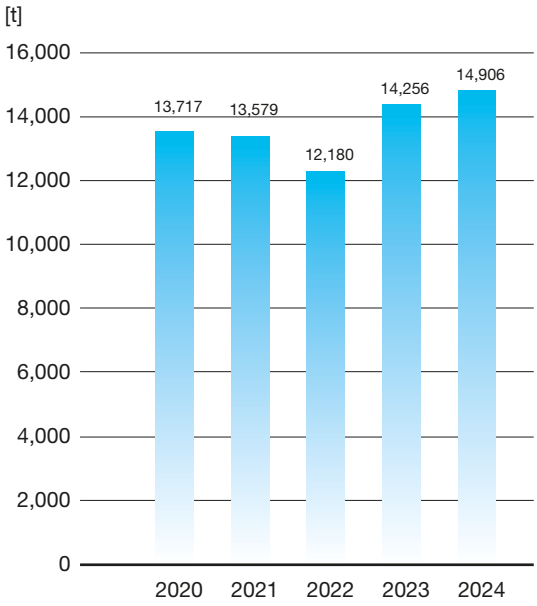


Fig. 5: The volumes of intermediates and end products rose by around 9% between 2020 and 2024.

Safety comes first during production operations, too. All plants undergo regular maintenance and are inspected by external auditors.

Water consumption

For a very long time, the Bergkamen site obtained all the water it needed from the Datteln-Hamm Canal and the public grid. After the “Rainwater retention” project was successfully completed in 2013, it became possible to reduce the amount of water extracted from the canal and partially replace it with rainwater. As a result, 137,000 m³ could be used e.g. as cooling water for the first time in 2014. The equivalent figure for 2024 was 180,000 m3.

In 2024, water consumption amounted to approximately 1.4 million m3. Water is mainly used for the following purposes:

- As a solvent, extracting agent and reagent
- For product precipitation and/or purification
- For waste air scrubbing
- For cleaning plants and buildings
- For cooling
- For steam generation

Water consumption depends on the range of products produced in a particular year and the associated water requirements for manufacturing and cleaning. Efforts are continuously being made to reduce water requirements by conducting a variety of process optimizations (for example, replacing wet scrubbers and water ring pumps with fabric filters and dry-running pumps). It is important to bear in mind in this respect that, due to quality requirements in pharmaceutical legislation, not all technically feasible measures to reduce water consumption can be implemented. Another project designed to reduce volumes of water and waste water was launched in 2025 (see Objectives) – changing the cooling tower filter technology means far less backwash water. It is expected that this will save around 130,000 m³ per year in the future.

Relative water consumption from 2020 to 2024 shows a marked downward trend, falling by around 15% from 110 m³/t to 94 m³/t.

Water consumption

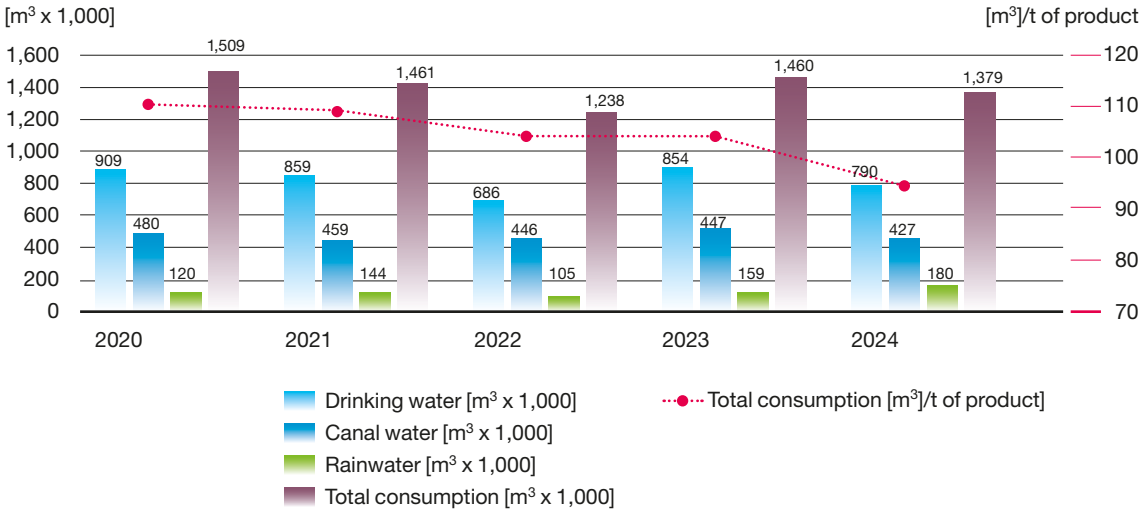


Fig. 6: Consumption of drinking, canal and rainwater between 2020 and 2024.

Wastewater

The total amount of wastewater produced at the Bergkamen site in 2024 – including the production facilities, power plant, hazardous waste incinerator and distillation facility – amounted to approximately 1.34 million m^3. This includes precipitation from open operating areas, which is also disposed of with the process wastewater and not via the rain wastewater system, as a preventive measure to rule out contamination of rainwater in the event of a leak.

All process and fecal wastewater is purified at the central wastewater treatment plant. Wastewater from production facilities that is contaminated with solvents passes through an additional preliminary purification stage. It undergoes initial processing to ensure subsequent biological purification poses no problems.

Rainwater from uncontaminated, sealed areas is collected separately and discharged via a receiving water. It is tested for organic substances on an ongoing basis and, in the event of any contamination, is immediately routed to one of the three emergency collecting tanks. These tanks have a combined capacity of around 23,200 m^3 – a volume that is sufficient to hold all wastewater generated at the Bergkamen site for several days.

Due to the wide variety of active ingredients produced, the wastewater composition is not homogeneous but constantly fluctuates.

Wastewater volume

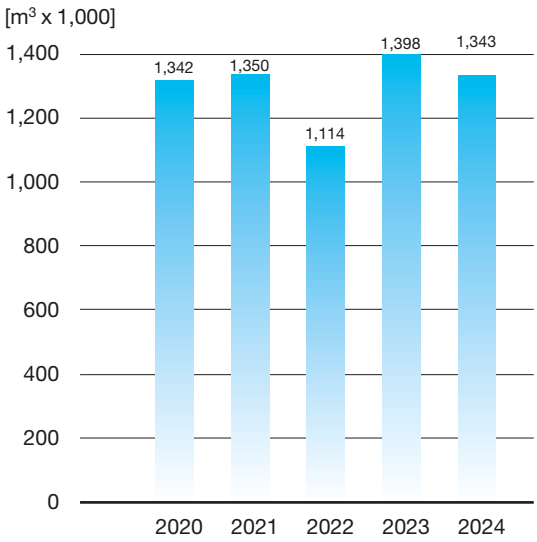


Fig. 7: Change in the amount of wastewater generated.

TOC[1] and nitrogen loads very much depend on the volumes of particular products that are manufactured. As a result, the product portfolio manufactured in any given year has a major impact on both these parameters. The TOC load in particular is linked to specific production in microbiology and the production of X-ray contrast media. Following a drop in TOC load in 2022 due to lower production levels, it rose again in 2023 and 2024 as production increased.

[1] TOC is a sum parameter in water and wastewater analyses. It indicates the water's level of contamination with organic substances.

Nitrogen and TOC in the wastewater

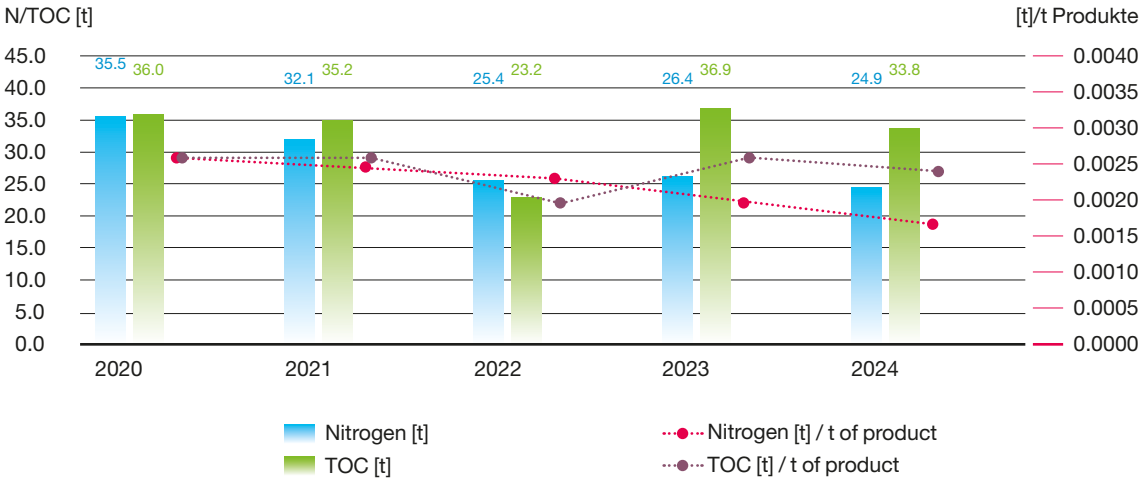


Fig. 8: Nitrogen and organic material (TOC) loads in wastewater.

The graph below shows the discharge of phosphorus and heavy metals into the wastewater. The heavy metals discharged are mainly nickel, copper and zinc, which remain at a consistently low level. The discharge of phosphate is heavily influenced by the production of a certain stage at the microbiology facility, because a solution containing phosphate is used in this process. There are plans to change the synthesis of the solution containing phosphate to urea (which is phosphate-free) for this stage in the future. It is expected that this will result in a significant reduction in the wastewater's phosphate load. Implementation of this project, which is also listed under "Environmental objectives", is scheduled for 2026.

Phosphorus and heavy metals in the wastewater

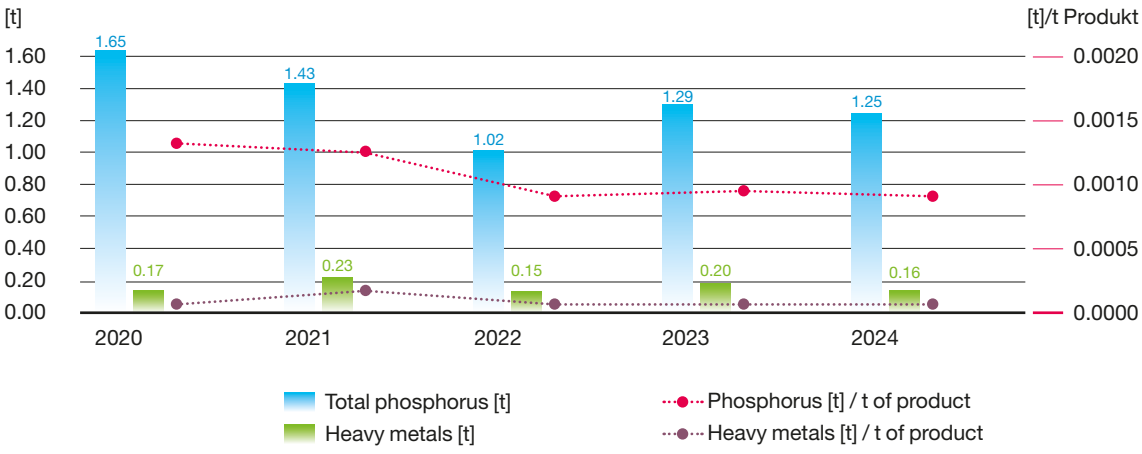


Fig. 9: Phosphorus and heavy metal loads in the wastewater.
The heavy metals in question are zinc, nickel and copper [t = metric tons].

Ultrafine micro-membranes ensure maximum purity in wastewater treatment.

Process water treatment plant (PWA)

The PWA separates solvents, strong-smelling substances and substances that are hard to break down biologically, so as to reduce AOX/TOC loads. Provided it is technically feasible and economically viable to do so, the separated substances are treated so they can be reused in production. Substances that cannot be reused are recycled or disposed of at the site's own incineration plants and external facilities.

Central wastewater treatment plant (ZABA)

Due to the renaturation of the River Seseke, a former receiving water, and its tributaries, the site's wastewater has no longer been discharged into the Lippe network's wastewater treatment plant but directly into the River Lippe since 2004. This required the wastewater to be purified at the ZABA, which meant adding a nitrification and denitrification stage (PAA stage) and also introducing membrane technology to eliminate slurry. The modernized wastewater treatment plant started operating in mid-2004.

In addition to the stages of preliminary treatment, buffer tank and biological treatment with subsequent membrane filtration, an additional downstream activated carbon adsorption station with six activated carbon adsorbers was constructed in the years that followed. Since the volume capacity of the six activated carbon adsorbers limited the throughput of the wastewater treatment plant, a further three activated carbon adsorbers were added to the station in 2019, meaning a total of nine adsorbers are available. Increasing the number of activated carbon adsorbers was one of the environmental objectives in the 2019 Environmental Statement. This means the water that accumulates in the emergency collecting tanks during heavy rainfall can now be processed more quickly and the build-up of odors can be prevented.

To prevent unwanted odors during ongoing operations, largely closed wastewater treatment plants, a three-step scrubber for treating waste air emitted by the wastewater treatment plant, and a system to suppress odors located at the point of transfer from the sewerage system to the wastewater treatment plant are used.

The "Preliminary treatment modernization" project will also lead to a reduction in odors. All primary sedimentation basins will be covered and fitted with an off-gas disposal system in the future. This project was adopted into the environmental objectives of the plant in 2022. However, it is not expected to be fully implemented until 2028.

When the membrane stage was taken into operation, each line was fitted with nine cartridges. The cartridges installed at the time each had a filtering surface area of 440 m^2, providing a total membrane surface area of 15,840 m^2. Again, as capacity utilization levels at the production facilities rose, the membrane stage was gradually expanded to twelve cartridges per line in a slightly different design. The total area available for wastewater purification has thus now increased to 21,960 m^2.

The combination of the process water treatment plant (PWA) and the central wastewater treatment plant (ZABA) enables us to achieve TOC degradation rates that have remained consistently high at above 98% for years. Moreover, our production facilities also adopt measures to keep the pollution of the wastewater with organic substances as low as possible, such as the X-ray contrast media facility's thermolysis plant. At this plant, wash and mother liquors are steam-heated to an approximate temperature of 160 °C to transform organically bound iodine into iodide that can be fed into the downstream process of iodine recovery. As a result, nearly all iodine (>96%) is removed from the process water as iodide, with the TOC contamination of the process wastewater significantly reduced at the same time. To recover iodine from an X-ray contrast media facility wastewater stream, an additional activated carbon system is currently being constructed in the distillation facility so that more iodide can be recovered. This project is also listed under "Environmental objectives". It is due to be implemented in 2025, and the recovery process is scheduled to start in 2026.

Motivated staff and flawless plants – success factors for safe and environmentally friendly production.

TOC degradation at the PWA and wastewater treatment plant

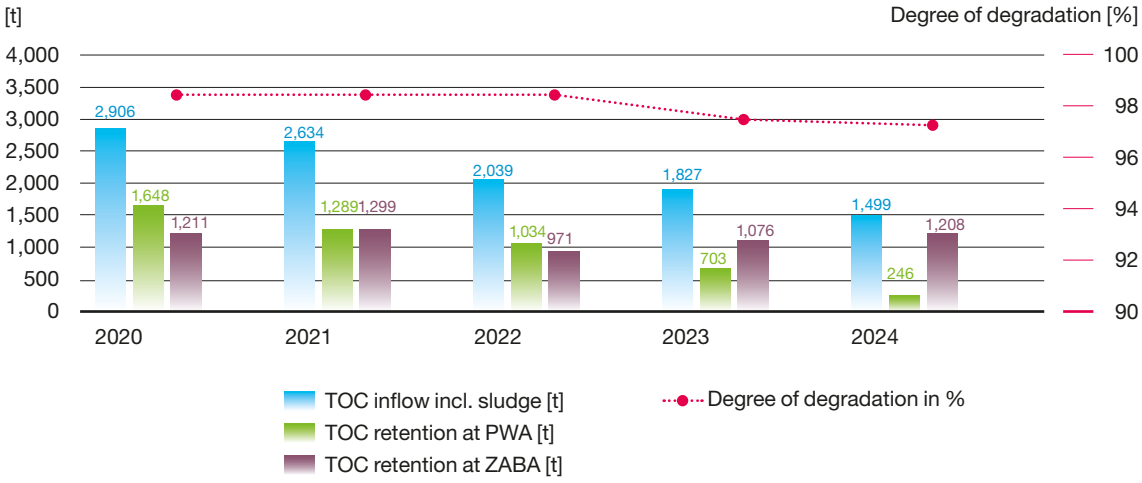


Fig. 10: TOC degradation at the process water and wastewater treatment plants [t = metric tons].

Emissions of organic substances

In addition to air emissions resulting from incineration processes at the power plant and in the hazardous waste incinerator, emissions of volatile organic substances from the active ingredient facilities are also environmentally relevant.

These VOC emissions are generated from the use of various solvents that are an essential part of active ingredient production.

Solvents used in 2024

Solvent	[t]
1,2-dichloroethane	12,749
Alcohol (ethanol)	4,841
Acetone	4,255
Ethyl acetate	2,936
Methanol	2,247
Ethyl acetate hexane	2,109
Acetic anhydride	1,267
Tetrahydrofuran	987
Methylene chloride	951
Other solvents	10,772
Total volume	43,114

[1] VOC = Volatile Organic Compound

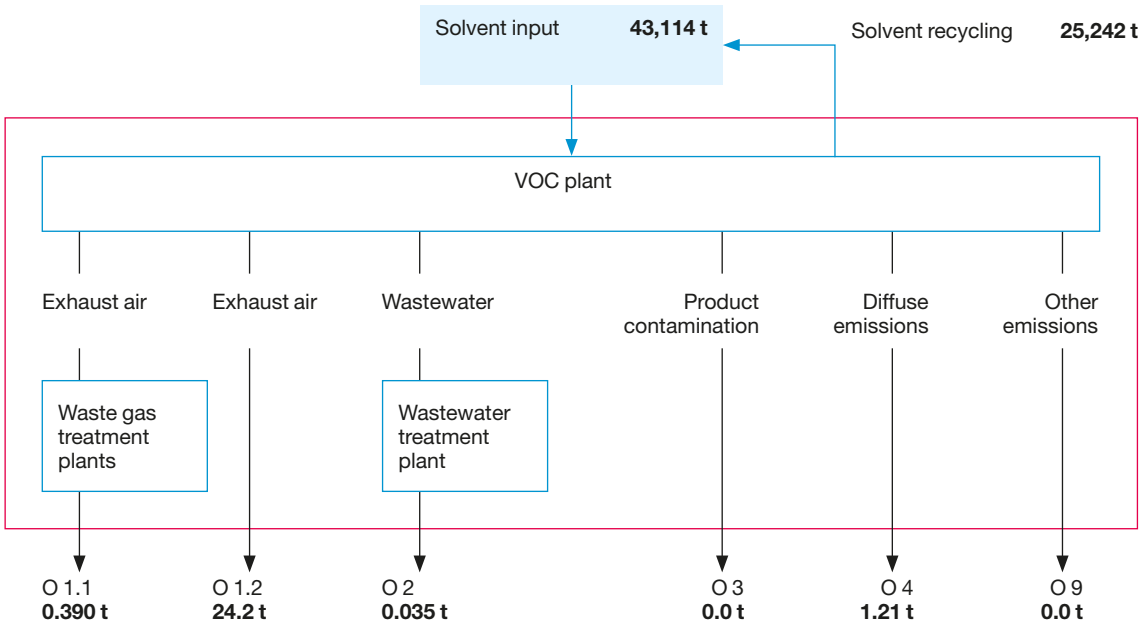
The solvents are located in closed plants from which the waste air is collected centrally and sent for incineration. This means that emissions are restricted to processes that can only be performed in open systems, such as some cleaning processes. The requirements relating to such plants are described in the 31st BImSchV (Federal Immission Control Ordinance). An external state-approved laboratory monitors our production plants' compliance with VOC emission limits. All emissions are assessed and documented in an emissions register.

Figure 11 shows the solvent balance required by law. It includes all conceivable emission paths for volatile organic substances (waste air, wastewater, diffuse emissions, etc.). In 2024, 25.84 metric tons of the total of 43,114 metric tons of solvents used were released into the atmosphere. This is equivalent to 0.06%. By way of comparison, the statutory limit is 5%.

The main emission paths for volatile organic compounds are through the ambient air dissipated via emissions sources in active ingredient plants and, to a much lesser extent, diffuse emissions that escape into the environment through doors, windows and flanges, for example. The other emission paths, via wastewater or minor residue emissions via the waste air produced by waste gas purification plants, are of lesser importance.

A suggestion for improvement from Sven Semert made it possible to significantly reduce solvent consumption in cleaning processes.

Emissions of organic substances determined for 2024



O 1.1 = Emissionen in den gefassten behandelten Abgasen
O 1.2 = Emissionen in den gefassten unbehandelten Abgasen
O 2 = Menge organischer Lösemittel im Abwasser unter Berücksichtigung der Abwasserbehandlung
O 3 = Menge organischer Lösemittel, die als Verunreinigung oder Rückstand im Endprodukt verbleibt
O 4 = diffuse Emissionen, z. B. über Türen, Fenster, Flansche
O 9 = organische Lösemittel, die auf sonstigem Wege freigesetzt werden

Limit as per 31st BImSchV:
O 1.1 + O 1.2 + O 2 + O 3 + O 4 + O 9 < 5% of the solvent volume used

0.390 t + 24.2 t + 0.035 t + 0.0 t + 1.21 t + 0.0 t = 25.84 t
corresponding to approx. 0.06% of the total volume of 43,114 t of solvents used

Fig. 11: Solvent balance: Emissions were determined using the "direct method" [t = metric tons].

Emissions (not including carbon dioxide)

During incineration processes, flue gases are produced, which contain, among other things, inorganic components such as nitrogen oxides (NOx) or sulfur dioxide. Major sources of air emissions resulting from incineration processes are the power plant, the thermal afterburner and the hazardous waste incinerator.

To continuously monitor these parameters, the power plant and the hazardous waste incinerator are connected to Arnsberg District Authority's remote emissions monitoring system. Once it has been reviewed by the authority, the annual emissions data for the power plant and the hazardous waste incinerator is published online. As stipulated in the notification of approval, the thermal afterburner is regularly monitored by an external measuring body.

The nitrogen oxide emissions depend on the run times of the boilers, incineration plants and gas turbines, and have consistently been between 60 and 70 metric tons per year over the last few years. We are expecting to see a reduction in the nitrogen oxide emissions in the future thanks to the installation of two DeNox systems at the hazardous waste incinerator and boiler 2 in our power plant. These projects have also been included in our objectives and are scheduled for implementation by 2027/2028.

Emissions of organic substances (VOCs) are primarily the result of solvents that are emitted via the waste ambient air of the plants. Environmental Statement 2019 contained the objective of reducing these emissions to below 15 metric tons, and this objective was successfully achieved in both 2021 and 2022. The objective of keeping VOC emissions below 15 metric tons was set for subsequent years.

It was not possible to achieve this objective in 2023, and especially not in 2024, due to considerable increases in production volumes. The increased VOC emissions resulted solely from the X-ray contrast media production division, which produced an absolute record volume in 2024 and also introduced a process for a new contrast medium.

During the coming years, it is expected that this figure of less than 15 metric tons of VOC emissions will once again be achieved as a result of process optimizations and further measures to improve the tightness of the systems.

The other emissions – carbon monoxide, sulfur dioxide and dust – have been at a very low level overall during the past five years.

Carbon dioxide emissions

To us, sustainability means safeguarding our future viability and, as part of our corporate strategy, it is integrated into our day-to-day workflows. We underline Bayer's mission as a company that acts sustainably through our commitment to the U.N. Global Compact and the Responsible Care™ initiative and our active global involvement in leading initiatives such as the World Business Council for Sustainable Development (WBCSD).

A key objective of the Bayer sustainability strategy is to achieve net zero by 2030. The company is striving to reduce direct emissions from its own power plants, vehicles and production facilities (scope 1) and indirect emissions from the procurement of electricity, steam and cooling energy (scope 2) so as to limit global warming to a maximum of 1.5°C. To attain this goal, Bayer will reduce its absolute CO_2 emissions by at least 42% compared to the 2019 baseline by the start of 2030. To accomplish this, emissions from the company's facilities will be cut by at least 1% each year, and 100% of the power the company buys in will be sourced from renewables (see Objectives).

Air emissions excluding carbon dioxide in metric tons [t]

Year	Nitrogen oxides NOx	Carbon monoxide CO	Organic substances VOCs	Sulfur dioxide SO_2	Dust
2020	66.5	1.9	17.0	1.03	0.262
2021	63.4	2.1	14.0	0.55	0.311
2022	68.9	1.4	14.9	0.32	0.331
2023	61.5	0.7	16.2	0.08	0.314
2024	67.4	1.1	24.2	0.36	0.177

Fig. 12: Emissions of air pollutants between 2020 and 2024.

Supply Center Bergkamen has supported the Bayer Climate Program in many different ways over the years. For example, Production Unit F and microbiology production operations have both undergone a "Climate Check".

This involved Bayer experts evaluating the total energy consumption of the facilities, including all installations such as heat exchangers and drives, and examining technical aspects of buildings – from lighting and air conditioning to ventilation and insulation. Another focal point was optimizing the plants' operating parameters and variables.

As reported in the last Environmental Statement, the possibility of drawing a proportion of "green steam" from the neighboring biomass power plant in order to reduce direct carbon dioxide emissions has been investigated. Bayer and E.ON have now signed a collaboration agreement to take an important step forward in relation to sustainable energy supplies. In the future, E.ON will supply the site with steam that is produced from scrap wood at the neighboring biomass power plant using a carbon-neutral method. This agreement will relieve pressure on Bayer's own power plant, but the Bayer power plant will nonetheless continue to be responsible for the site's main supply of steam. The steam supplied by E.ON will cover around 20% of the total volume of steam needed at the Bergkamen site. This will make it possible to reduce use of the site's own steam generation facilities. As these are powered by fossil fuels, this will cut carbon dioxide emissions. We expect this use of "green" steam to reduce our emissions of climate-damaging carbon dioxide in the future. As a result, we have set the target of reducing direct absolute carbon dioxide emissions (Scope 1) at the Bergkamen site by 10% by 2029 (see Objectives). E.ON's first delivery of steam to Bayer is scheduled for 2025. Bayer and E.ON have agreed on a ten-year collaboration period in the first instance.

For the longer term, consideration is also being given to using hydrogen from renewable sources as a fuel (see Objectives). Together with RWTH Aachen, Jülich Research Center and other partners in the hydrogen network, Bayer's Bergkamen site is therefore particularly supporting the development of innovative burner systems for power plants.

SC Bergkamen is also involved in working on "H2ercules" – the German country-wide initiative that aims to expand and advance the use of hydrogen.

Carbon dioxide emissions

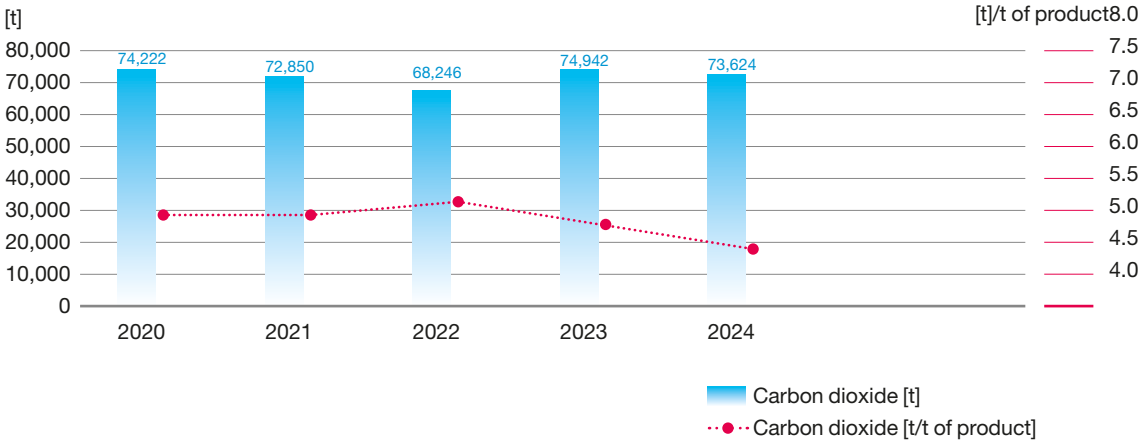


Fig. 13: Carbon dioxide emissions [t = metric ton]

Product dust

Double dust filters are integrated into waste air systems wherever product dust is generated. The differential pressure of these filters is monitored to make sure they are working properly and they are checked each time prior to the production plants being used. This ensures not only that the limit of 1 mg/m³ specified in "TA Luft" for reprotoxic substances is met, but also that the actual level is some way below this limit.

Waste

Waste classified as hazardous is generated when manufacturing active ingredients for pharmaceuticals. A waste incineration plant (SAV) was built back in 1977 to ensure the safe disposal of these substances. It has been upgraded several times since then, primarily due to stricter legal requirements but also to stop elementary iodine being released during the incineration of waste containing iodine.

Liquid waste has been incinerated in a special boiler at the site's own power plant since 2001, which helps replace fossil fuels. This practice has significantly altered the structure of waste disposal in favor of thermal recycling. It is important to bear in mind that waste volumes can vary greatly due to changing production campaigns. The following process steps have the potential to generate waste:

Process step	Waste
Phase separation	Organic and aqueous phases
Filtration	Used filter material, filtered-out solids
Centrifugation	Mother and wash liquors, rinsing liquids
Drying	Condensates
Distillation	Distillation bottoms
Cleaning	Cleaning solvents

Figure 14 shows how much hazardous production waste was generated at the Bergkamen site from 2020 to 2024.

Following a drop in the absolute volumes of hazardous production waste in 2022 due to reduced production volumes, these figures have increased again over the past two years as production volumes have risen.

Pleasingly, however, the relative volume of hazardous production waste vis-à-vis production volumes has decreased considerably over the past five years. Waste-intensive stages from steroid chemistry have been reduced, but the contrast media production volume has increased. The production of hormone active ingredients generates approximately 50 times more waste than the production of X-ray contrast media. The new active ingredients that have been introduced at the site for therapeutic agents in recent years are also ensuring a positive trend in terms of the volume of waste per metric ton of product.

Waste avoidance and recycling measures

Our strategy is to avoid or recycle waste. The "material flow management" function works on gearing all production processes toward this requirement. Some of the main objectives are as follows:

- Increasing yields and reducing waste volumes
- Avoiding off-specification batches
- Optimizing cleaning measures

One special feature at the Bergkamen site is iodine recycling. Upgrading the waste incineration plant with flue gas scrubbing in 1997 enabled quantitative binding of the iodine released when incinerating waste containing this substance. In addition to solid and liquid waste from X-ray contrast media production, finished goods that are returned are also recycled. The iodide solution obtained in this way is sold to external customers, which results in complete material recycling of the iodine. GMP regulations, however, do not permit direct use of the iodine recovered for the site's own production operations. This process makes it possible to recover and recycle more than 200 metric tons of iodine every year.

[1] Germany's technical instructions on air quality control (TA Luft) are essentially split into an immissions section and an emissions section. They specify the requirements that need to be met when licensing industrial and commercial plants.
[2] GMP = Good Manufacturing Practice

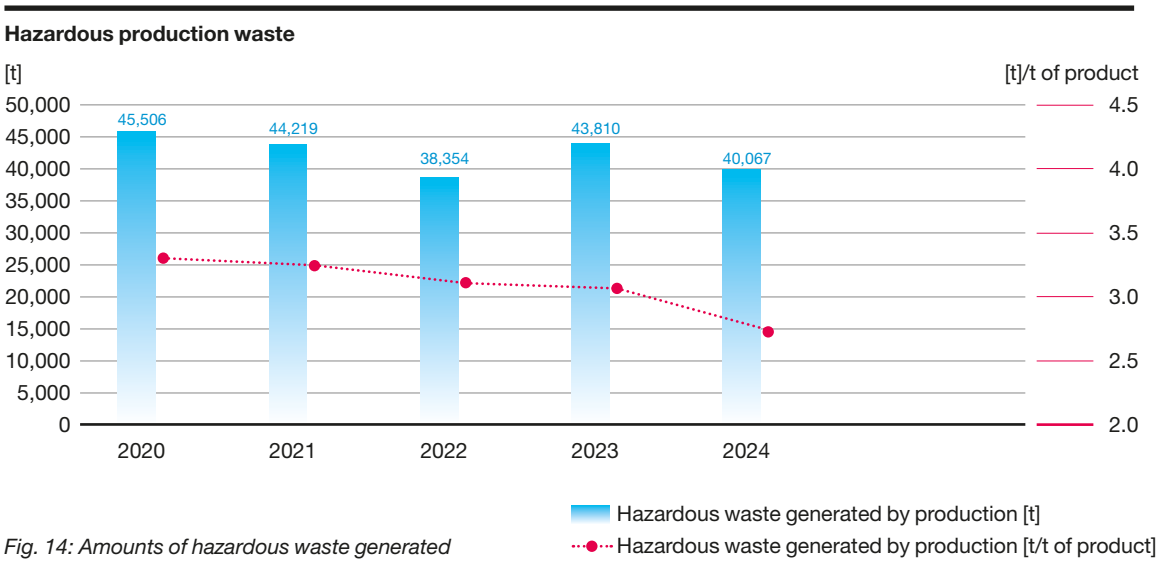


Fig. 14: Amounts of hazardous waste generated in production operations [t = metric ton].

Acetone is the solvent that Supply Center Bergkamen buys in the biggest quantities. Due to the startup of new production plants at the distillation facility, acetone recovery has been in place since 2024. This represents an important milestone. Besides preventing waste, this development also reduces greenhouse gases significantly, because around 1,000 metric tons of acetone are now recycled each year instead of being burned for energy.

Each metric ton of acetone that is recovered prevents around 2.3 metric tons of carbon dioxide that would be generated by combustion. There are plans to add recovery of acetonitrile and other solvents to the distillation facility's portfolio over the coming years (see Objectives).

In recent years, the recycling rates have been at least 60%. In the last two years, the recycling rates have been increased, reaching an all-time high of 73.4% in 2024. We hope to be able to increase this rate further still by making even greater use of the possibilities offered by the new distillation systems, which have now been started up.

In addition to the recovery of acetone that is now established, there are plans to recycle acetonitrile and recover n-heptane in the future for new active ingredients in the contrast media and women's health care sectors. There are also plans to recover propargyl alcohol to prevent the destruction of market products that do not meet the given specifications. These projects are also listed under Objectives for 2025 and beyond.

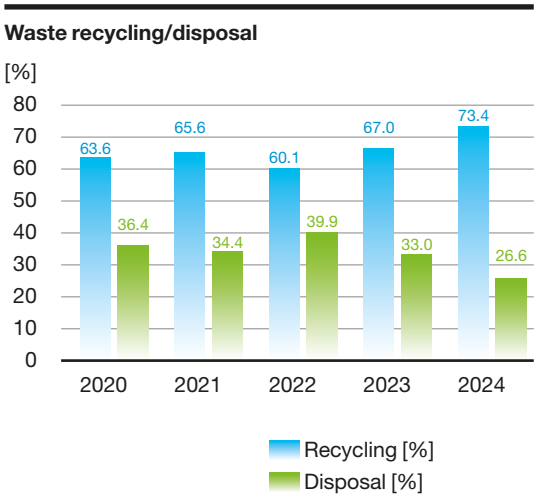


Fig. 15: Recycling rate reaches an all-time high in 2024

The Bergkamen site has a long-standing tradition of recovering solvents in pharmaceutical production. The process takes place at the distillation facility, which supplies production operations with adequate amounts of the appropriate quality of solvents required for manufacturing pharmaceuticals. Some of the key tasks involved in distillation are as follows:

- Recovering solvents in line with economic and ecological principles
- Manufacturing raw materials not available on the market (e.g. fatty acid anhydrides)

- Using distillation columns with a bladder volume of 4 to 70 m³ in batch operation and various interconnection options for continuous operation
- Phase separations
- Rectification processes in pressure ranges from high vacuum to normal pressure
- Processes involving azeotropic and extractive distillation

From 2020 to 2023, the recycling rate for solvents was around 50%, and it reached 58.5% in 2024 (see page 16, Overview of environmental KPIs). Due to the commissioning of more subsections of the new distillation facility, this figure is set to rise further over the coming years. In 2024, new sections of the facility were put into operation. In particular, distillation columns were ramped up to capacities as high as 70,000 liters per batch. This made it possible to add acetone – the solvent the Bergkamen site purchases

Solvent usage

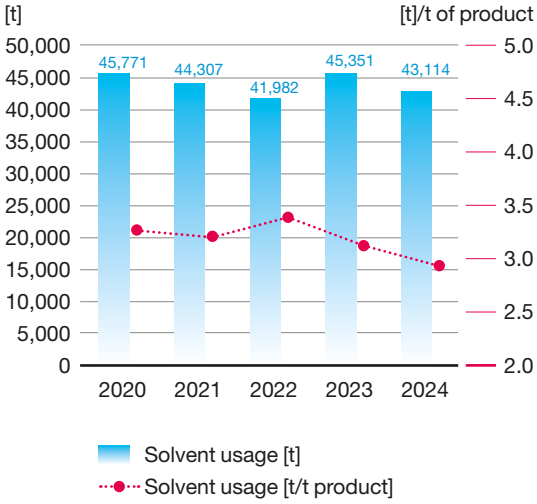


Fig. 16: In the past five years, relative solvent usage has shown a downward trend.

in the biggest quantities – to the distillation portfolio and start recovering it. In 2025 and beyond, an increasing proportion of acetone recovery and recovery of other solvents will be evident in the distillation portfolio.

We therefore also hope that the downward trend recorded in relative solvent usage per metric ton of product (see Fig. 16) will continue in the future.

Soil

As a general rule for building projects, soil samples are taken and tested for contaminants by an external auditor to identify soil contamination and rectify the situation as quickly as possible. If contamination is detected, the necessary remediation measures are initiated immediately.

The Bergkamen site has several dozen groundwater measuring points at different depths that have been set up for monitoring purposes – in particular at the plot's outer boundaries, but also on the works premises. External experts regularly take water samples at these measuring points for subsequent analysis and assessment. Contamination requiring remediation measures has been detected at two of them. In both cases, the groundwater is now routed via purification plants that bind the contaminants – to activated carbon, for example.

The remediation wells create artificial groundwater pits into which potentially contaminated groundwater flows. This rules out any uncontrolled outflow into the surrounding area. Due in no small part to this measure, there has to date been no evidence of any impact on the groundwater beyond the site's boundaries.

The implementation of the Industrial Emissions Directive (IED) imposed new requirements on the Bergkamen site regarding approval procedures and the operation of installations. For example, when an IED installation is shut down, the site must be returned to its previous condition if the operation of the installation has led to substantial contamination of the soil or groundwater. When constructing a new IED installation or making substantial changes to an existing one, a baseline report for soil and groundwater must be presented and submitted as part of the approval procedure. The soil analyses conducted to date, which now cover almost all IED installations, have not indicated any critical contamination of the soil.

Energy

The power plant at the Bergkamen site is equipped with five steam generators and a gas turbine that cover all the steam requirements and a significant proportion of its electricity requirements. The plant has a capacity of 100 metric tons of steam and nine megawatts of electricity. The additional electricity required is bought in.

Solvents and waste gases containing solvents from the production facilities are used as fuel in addition to natural gas and heating oil. Using waste gases containing solvents as fuel helps prevent emissions from organic solvents and reduce the need for fossil fuels.

In 2015, to further reduce its energy consumption, the Bergkamen site introduced an energy management system to ISO 50001 and secured certification by an external auditor. This makes it possible to better identify potential energy savings and channel investments even more effectively. The new system, which is aimed at seamlessly tracking all energy flows rather than just individual measures, will ensure the site is successful in this regard. This comprehensive approach is nurturing organizational change and led to a large team of energy officers in various functions/divisions and an energy manager being instated at Supply Center Bergkamen in 2016.

Their task is to help implement and improve the energy management system. In the long term, they are also to strengthen the site's sustainable development policy and devise energy-saving measures. Specific projects have already been put into place.

By acquiring new cooling water pumps alone, Bayer has saved many millions of kilowatt hours in Bergkamen since 2017. In 2019, the two older waste gas ventilators in the thermal afterburner were replaced with new, more energy-efficient, frequency-controlled models. Further long-term savings are expected to be made by continuing the program to replace old motors with high-efficiency models and by increasingly using LED lighting.

The EnDORBEK project (see Objectives) is currently underway in the facilities. This project makes it possible to present energy consumption data transparently and thus obtain information for identifying further efficiency projects. The project was launched last year in active ingredient facility A. The project is now being extended to the distillation and microbiology facilities, and the other facilities will subsequently also be included.

Top: Computerized plants help further reduce the direct and indirect environmental impact of production processes.

Right: Major investments in recent years have continuously improved the efficiency of the power plant. The photo shows the interior of the turbine hall.

Energy usage

The graph shows energy usage at the Bergkamen site between 2020 and 2024. The most important energy sources at the Bergkamen site are natural gas, waste containing energy (including the process exhaust gases from LANXESS and contaminated solvents or metal alkyl residues) and electricity from external sources. Although production increased by around 9% in the period under consideration, the absolute energy usage was reduced by 6%. The Bergkamen site has set the long-term goal of reducing relative energy consumption by 10% by 2029. This will support the Bayer corporate goal of achieving net zero by 2030. Given that the site already achieved – and even surpassed – its goal in 2023 and 2024, the target is to be reviewed to determine whether an even more ambitious long-term goal can be set for 2029.

Energies and total amount of energy used

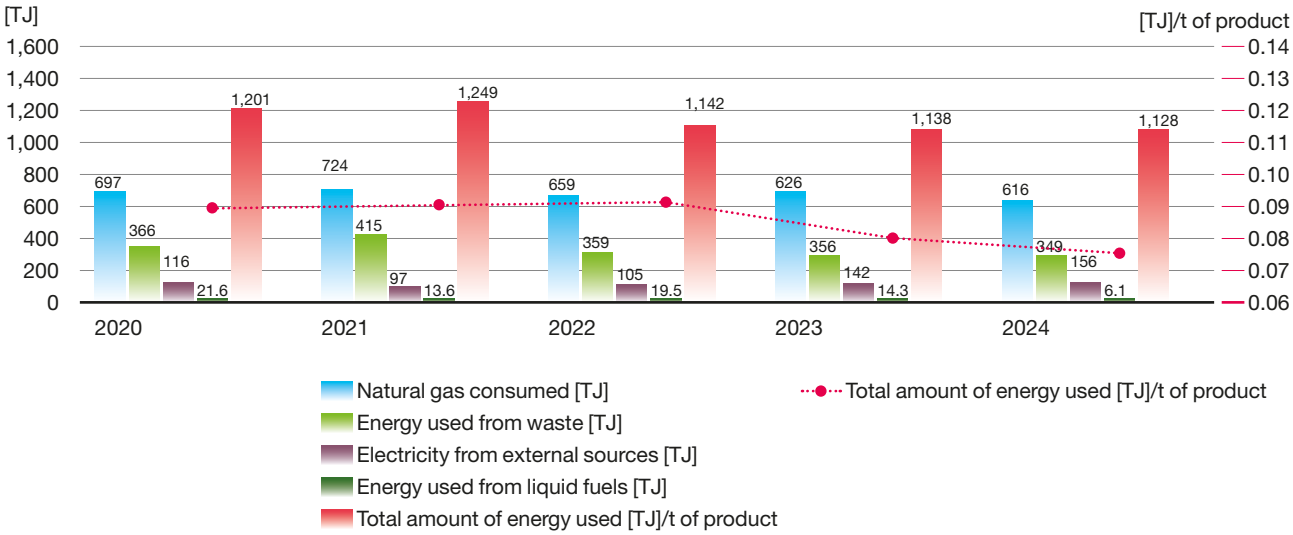


Fig. 17: In the period from 2020 to 2024, the relative amount of energy used fell by around 14%.

By submitting suggestions for improvement, staff at the site contribute toward reducing energy consumption and improving energy efficiency – such as here at the hazardous waste incinerator.

Electricity consumption

The site's electricity requirements are covered through energy from external sources and electricity generated by our own power plant. The proportion of electricity generated in-house – and therefore also the amount of energy from external sources required – depends on the run times of the turbines in our power plant. Overall, the run times of the gas turbines have been reduced in recent years and the amount of energy from external sources has increased.

Relative energy consumption shows a falling trend, reaching its lowest ever value to date in 2024.

Various energy projects conducted over the last few years – some of which are still ongoing – have contributed to this, e.g. only considering models with high levels of efficiency when buying new motors, optimizing cooling water pumps and increased use of LED lighting in all areas.

Electricity consumption

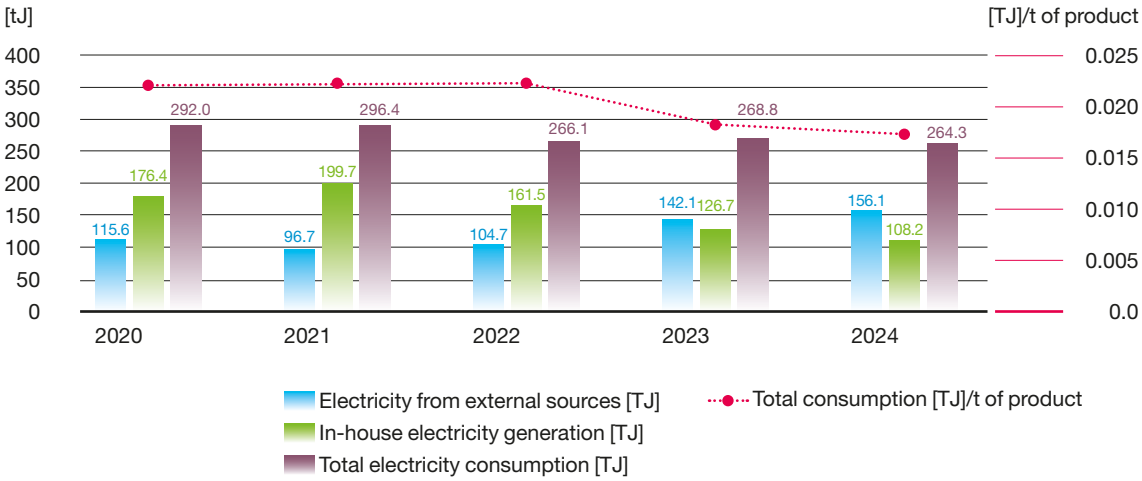


Fig. 18: Relative electricity consumption reached its lowest ever value to date in 2024.

Proportion of renewable energies in electricity obtained externally

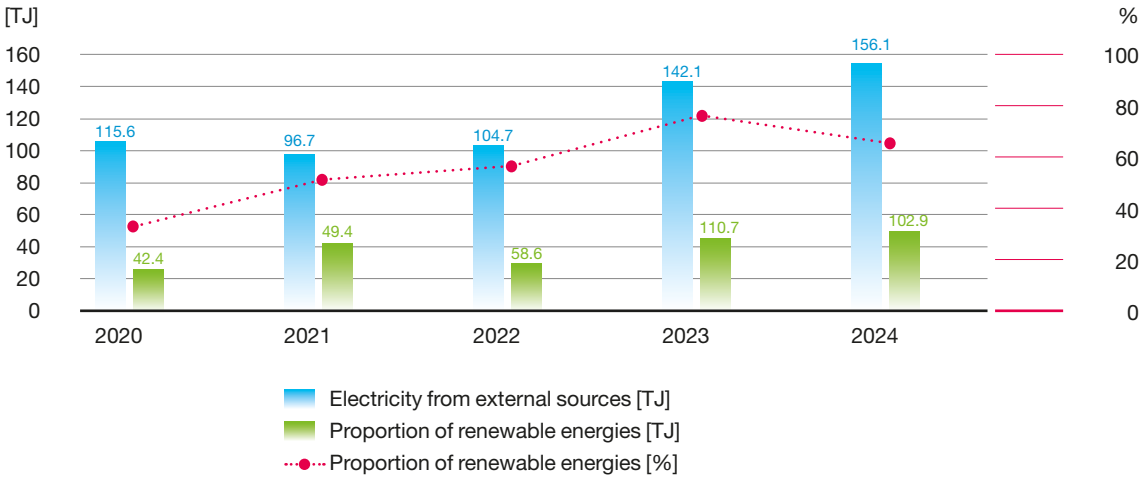


Fig. 19: By 2030, the proportion of electricity from renewable energies in electricity from external sources is to be increased to 100%.

Proportion of renewable energies in electricity obtained externally

A key objective of the Bayer sustainability strategy is to achieve net zero by 2030. One way of achieving this is to switch exclusively to electricity generated from renewable energies for externally purchased electricity (see Objectives).

Figure 19 shows the development in the proportion of renewable energies in the electricity from external sources purchased for the Bergkamen site. This proportion rose continuously from 2020 to 2023, falling in 2024 only, due to delivery contract requirements. In 2030, however, electricity from external sources will be generated exclusively from renewable energies.

The Bergkamen site has procured several electric vans over the past few years.

Indirect environmental impact

Transporting goods of all kinds to and from Supply Center Bergkamen consumes energy and generates harmful emissions. The same applies to business trips and employees' journeys to and from work. A point is made of optimizing capacity utilization for the relevant modes of transport and avoiding empty runs so as to minimize transport-related emissions. On the works premises, an electric truck has been used for transport runs between production facilities and the central warehouse since 2023. To encourage use of electromobility in other ways, too, five charging columns (with a total of nine charging points) were put into operation in front of building A900 at the Bergkamen site in 2024. These can be used by both staff and external companies.

In collaboration with co-workers at the Wuppertal plant, a digital platform was also set up in 2024 to make car-pooling arrangements easier.

Moreover, discussions are currently being held with the town of Bergkamen about improving the site's links to the public transport network. In addition, since May 2023, Bayer AG has been offering all its employees a "job ticket" that can be used to purchase the Deutschlandticket – the German subscription public transport ticket – on favorable terms.

Since there is a limit to how much a company can do on its own to cut greenhouse gas emissions along the value chain, Bayer is cooperating with other companies as part of various initiatives. Together, we aim to record greenhouse gas emissions and climate risks and work on reduction targets and strategies.

One of these joint projects is the "Together for Sustainability" (TfS) initiative of the chemical industry. The aim of this is to standardize the calculation of a product-related carbon footprint (PCF) for the chemical industry. Furthermore, we make use of the Pharmaceutical Supply Chain Initiative (PSCI) working group to engage in dialogue within the pharmaceutical industry about measures to reduce Scope 3 emissions[1].

In the area of communication, Bayer is increasingly using energy-efficient workstation solutions with integrated voice and video functions. Such IT solutions reduce the number of business trips necessary and thus emission levels. The Bergkamen site also features a state-of-the-art video conference room.

Producing the essential raw materials, consumables and supplies and the relevant packaging materials has an impact on the environment, which varies according to the technological standard of suppliers.

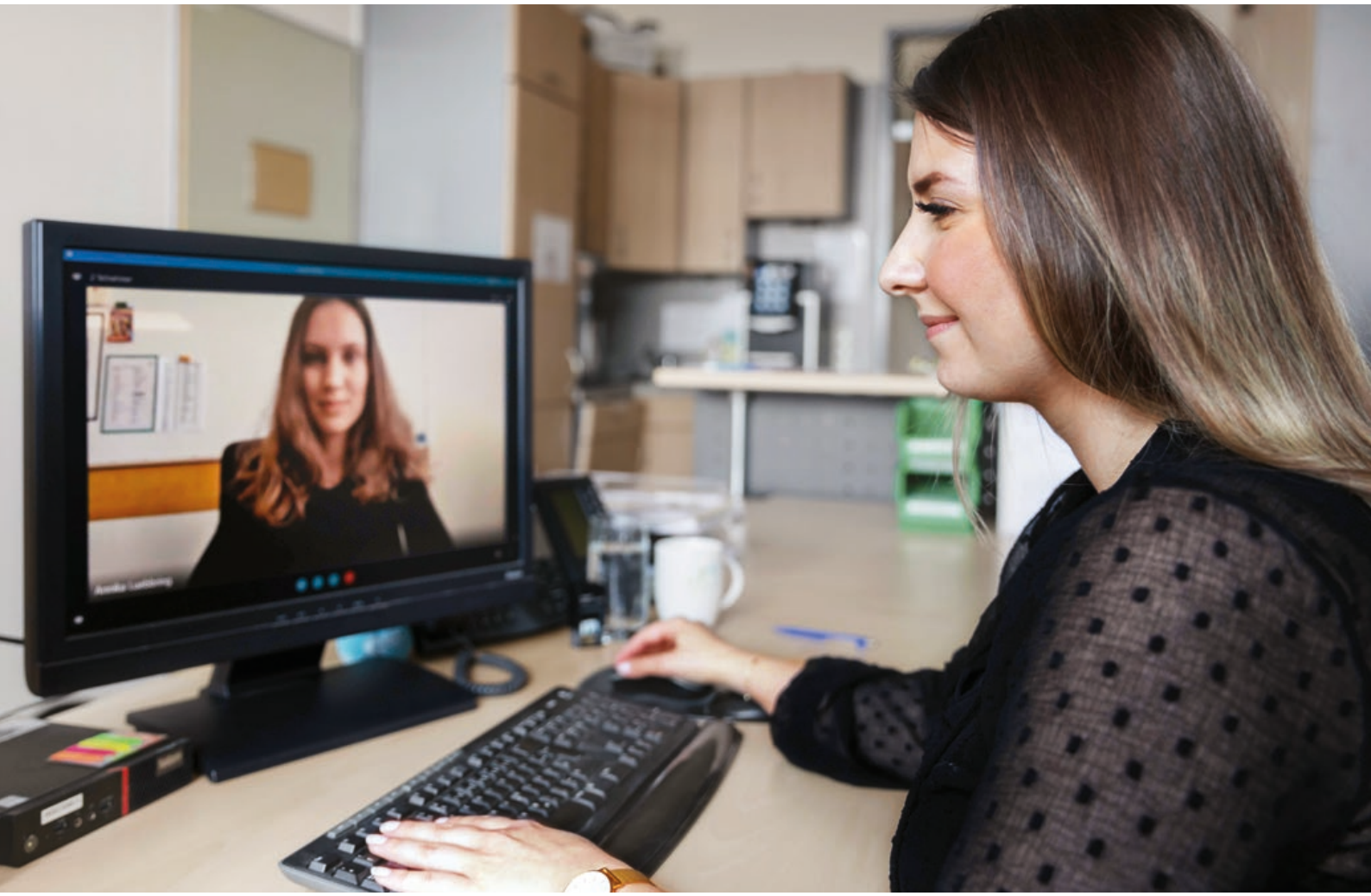
Collaboration with our suppliers is also key to reducing indirect emissions (Scope 3). Our procurement team therefore works directly with suppliers to help them cut their emissions. We also seek out partnerships with "greener" suppliers that produce lower emissions. For example, the Bergkamen and Wuppertal sites started purchasing eco-friendly sodium hydroxide in December 2024. To produce this eco-friendly sodium hydroxide, the supplier has switched to electricity from renewable sources for the energy-intensive electrolysis process.

It is an elementary factor in Bayer's value chain that suppliers and external partners also respect and adhere to sustainability standards. Besides economic standards, we therefore also apply environmental, social and corporate governance (ESG) standards when choosing our suppliers. These standards are defined in Bayer's Supplier Code of Conduct, which is based on the principles of the U.N. Global Compact and the Bayer Human Rights Position. The Code forms the fundamental basis for our collaboration. It is legally binding and integrated into electronic ordering systems and contracts throughout the Group.

Compliance with the Code requirements is checked through online assessments of suppliers or on-site audits. There are two types of on-site supplier audits:

- Audits conducted by Bayer's own HSE auditors on the basis of Bayer's audit protocol
- Audits conducted by external auditors in accordance with the standards of the PSCI and TfS industry initiatives

[1] Scope 3 emissions are indirect emissions that are produced up and down a company's value chain. These include emissions generated by suppliers when producing and transporting raw materials that the company uses in its production operations. Scope 3 emissions also cover business travel, commuting by employees and waste produced by the company.



TEAMS meetings benefit the environment by reducing the need for business trips.

If a supplier's audit report is particularly critical, they are added to the in-house "Sustainability Supplier Development" program, which is managed by the procurement team. Under this program, specific improvement measures are defined in collaboration with the supplier and documented in an action plan. The entire audit process is complete once all agreed remedial measures have been carried out and approved (we carry out spot checks as part of follow-up audits to ensure that the agreed remedial actions have been sustainably implemented). Bayer reserves the right to terminate a supplier relationship if no improvement is observed during a re-evaluation. In 2024, 122 suppliers were added to the development process as part of the Supplier Development Program (2023: 121 suppliers). A total of 34 suppliers (2023: 30 suppliers) have already completed this development process and undergone a re-evaluation. This has led to improvements in 97% of suppliers (2023: 93%).

Accidents resulting in lost working days and LTRIR[1]

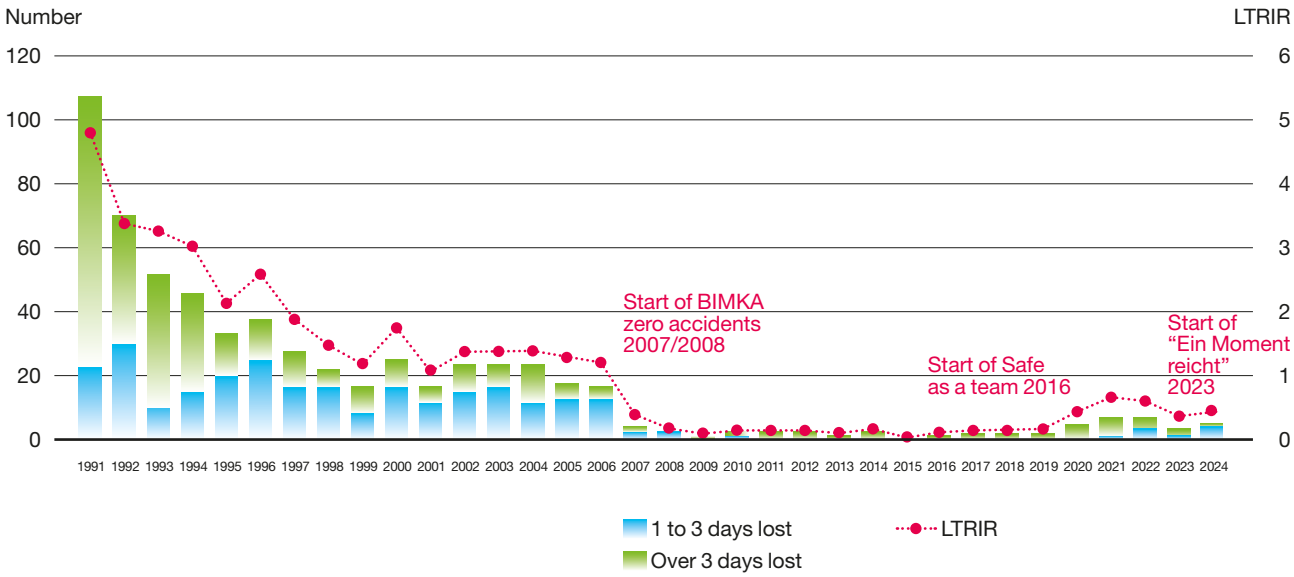


Fig. 20: Historical incident figures and occupational safety programs

Occupational safety and accidents

As an integral part of our management system, occupational safety was first audited in line with OHSAS 18001 requirements in 2006. The certification body confirmed in the process that a health and safety management system exists and is applied. In 2020, the certification of our occupational safety management system was switched to ISO 45001, the new international standard for state-of-the-art occupational health and safety.

In the early 1990s, Supply Center Bergkamen initiated an important process for improving occupational safety with its BIMKA (observe, inform, motivate, monitor, evaluate) occupational safety program. As a result, accident statistics from that decade show a considerable drop in incidents. However, a comparison with figures from other sites belonging to the Bayer Group revealed more scope for improvement. Building on the BIMKA program, the Bergkamen site has been conducting the Group-wide "Managing safety!" accident prevention initiative since 2008 with an additional module – the "BIMKA zero accidents" occupational safety program, which was put in place with the help of an external consultant.

This new occupational safety program led to a further drop in accident rates. For the first time in 2015, there wasn't a single accident leading to days of absence in Bergkamen – that's an LTRIR of zero! At the start of 2014, the Behavioral Safety initiative was adopted by the Bayer Safety Council headed by the Chairman of the Board of Management. This initiative focuses on the human factor and the safety-conscious behavior of employees. Behavioral safety involves identifying and preventing unsafe working practices and appropriately reinforcing and consolidating safe working methods at all levels. This approach is by no means limited to the production plants but also covers areas of work such as research & development, marketing & sales and administration.

Supply Center Bergkamen implemented this initiative under the heading "Safe as a team" in 2016. Initially, employees were trained as coaches and then acted as ambassadors for their fellow co-workers. With the aim of the health and safety program being to reinforce positive behavior, occupational safety experts worked with other staff members on site to analyze the rules that were in place and ascertain where they were already being put into practice effectively.

[1] The LTRIR (Lost Time Recordable Incident Rate) calculates the number of work-related accidents leading to days of absence based on 200,000 working hours.

Accidents leading to days of absence, changed tasks, medical treatment and RIR[1]

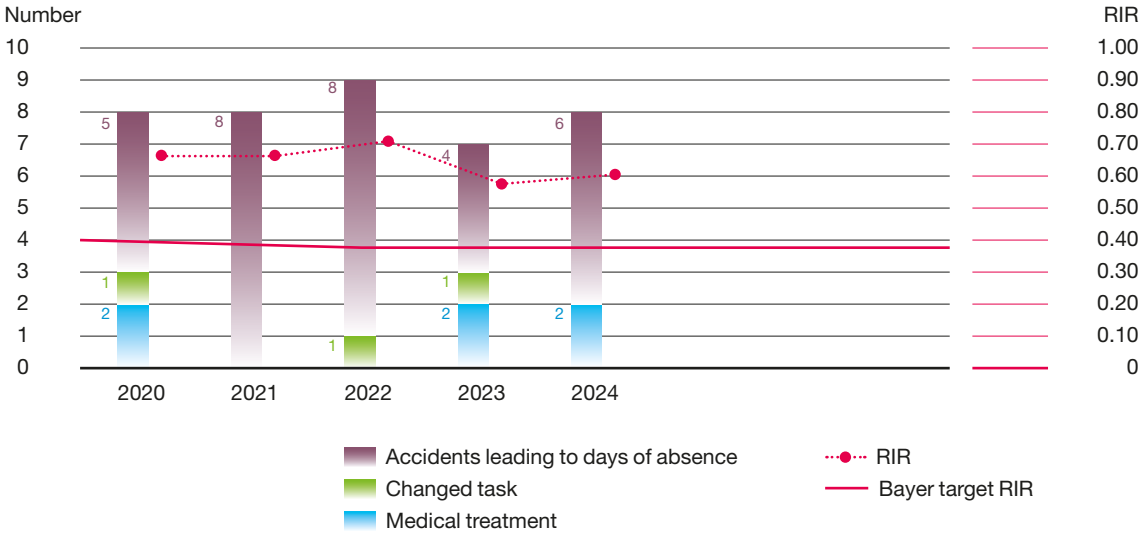


Fig. 21: RIR in the last 5 years

The core elements, which are designed to further reduce the already low accident rate, include increasingly interlocking different safety systems and considering and ranking both appropriate and improper behaviors. As a result of this occupational safety program, it was possible to keep the accident figures for 2016 to 2019 at a very low level. In response to the rising accident figures from 2020, the "Ein Moment reicht" occupational safety campaign was launched in 2023. Besides reinforcing established methods, this campaign contained a number of new elements. For example, a final safety check was introduced to enable employees about to embark on a task with higher risk potential to check once more whether it can be carried out safely. Despite this, however, there was no reduction in the accident figures in 2024.

Focus has now shifted from the LTRIR to the RIR. Whereas the LTRIR only takes into account work-related accidents and illnesses with days lost, the RIR also counts medical treatment and job transfers. In its integrated annual report, Bayer had pledged to maintain an RIR of 0.39 until 2021. The Bergkamen site adopted this target. However, between 2020 and 2024, the RIR remained higher than the target figure set. "Ein Moment reicht …" – the new occupational safety initiative launched in 2023 – did not lead to a reduction in this figure, either. Further measures to reduce numbers of accidents are currently under consideration. In the future, every site is to aim to keep the accident figures below the average for the preceding three years. This is to replace the RIR.

[1] The RIR (Recordable Incident Rate) records not only the number of work-related accidents leading to days of absence, but also the number of cases in which medical treatment was given and tasks were changed, and is based on 200,000 working hours.

Safety through dialogue – supervisors and staff regularly discuss ways of optimizing occupational safety and preventing accidents.

Bayer Safety Day

The Group-wide Bayer Safety Day is held once a year with the aim of making staff more aware of occupational health and safety issues. Due to the COVID-19 pandemic, 2020 and 2021 saw the first virtual Safety Days in Bayer's history, but it is now being held as an in-person event once more. The event includes a variety of occupational health and safety activities. Recent focal points have been as follows:

2020: "Be aware – check twice!"
2021: "Together towards a healthy and safer workplace"
2022: "Always remember to Take CARE"
2023: "Ein Moment reicht …"
2024: "Ein Moment reicht … update"

Occupational health management

Health is the most precious commodity of all. Consequently, protecting employees against accidents and diseases is, and always will be, the key objective. As early as 1996, Bayer began its occupational health management scheme in Bergkamen, which covers a wide range of activities for protecting people while they are at work and for ensuring their tasks, working conditions and the way work is organized are conducive to good health. Occupational health management should also provide guidance on conduct – above all by management staff – that promotes health, safety and well-being. The focus is on the following objectives:

- Guarding against health impairments
- Encouraging staff to adopt a healthy and active lifestyle
- Creating a healthy working environment
- Boosting motivation and job satisfaction

To this end, it is necessary to alert all staff members to health issues, increase their health awareness and take measures to adapt to changed working conditions. Our conviction that people are the most important resource a company has serves as our guiding principle.

Staff are involved through health groups. These workshops, run by internal and external specialists, address health concerns on site and use these to develop measures to improve the situation.

Back in 2014, the role of health officer was created to act as the link between staff and their supervisors. Their main role is to provide information, organize activities and motivate others in their area of responsibility with regard to health issues. At the same time, they are there to support staff and supervisors. A large number of health officers have been appointed at Supply Center Bergkamen, with due care taken to ensure each area/function has at least one health officer at its disposal.

To coordinate the work of health officers, encourage them to network and pool health-related issues across multiple areas of responsibility, the site management has appointed a health coordinator. The health coordinator's role involves the following duties:

- Taking on board health-related issues from health officers
- Presenting these issues to the plant management and the Occupational Health Management committees
- Supporting the on-site work performed by the health officers

The site's own health center also opened its doors in 2014. This provided the Bergkamen site with an established port of call for health issues for the first time in its history. Besides a large training room with a sound system and various pieces of sports equipment, the center houses a massage room and a seminar room for the theoretical element of health training courses.

The company's sports association continuously adapts and develops its offerings – for example, a padel tennis and wakeboarding department has recently been introduced.

Health schemes

Many of the existing occupational health management activities have been continued and refined over the last few years.

Employees receive a diverse range of needs-oriented information and offers relating to exercise, nutrition, relaxation and more. Staff can easily find what they are looking for on the health management intranet page. Beginners and experienced athletes alike can find what is right for them.

Here are some examples of the options currently on offer:

- Introductory course, health center circuit training equipment
- Fit Plus Bergkamen
- RedHawk Crossfit
- Foot care
- Massage
- Fitness boxing
- “Perfect Move” biokinematic whole-body training for beginners and advanced participants

Preventive activities

In addition to the usual checks by the works doctor, the occupational health management system also offers staff thorough preventive health screening with advanced health checks.

Based on the works agreement for lifetime working and demographic change, the Works Council and company management have agreed to introduce this new form of health promotion, which involves a preventive health screening and an in-depth consultation. The screening, which goes way beyond the offerings of statutory health insurance providers, is free of charge, takes place during working hours and is carried out by in-house medical staff. All employees receive a written invitation to attend a personal health check. A blood sample is taken one or more days before the appointment. For the check, the employee pedals a bike and subsequently has an in-depth discussion with the doctor. During the consultation, which lasts about an hour, staff are given the results of their blood tests and find out more about good and bad cholesterol and their personal risk of a stroke or heart attack. Based on all the findings, the doctor and employee look for indications as to where action is needed, what needs to be done as quickly as possible, which measures require more time, and what is going well.

Supply Center Bergkamen offers its staff a free health check, including a detailed medical consultation.

Objectives and programs

Evaluation of objectives from the 2022 Environmental Statement

Objectives/programs/measures Occupational health and safety	Implemented by	Comments
Reducing occupational accidents ➔ Implementing Bayer's Behavior Based Safety occupational safety initiative (Safe as a team) at the Bergkamen site	Ongoing objective	
• Achieving RIR ≤ 0.38	2022	● The objective was not achieved. In 2022, there were nine accidents in total, eight of which led to days of absence (RIR 0.71). New occupational safety campaign from 2023!
• Optimizing involvement of the Site Leadership Team in the occupational safety program	2022	● Involvement of the Site Leadership Team has been optimized.
• Conducting safety performance dialogues for management teams	2022	● Safety performance dialogues for management teams have been introduced and are to be continued.
Reducing the absence rate **➔ Conducting health promotion activities**	Ongoing objective	
• Conducting a Health Day for all staff	2022	● The Health Day had to be canceled due to the pandemic, but was held in 2023.
Musculoskeletal concept pilot project	2022	● Was implemented and also continued in 2023
Certified online prevention course for biokinematic whole-body training	2022	● Was implemented
• Discussing the results of the 2019 Health Survey on psychological stress in all functions, deriving measures and creating function-specific risk assessments for psychological stress	2023	● Project completed Was continued in 2023 + 2024 Implementation of measures from the relevant department's idea meetings on site. The implementation of measures in the departments was checked in 2024.
Reducing exposure to hazardous substances ➔ Adopting targeted measures to reduce exposure to hazardous substances	Ongoing objective	
• PU-E: Acquiring another special in-line sampler	2023	● Project completed The new sampler is designed to have very little dead space and to reduce employees' exposure during the sampling process.
• PU-E: Installing two big bag filling stations to replace filling via containers	2023	● Project completed Improved tightness of the filling stations reduces exposure to hazardous substances in the working area.
• PU-E: Strengthening an existing big bag emptying station on the third floor	2023	● Project completed Improved tightness of the emptying station
• Automated disposal of liquid waste in PU-A	Mitte 2023	● Project completed The trip hazard has been reduced and the risk of substances being released has been minimized.
• Replacing hoses with rigid pipes in the process water treatment area	Ende 2023	● Project completed The trip hazard has been reduced and the risk of substances being released has been minimized.
• Distillation, laboratory: Taking samples for process control of recycled solvents via closed samplers in the fume cupboard	2023	● Project completed Sampling is conducted through a circuit system in the fume cupboard, which is where the samples are taken. This prevents any emissions into the room or the environment.
• Microbiology: Installing an improved sampling system in tank farm MPD	2022	● Project completed The new sampling systems reduce employee exposure.

Objectives/programs/measures Occupational health and safety		
Reducing relative energy consumption by 10% (reference year 2019) ➔ Conducting energy-saving projects	2029	Supporting Bayer's goal of achieving net zero by 2030
• Continuing the plant-wide program to replace old motors with high-efficiency models. Annual exchange of approx. 1,500 – 1,700 kW drive power. Potential savings of approx. 200,000 kWh p.a. once all motors have been changed.	fortlaufend	● Project ongoing The replacement of motors is an ongoing, plant-wide project. Current status at the end of 2024: 33.5% are achieving the maximum possible drive power.
• Updating target set in the 2016, 2019 and 2022 Environmental Statements Constructing a new, more energy-efficient distillation plant at the Bergkamen site to replace the old plant Updating target set in the 2016, 2019 and 2022 Environmental Statements	2022	● Startup in 2023 largely achieved Among other things, optimized condensation temperature controls at the column head through the addition of a secondary cooling system; replacement of a stirrer with outer surface heating with a state-of-the-art falling film evaporator that heats more effectively.
• Distillation: Saving energy by boosting the efficiency of solvent recovery by 10% compared to 2019	2024	● Project ongoing The solvent recovery process is to be optimized in such a way that a 10% greater yield is achieved with the same machine run time. The shorter run time or increased yield is equivalent to a 10% reduction in the amount of steam. Ethyl acetate was selected as a representative process. Once this has been successfully optimized, other solvents will be included.
• Obtaining additional qualifications as energy scouts for three trainees from the IHK	2022	● Project completed Training has taken place.
• Wastewater treatment plant: Cutting energy consumption in the wastewater treatment plant aeration by 10% by 2029	2029	● Project ongoing Continuous improvement of the aeration equipment and the operation of the activated sludge tanks and improved distribution of the wastewater streams in the facility. The correlation between biological sludge concentration and aeration has been confirmed. Optimization of aerator maintenance is being planned.
• Determining energy consumption specific to stages of synthesis and the associated carbon footprint in all active ingredient facilities	2029	● Project completed The energy consumption specific to stages of synthesis and the associated carbon footprint has been determined on the basis of up-to-date SAP evaluations.
• Pipe network: Installing an air compressor optimized to the requirements and procuring an acoustic camera for efficient leak detection in the compressed air system	2023	● Project completed A new air compressor has been put into operation, so a discharge of compressed air is no longer necessary. An acoustic camera has also been purchased to inspect the pipe networks for leaks. Potential savings by detecting leaks: EUR 3,000 in 2022. The inspection is repeated on an annual basis.
• Replacing lighting (energy-efficient LED technology) in C064, D158, A035, A112, B320, D232, E130, E136, E166, B153 and C132	2022	● Project ongoing Continuing the switch to LED lighting in more buildings/areas

• Replacing and optimizing lighting in PU-A, including with LED technology. Updating from 2019 Environmental Statement	2024	● Project ongoing Due to issues relating to explosion protection, it was not previously possible to install LED lighting in the production environment. Now, LED lighting is available that meets the relevant safety requirements. The PU-A cellar has already been completely switched to LED lighting. Other floors will follow.
• Microbiology: Exchanging two more fermenter air compressors for new, more energy-efficient equipment	2022	● Project completed New, more energy-efficient compressors have been installed and put into operation. The old ones have been switched off and dismantled.
• Analyzing the energy-saving potential of 20 climate control and ventilation systems	2023	● Project completed 17 ventilation systems have been examined in relation to energy-saving potential; detailed evaluations have also been conducted for two systems.
• PU-B: Switching the lighting in production areas to LED over the next few years Office areas were already switched to LED in previous years. Previous electrical power: approx. 20,280 W; after switch to LED: approx. 6,850 W; annual saving operating all day every day: approx. 118,000 kWh/year	2025	● Project ongoing EUR 125,000 has been invested to date; a further EUR 35,000 will be invested by 2025. LED lighting was installed on the second/third floors in 2021. In 2022, work on doing this for the first floor was started.

Objectives/programs/measures
Environment/air pollution control

Reducing indirect carbon dioxide emissions ➔ Adopting measures to reduce carbon dioxide emissions	Ongoing objective	Bayer objective: Reducing indirect carbon dioxide emissions by procuring 100% “green electricity” by 2030
• Increasing the proportion of renewable energies in electricity obtained from external sources to 100% by 2030	2030	● Project ongoing Bergkamen, proportion of green electricity in electricity obtained from external sources in 2024: 65.9%
Reducing direct carbon dioxide emissions by 10% relative to 2019 (= 74,476 metric tons) ➔ Adopting measures to reduce carbon dioxide emissions	2029	Supporting Bayer’s goal of achieving net zero by 2030
• Assessing collaboration with the neighboring biomass heating plant	2023	● Project completed The collaboration agreement with E.ON has been signed, with the first delivery of green steam planned for 2024/2025.
• Distillation: Resuming solvent processing for the azeotrope mix THF/methanol (7:3)	2024	● Project postponed The analysis of cost-efficiency and real benefits for sustainability will be evaluated in 2025. If the outcome of the evaluation is positive, the target will be updated and included in the Environmental Statement from 2026 onward.
• Feasibility study for biogas from wastewater (WASE project) Integrating an anaerobic wastewater treatment facility with generation of biogas In preliminary studies, wastewater streams from PU-F with high levels of organic substances were identified; anaerobic treatment of these is promising	2023	● Project completed Approx. 8,000 MWh of biomethane could be produced each year. The biogas could be used e.g. in the hazardous waste incinerator. The results of a feasibility study to establish whether wastewater streams are actually anaerobically degradable were positive, but implementation of the project has been put on hold due to cost.

Avoiding complaints from neighbors ➔ Adopting measures to improve odor/noise situation	Ongoing objective	
• Wastewater treatment plant: Constructing a new pretreatment facility with waste air adsorbers to minimize odors	2024	● Project deferred (until 2028) due to quality issues affecting various components and the prioritization of other projects The pretreatment facility is being rebuilt. All basins will be covered in the future and fitted with an off-gas disposal system.
• Installing soundproofing equipment at the induced-draft fan for boiler 1 (chimney B313) as part of the renewal of the induced-draft fan	2022	● Project completed The installation of soundproofing equipment at the induced-draft fan has reduced the noise spread via the 120-meter-high chimney, thereby preventing noise complaints from the neighborhood.
Material-efficient, resource-friendly production ➔ Implementing measures to improve recycling processes and reduce raw material and material consumption	Ongoing objective	
• Improving ADD synthesis processes in microbiology Certification campaign in 2022 Switchover to new synthesis from 2024	2022 2024	● Project completed Refining the process makes it possible to eliminate the 2-naphthol cracking stage entirely (incl. raw materials, solvents, energy, wastewater, etc.). This has been implemented and the first production operation based on the new process took place in 2024.
• Gadolinium recovery from the gadobutrol synthesis wastewater streams in PU-F, checking process	2022	● Project completed The results of the first economic efficiency calculation were positive and the plant concept is being worked out in detail with the manufacturer of the membrane system. This will be followed by coordination and preparation of the necessary approval documents. The extension of the project will be included in the 2025 objectives.
• Further optimization of ethanol recovery in PU-F	fortlaufend	● Project completed Optimizations largely implemented, but there will be an ongoing focus on ethanol recovery, with a view to optimization and stabilization.
• PU-B: Saving liquid nitrogen	2023	● Project discontinued This project was discontinued due to excessively long amortization periods and other priorities. The plan had been to replace two-point control for liquid nitrogen with continuous temperature control (approx. 5% lower consumption).

Objectives for 2025 and beyond

Objectives/programs/measures Occupational health and safety	Implemented by	Comments
Reducing occupational accidents	Ongoing objective	
➔ Continuing the "Ein Moment reicht …" occupational safety initiative		
• Bergkamen site: fewer than eight recordable incidents in 2025	2025	• There were eight recordable incidents in 2024.
• Distillation and PUF: Setting up an occupational safety core team for the Radiology & Solvents cluster in 2025	2025	• The occupational safety core team is to drive forward all occupational safety topics.
• Distillation: Improving occupational safety by putting a new enclosed switchgear system into operation in Building B163	2025	
• Distillation: Improving occupational safety by means of new walkways in C145 and raising the height of the railings on the tanks in D170, as well as new work platforms in the emptying station	2025	
• Microbiology: Procuring a big bag breaker to increase occupational safety when breaking up compressed contents	2025	
Reducing the absence rate	Ongoing objective	
➔ Conducting health promotion activities		
• Bergkamen site: Holding a "Health Day" for all staff together with the Safety Day	2025	
• Bergkamen site: Various health management options and activities are offered	2025	• Flu vaccinations, BEK consultation days, "Five" back and joint concept, fitness boxing, biokinematic whole-body training, Perfect Move, etc.
Reducing exposure to hazardous substances	Ongoing objective	
➔ Adopting targeted measures to reduce exposure to hazardous substances		
• PU-F: Replacing carcinogenic 1,2-dichloroethane (REACH)	2030	• REACH authorization to use 1,2 dichlorethane lasts until November 22, 2029. 1,2 dichloroethane is to be replaced by a non-carcinogenic solvent.
• Distillation: Plan for the preventive maintenance of plants that contain 1,2-dichloroethane	2025	• The tightness of processing plants in which 1,2-dichlorethane is used is to be ensured by means of preventive maintenance.
• Microbiology: Strengthening glovebox TA 545 with a new drum feed component	2025	• Reducing the amount of dust to which staff and the environment are exposed
• PU-A: Retrofit project: Closed charging at the drospirenone, pure stage	2025	• Installing a PTS/DCS system for the contained filling of a stirred reactor with drospirenone, raw substantially reduces the risk of contact with the active ingredient.
• PU-A: Redesign finish area project This project also involves installing two new Nutsche filter dryers with a revised process for removing the remaining contents in a contained system, as well as a filling process that uses a continuous bag system.	Ende 2026	• The technical measures substantially reduce the risk of contact with hazardous substances. Optimizing the air exchange rate in the finish area to be installed will also lead to significant energy savings. As part of this project, cleanroom clothing will also be changed from disposable clothing to reusable clothing to cut down on volumes of waste.

Objectives/programs/measures Environment/energy	Implemented by	Comments
Reducing relative energy consumption by 10% (reference year 2019)	2029	
➔ Conducting energy-saving projects		
• Continuing the plant-wide program to replace old motors with high-efficiency models. Annual exchange of approx. 1,500 – 1,700 kW drive power. Potential savings of approx. 200,000 kWh p.a. once all motors have been changed. Updating target set in the 2016, 2019 and 2022 Environmental Statements	Ongoing	• The replacement of motors is an ongoing, plant-wide project. Current status at the end of 2024: 33.5% are achieving the maximum possible drive power.
• SAV: Replacing the condenser	2027	• The amount of energy required to heat the flue gas is to be reduced by using a new, improved condenser to lower the amount of moisture in it.
• Distillation: Implementing the EnDOR-BEK project to present energy consumption data transparently and identify drivers for efficiency projects	2025/2026	
• Microbiology: Implementing the EnDOR-BEK project to present energy consumption data transparently and identify drivers for efficiency projects	2025/2026	
• Microbiology: Changing the B022 compressor hall lighting to LED	2025/2026	
• Microbiology: Renewing the facade on the south side of B002 with insulated facade panels	2025/2026	• New facade panels with a 16 mm insulating layer
• Power plant: Optimizing the method of keeping boiler 4 warm by means of automated blowdown	2025	• This optimization saves on steam needed to keep the boiler warm.
• Wastewater treatment plant: Cutting energy consumption in the wastewater treatment plant aeration by 10% by 2029 Continuation of the target set in the 2022 Environmental Statement	2029 2025/2026/	• Continuous improvement of the aeration equipment, the operation of the activated sludge tanks and improved distribution of the wastewater streams in the facility
• Changing street lighting and lighting in areas A001 and A202 and parts of B105 and D105 to LED	2027 2025	
• Bergkamen site: The topic “Sustainability in the lab” is to be established with the help of the energy scouts in training		• Collaboration with Thermo Fisher Scientific. The trainees learn sustainable working methods in the laboratory.

Objectives/programs/measures Environment/air pollution control	Implemented by	Comments
Reducing indirect carbon dioxide emissions ➔ Adopting measures to reduce carbon dioxide emissions	Ongoing objective	
• Bergkamen site: Increasing the proportion of renewable energies in electricity obtained from external sources to 100% by 2030	2030	Proportion of green electricity in electricity obtained from external sources in 2024: 65.9%
Reducing direct carbon dioxide emissions by 10% relative to 2019 (= 74,476 metric tons) ➔ Adopting measures to reduce carbon dioxide emissions	2029	Supporting Bayer's goal of achieving net zero by 2030
• Bergkamen site: Obtaining green steam from the neighboring E.ON biomass power plant	2026	• Building the steam pipeline required and extending the pipeline route First green steam delivery planned for late 2025 / early 2026
Reducing other air emissions ➔ Adopting measures to reduce air emissions		
• PU-A: Installing a thermal afterburner	2025	• Avoiding emissions of volatile organic compounds (VOCs), treating waste gases that contain hydrogen and acetyls; installation has begun, startup in late 2025
• Hazardous waste incinerator (SAV): Replacing the afterburner chamber by installing low-NOx burners for gas firing	2026/2027	• Reducing nitrogen oxide emissions Submitting application for approval, first partial approval in 2025
• Hazardous waste incinerator (SAV): Denitrification plant retrofit	2027	• Reducing nitrogen oxide emissions Submitting application for approval, second partial approval in 2026
• Power plant: Installing a new denitrification plant for boiler 2	2026	• Reducing nitrogen oxide emissions Submitting application for approval in 2025, startup by late 2026
Avoiding complaints from neighbors ➔ Adopting measures to improve odor/noise situation		
• Wastewater treatment plant: Constructing a new pretreatment facility with waste air adsorbers to minimize odors	2028	• The pretreatment facility is being rebuilt. All basins will be covered in the future and fitted with an off-gas disposal system.
• Continuing the neighborhood dialogue at least once a year	2025	• The Bergkamen site invites all interested neighbors to attend a neighborhood dialog once a year.
Reducing the substances contained in wastewater ➔ Adopting measures to reduce the substances contained in wastewater		
• Microbiology: Changing synthesis of a solution containing phosphate to urea	2026	• As urea is used instead of the solution containing phosphate, the discharge of phosphate into wastewater is prevented. This reduces the wastewater's phosphate load.
• PUF + distillation: An additional activated carbon system is being constructed in the distillation facility to remove more iodide for the purposes of iodine recovery	2025/2026	• Implementation in 2025. Planned start of the recovery process in 2026

Material-efficient, resource-friendly production ➔ Implementing measures to improve recycling processes and reduce raw material and material consumption	Ongoing objective	
• Distillation: Rectification of acetone as a large-volume solvent at the site	2025	• Following test runs in 2024, the rectification of acetone will be included in the distillation facility's portfolio from 2025 onward.
• PU-F: Recovering gadolinium from the gadobutrol synthesis wastewater streams	2025/2026	• Contract agreement with the external partner and approval documents should be completed in 2025. Construction and startup of the plant planned for 2026.
• Distillation + PUF: The concept for gadoquatrane, which is currently in development, includes plans to recycle acetonitrile	2025	• The first test runs for the rectification of acetonitrile were launched successfully in Q3 2024 and acetonitrile is to be included in the distillation facility's "standard portfolio" from 2025 onward.
• Distillation: Recovery of n-heptane for the production of elinzanetant in 2025	2025	
• Distillation: Recovery of propargyl alcohol	2025	• To prevent the destruction of out-of-specification market products
• Distillation: "Sustainable solvent recovery (SolWin)" project	2025	• Identifying the most promising non-recycled waste streams; analyzing the costs and workload associated with recycling, determining the economic and ecological recycling potential
• Pipe network: Avoiding wastewater in the cooling towers	2025	• Changing the filter technology means far less backwash water. Water savings of approx. 130,000 m3 p.a.
• PU-A: Optimizing equipment conditioning, saving approx. 100 m^3 of solvent p.a.	2025	• Before the start of production, the plant has to be conditioned with the solvent of the product to be manufactured. This process was optimized by means of test runs in 2024. This optimized process is to be used from 2025 onward.
• PU-A: Introducing electronic batch documentation		• Recording batch production electronically cuts down on the use of paper significantly.

Validation

Gültigkeitserklärung

Erklärung des Umweltgutachters zu den Begutachtungs- und Validierungstätigkeiten

Der
Umweltgutachter
Dipl.-Ing. Henning von Knobelsdorff
Mozartstraße 44
53115 Bonn

hat das Umweltmanagement-System, die Umweltleistungen, die Umweltbetriebsprüfung, ihre Ergebnisse und die konsolidierte Umwelterklärung der

Bayer AG
Supply Center Bergkamen
Ernst-Schering-Straße 14
D-59192 Bergkamen

Registriernummer: DE-118-00016

NACE-Code 21.1 „Herstellung von pharmazeutischen Grundstoffen“ & 21.2 „Herstellung von pharmazeutischen Spezialitäten u. sonstigen pharmazeutischen Erzeugnissen“

auf Übereinstimmung mit der Verordnung (EG) 1221/2009 des Europäischen Parlaments und des Rates vom 25. November 2009 über die freiwillige Beteiligung von Organisationen an einem Gemeinschaftssystem für das Umweltmanagement und die Umweltbetriebsprüfung (EMAS III) i.V.m. (EU) 2017/1505 und EU) 2018/2026 geprüft und die vorliegende Umwelterklärung für gültig erklärt.

Mit der Unterzeichnung dieser Erklärung wird bestätigt, dass

— die Begutachtung und Validierung in voller Übereinstimmung mit den Anforderungen der Verordnungen VO (EG) 1221/2009 i.V.m. (EU) 2017/1505 und EU) 2018/2026 durchgeführt wurden,

— das Ergebnis der Begutachtung und Validierung bestätigt, dass keine Belege für die Nichteinhaltung der geltenden Umweltvorschriften vorliegen,

— die Daten und Angaben der vorliegenden Umwelterklärung des o.b. Standortes mit ca. 1500 Mitarbeitern im begutachteten Bereich, ein verlässliches, glaubhaftes und wahrheitsgetreues Bild sämtlicher Tätigkeiten des Standortes innerhalb des in der Umwelterklärung angegebenen Bereiches geben.

Die nächste konsolidierte Umwelterklärung wird der Registrierstelle spätestens bis 25. Mai 2028 vorgelegt. In der Zwischenzeit werden vom Unternehmen jährlich durch den Umweltgutachter für gültig erklärte Aktualisierungen der Öffentlichkeit zugänglich gemacht.

Diese Erklärung kann nicht mit einer EMAS-Registrierung gleichgesetzt werden. Die EMAS-Registrierung kann nur durch eine zuständige Stelle gemäß der Verordnung (EG) Nr. 1221/2009 erfolgen. Diese Erklärung darf nicht als eigenständige Grundlage für die Unterrichtung der Öffentlichkeit verwendet werden.

Bergkamen, den 09. Mai 2025

Henning von Knobelsdorff
Umweltgutachter
DE-V-0090

Certificates

Zertifikat

Der
Umweltgutachter Henning von Knobelsdorff bescheinigt hiermit, dass die

Bayer AG

Ernst-Schering-Straße 14
DE-59192 Bergkamen

ein

Umweltschutzmanagementsystem

in Übereinstimmung mit dem Standard

ISO 14001:2015

für die Tätigkeiten

Herstellung von pharmazeutischen Grundstoffen,
Herstellung von pharmazeutischen Spezialitäten und
sonstigen pharmazeutischen Erzeugnissen.

eingeführt hat und anwendet.

Das Zertifikat ist gültig bis zum 30. Mai 202
Das Managementsystem wird bis dahin jährlich üb
Zertifikat-Nummer: 09052025BaySCBK0905

Bonn, den 10. Mai 2025

Henning von Knobelsdorff
Umweltgutachter
DE_V_0090

Umweltgutachter Dipl.-Ing. Henning von Knobelsdorff, Mozartstraße 44 in
Zertifizierung von Managementsystemen
Akkreditierungsnummer: DE-V-0090

Zertifikat

Der
Umweltgutachter Henning von Knobelsdorff bescheinigt hiermit, dass die

Bayer AG
Ernst-Schering-Straße 14
D - 59192 Bergkamen

für die Tätigkeiten

Herstellung von pharmazeutischen Grundstoffen,
Herstellung von pharmazeutischen Spezialitäten
und sonstigen pharmazeutischen Erzeugnissen

ein

Energiemanagementsystem

in Übereinstimmung mit dem Standard

DIN EN ISO 50001:2018

eingeführt hat und anwendet.

Das Zertifikat ist gültig bis zum 25. April 2026.
Das Managementsystem wird jährlich überprüft.
Zertifikat-Nummer 270417 Bayer_BEK EM 00

Bonn, den 02. Mai 2023

Zertifikat

Prüfungsnorm ISO 45001:2018

Zertifikat-Registrier-Nr. 01 213 060019

Unternehmen: Bayer AG
Ernst-Schering-Str. 14
59192 Bergkamen
Deutschland

Geltungsbereich: Herstellung von pharmazeutischen Grundstoffen,
Herstellung von pharmazeutischen Spezialitäten und
sonstigen pharmazeutischen Erzeugnissen

Durch ein Audit wurde der Nachweis erbracht, dass die
Forderungen der ISO 45001:2018 erfüllt sind.

Gültigkeit: Dieses Zertifikat ist gültig vom 31.07.2024 bis 30.07.2027.
Erstzertifizierung 2006 (BS OHSAS 18001)

27.05.2024

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Am Grauen Stein · 51105 Köln

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Top:
Environmental management system certification
Top right:
Energy management system certification

Glossary

Active pharmaceutical ingredient (API)
Substance used to make a pharmaceutical. The purpose of such substances is to influence the pharmacological effectiveness or some other direct effect in the diagnosis, curing, alleviation, treatment or prevention of an illness or disease.

Adsorbable organic halogen compounds
(AOX) Sum parameter in water analyses, abbreviation for "adsorbable organic halogen compounds in water" (in organic chemistry, X represents the halogens fluorine, chlorine, bromine and iodine).

BIMKA zero accidents
(Observe, inform, motivate, monitor, evaluate) Occupational safety program with further development of tools specifically for investigating accidents, assessing risks and giving instructions.

Certification
Certification is the name given to a process that is used to confirm compliance with specific standards for products, services and the relevant manufacturing processes, including commercial relations. For the purposes of this document, it means checking whether the company has a quality and/or environmental management system that complies with the relevant standard (e.g. DIN EN ISO 14001).

Eco Management and Audit Scheme (EMAS)
European ordinance relating to the voluntary participation of organizations in a community system for environmental management and environmental auditing.

"Ein Moment reicht"
Current occupational safety program at the Bergkamen site.

Emissions
Disruptive factors – such as contaminants and irritants in gaseous, liquid or solid form, noise, vibrations, light, heat and nuclear radiation – released from a plant or technical process into the environment.

Federal Immission Control Act (BImSchG)
Occupational safety program with further development of tools for activities such as accident investigation, risk assessment and instruction.

Federal Immission Control Ordinance (BImSchV)
A series of ordinances have been issued to provide concrete specifications relating to the Federal Immission Control Act. These include limit values for noise and emissions along with further plant operating requirements. The 31st BImSchV specifies limits for emissions of volatile organic compounds when using organic solvents in specific plants and the 17th BImSchV relates to the incineration and co-incineration of waste.

FFH area
Protected area as defined by the Habitats (FFH) Directive adopted by the European Union in 1992, which, in conjunction with the Birds Directive, serves to preserve biodiversity.

Genetic Engineering Safety Ordinance (GenTSV)
The Genetic Engineering Safety Ordinance is a non-legislative regulation relating to genetic engineering legislation and regulates safety requirements pertaining to genetic engineering work at genetic engineering plants and the release of genetically modified organisms.

Hazardous waste incinerator (SAV)
The SAV is used for the thermal treatment of hazardous waste that cannot be incinerated with domestic waste due to its nature or volume.

ISO 14001
International environmental protection management standard

ISO 45001
International occupational safety management standard

ISO 50001
International energy management standard

Iodine
Chemical element belonging to the group of halogens. The name is derived from the ancient Greek word “ioeides” meaning “violet colored”. Vapors released during heating are characteristically violet in color. Aromatic iodine compounds are used as X-ray contrast media in diagnostic applications.

LTRIR
To meet international standards, the previous parameter for occupational accidents – the million working hours rate (MAQ) – has been replaced by the LTRIR (Lost Time Reportable Incident Rate), which is based on 200,000 working hours and includes occupational diseases.

Occupational Health and Safety Assessment Series (OHSAS 18001)
International occupational safety management standard, replaced by DIN EN ISO 45001

Operational excellence
Procedure to improve processes

Responsible Care
Global voluntary initiative of the chemical industry to achieve continuous improvements in the areas of environment, health and safety, independently of legal requirements, and regularly document the progress made.

RIR
The RIR (Recordable Incident Rate) records not only the number of work-related accidents leading to days of absence, but also the number of cases in which medical treatment was given and tasks were changed, and is based on 200,000 working hours.

Solvents
A solvent is a substance that can dissolve gases, other liquids or solids without causing chemical reactions between the dissolved and dissolving substances. As a result, the individual substances in the solution can be recovered on completion of the production process, using physical processes such as distillation or adsorption.

Total organic carbon (TOC)
Total amount of organically bound carbon in water, determined by converting the carbon to carbon dioxide.

Validation
Verification of the environmental management system by an independent external auditor who checks whether the information in the Environmental Statement is correct and the environmental management system complies with EMAS requirements.

Volatile organic compounds (VOCs)
Generic term for volatile organic substances that contribute to air pollution, including hydrocarbons, alcohols, ketones, esters, ethers and chlorinated hydrocarbons.

X-ray contrast media
Designation for substances exhibiting stronger or weaker adsorption of radiation than the surrounding body tissue during medical radiography.

ZABA
Central wastewater treatment plant

Masthead

Bayer AG
Ernst-Schering-Strasse 14
59192 Bergkamen
Germany

www.bayer.com

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