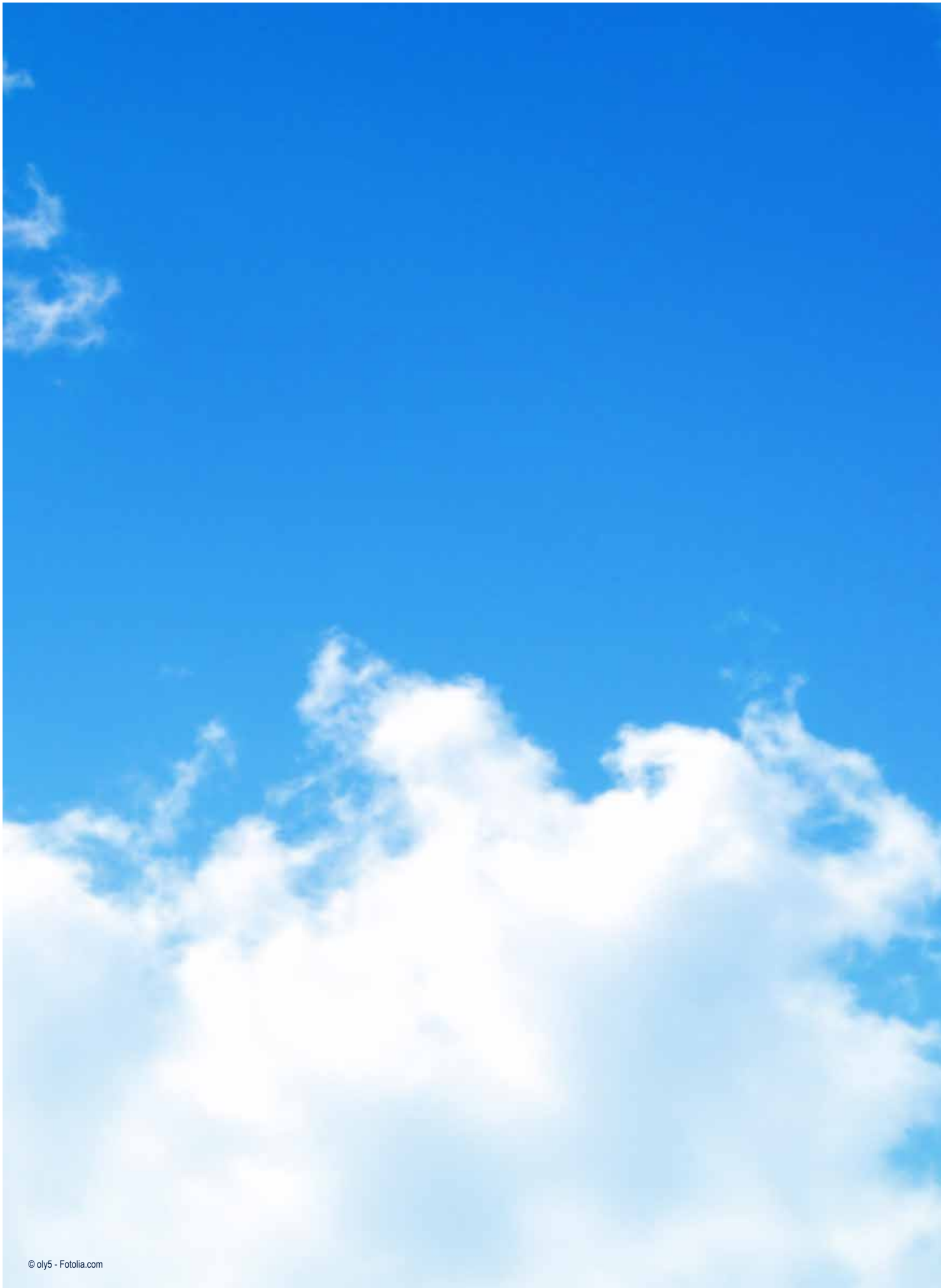
ENVIRONMENTAL DECLARATION 2021

Vestolit GmbH



Content

1. In dialogue with the public

Vestolit in Marl stands for the largest fully integrated PVC production site in Europe. We have committed ourselves to the principle of sustainable development. This is expressed in our corporate policy, which is based on a balance of ecological, economic and social objectives.

To achieve these goals, we are committed to production-integrated, resource-saving environmental protection. We have our performance in this area reviewed at regular intervals by independent experts. Since 1996, Vestolit has subjected itself to environmental audits in accordance with the EC Eco-Audit Regulation. In addition, we have our company assessed according to the globally applicable environmental standard ISO 14001:2015 and the energy standard ISO 50001:2018.

And we also enter into the ongoing debate on chlorine chemistry in general and on our product PVC (polyvinyl chloride) in particular. Many studies by independent institutes support our conviction that PVC, in its many and varied applications, offers significant economic and ecological advantages over other materials. This results in a benefit for society as a whole. In order to further improve sustainability, we have made extensive voluntary commitments through our European industry associations. The targets and measures contained in these commitments cover all stages of the life cycle of our PVC products, from production and the efficient use of resources, to recycling. Annual progress reports are also produced by Euro Chlor (www.eurochlor.org) and VinylPlus (www.vinylplus.eu) . We also support the sustainability initiative Chemie^3 of VCI, IG BCE and BAVC and thus help to promote sustainable development throughout the industry.

At Vestolit, we are committed to our social responsibility, from our corporate strategy to the measures we implement on a daily basis.

With this 25th Environmental Declaration (2021 Edition) in accordance with EMAS, we would like to present the continued development of our company.

We invite all interested parties to engage in a dialogue and hope that our activities will help to build trust.

November 2021

Vestolit GmbH
Management Board

Dr. Dieter Polte


THINK ABOUT
TOMORROW, TODAY!
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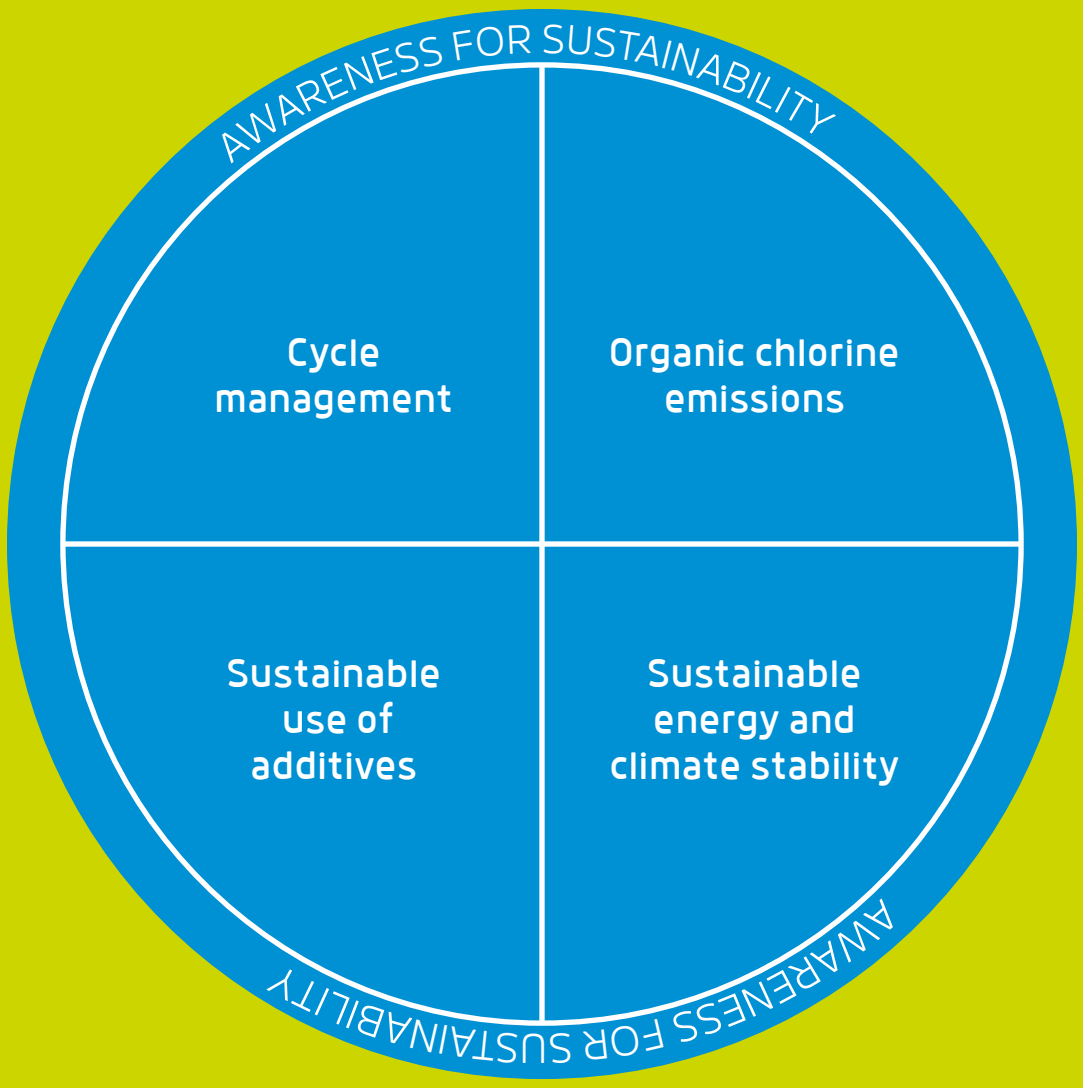
For a plus in sustainability

Vestolit's commitment to sustainable development along the PVC value chain is reflected, among other things, in its support for the PVC industry's VinylPlus initiative. It pursues the following five objectives:



vinyl plus
COMMITTED TO SUSTAINABLE DEVELOPMENT

2. Environmental policy

Preserving our environment is one of the most important global tasks that requires international solutions. The moderate use of resources and environmentally friendly production worldwide must be regarded as a priority. At the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, fundamental decisions were taken on sustainable development. The worldwide initiative of the chemical industry is a similarly motivated idea – the idea of "Responsible Care", known in Germany as "Verantwortliches Handeln". Whereby the will to continuously improve safety, health and environmental protection, regardless of legal requirements is central to this initiative.

In 2011, the European PVC and chlor-alkali industry launched its "VinylPlus" initiative, the second phase of its sustainability programme. The VinylPlus programme was developed through a process of open dialogue and in very close cooperation with the various stakeholders from industry and the legislator, as well as non-governmental and consumer organisations, and has since been successfully implemented. The joint achievements are reviewed annually and documented in the VinylPlus Progress Report. The European PVC industry's new commitment to sustainable development for the next ten years was developed in a bottom-up approach by the entire PVC value chain together with its stakeholders. In May 2021, the new voluntary VinylPlus 2030 commitment was presented and launched. The next 10-year commitment of the PVC value chain identifies three 'pathways':

- Expanding recyclability in the PVC value chain
- Progressing towards carbon neutrality and minimising our ecological footprint
- Creating global conditions and developing partnerships with regard to the SDGs of the UN.

The three pathways comprise twelve key action areas with 39 goals that include concrete steps for the European PVC industry to further improve the sustainability performance of PVC.

Within the framework of the "European Plastics Strategy" or the "Circular Plastics Alliance" of the EU, the plastics industry is required to recycle 10 million tonnes of plastic waste per year. This target should be achieved by 2030. Furthermore, on 14 October 2020, the European Commission announced the "European Plastics Strategy for Sustainability", which will have a far-reaching impact on the entire plastics industry in terms of raw material use, energy, emissions and recycling, as well as safety and potential hazards.

Via its "Euro Chlor" organisation, the chloralkali industry has set the focus for the goals of the next decade on the topics of energy saving as well as environment and safety and has intensified its communication with the authorities and neighbourhoods of the European production sites.
The focus will be on the benefits of the value chain, the product and working conditions. As part of the CEFIC initiative ("New Mid Term Century Strategy"), EuroChlor has developed the "Mid Century Strategy for a sustainable Chlor-Alkali industry" (MCS) and has presented it under the motto "SAFE.COMPETITIVE. GREEN". The vision is to evolve into a safe, competitive, climate-neutral and circular European chlor-alkali industry by the year 2050. It aims to be an integral part of the European transformation ("Green Deal") towards a climate-neutral and sustainable economy.

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3. Corporate guidelines

The management of Vestolit commits itself and all employees to the following guidelines. We derive the corresponding corporate goals from these. If an issue has an impact on people's health and safety or the environment, the corresponding guidelines and objectives always take precedence.

1st Guideline:

We are the leading manufacturer of specialty PVC and basic chemicals.

- We are the reliable, preferred and, therefore, long-term partner of our customers worldwide. Our partnerships are based on mutual trust and sticking to our promises. We scrutinise the needs of our customers and regularly determine their satisfaction.
- We are innovative. We focus on the needs of our direct customers and downstream customer structures. Our goal is to increase our competitiveness and market share.
- We continuously improve the performance of our products and our product portfolio.
- Priority is given to the safety of products for the user. We apply the HACCP concept in the production of products for the food industry.

2nd Guideline:

We work in a safety-conscious manner.

- The health and safety of people is our highest maxim. We follow the BGRCI's "Vision Zero" for occupational safety and the highest standards of plant safety. All people working in the company must be able to perform their tasks safely.
- In order to systematically achieve a continuous improvement in occupational and plant safety, corporate goals are set that are regularly reviewed through audits and management reviews. All Vestolit employees are obligated to observe the rules of occupational and plant safety and to make their personal contribution to improving the safety culture.
- The implementation of defined standards for occupational and plant safety creates a safety culture in the company. This includes open communication and permanent learning.

3rd Guideline:

We work efficiently and in a profit-oriented way.

- Generating profits is a prerequisite for securing the company and for investments. This secures the further development of Vestolit and thus our jobs.
- Vestolit's owners are entitled to an appropriate dividend.
- We have a corporate culture for efficiency, development and innovation, as well as a culture for dealing constructively with mistakes. This enables us to continuously improve the performance of our corporate and production processes. We present the performance of our processes with the help of appropriate key figures.

4th Guideline:

We rely on competent and committed employees.

- We want motivated and qualified employees. We value a positive attitude as well as competence. We support our employees in developing their skills and abilities by taking part in personnel development measures.
- Internally, we promote access to knowledge. This also includes the transfer of knowledge between our employees.
- Vestolit's managers assume their responsibilities in a professionally and socially competent manner. In this respect, managers have a role model function for all employees.
- The company's Executive Board, its managers, workforce and the works council work together cooperatively and in a spirit of trust. We react to changes in the world of work at an early stage and in cooperation with our social partners.
- By constantly developing towards a positive corporate culture, we want to remain an attractive employer in the region in the long-term.

5th Guideline:

We act in a sustainable, responsible and trustworthy manner.

- We comply with our binding commitments. These include the rules of our Code of Conduct, the Code of Ethics from Orbia and the implementation of Orbia's sustainability strategy.
- We take into account the interests of our stakeholders in our strategy and actions. We are convinced that we exceed the expectations of our stakeholders. This includes the principles of fair cooperation and a willingness to embrace feedback.
- We minimise our impact on the environment. To this end, we use our experience, technical expertise and creativity. We use energy and raw materials responsibly and efficiently. With the help of our Energy Management System (EnMS), we reduce our emissions of greenhouse gases. In doing so, we follow the corresponding voluntary commitments and requirements of the European Union (EU) and Germany.
- We take responsibility for our supply chains.
- We are committed to our site in Marl, but also to our other sites around the world. We respect the cultures of the other sites. We realise our responsibility to society in our environment. We support social projects.

4. Corporate goals

We derive the following corporate goals from our corporate guidelines. These are put into concrete terms by our divisions with their own scorecards and followed up on an annual basis with measures (see Chapter 12.1). At the end of the year, the achievement of the objectives by the divisions is then evaluated. New targets are then set in the scorecards for the following year.

Corporate goals for the 1st Guideline:

"We are the leading manufacturer of specialty PVC and basic chemicals."

1. We increase the satisfaction of our customers.
2. We increase our innovative strength, sharpen our product portfolio and increase our market shares in target markets.
3. We keep our promises on product safety and product quality. To this end, we proactively inform our customers.

Corporate goals for the 2nd Guideline:

"We work in a safety-conscious manner."

4. We systematically improve occupational safety.
5. We systematically improve plant safety.

Corporate goals for the 3rd Guideline:

"We work efficiently and in a profit-oriented way."

6. We increase output by increasing the availability of our plants, through process optimisations, as well as through efficient maintenance.
7. We continue to develop our company processes, which we check with the help of suitable key figures.

Corporate goals for the 4th Guideline:

"We rely on competent and committed employees."

8. We encourage the development of our employees' skills and competences and expect their best possible commitment.
9. We promote open communication, permanent learning and the exchange, dissemination and increase of knowledge.
10. We react to changes in the world of work at an early stage and in cooperation with our social partners.
11. We want to remain an attractive employer.

Corporate goals for the 5th Guideline:

"We act in a sustainable, responsible and trustworthy manner."

12. We comply with our binding commitments.
13. We minimise our impact on the environment by reducing waste and waste water.
14. We reduce our energy consumption, increase our energy efficiency and reduce greenhouse gas emissions.
15. We take responsibility for our supply chains.
16. We take social responsibility and support social projects.

5. Vestolit GmbH in Marl

For over 70 years, the plastic PVC has been produced in Marl using sustainable and energy-efficient technologies. This plastic is characterised by resource conservation and durability and is, therefore, particularly suitable for the manufacture of products for the construction and automotive sectors. Vestolit is the market leader as a raw material supplier for PVC window profiles, as well as for paste PVC for the production of wallpaper, floor coverings, tarpaulin fabrics and automotive underbody protection.

Vestolit took over the corresponding business and production units on 01.01.1995 as a 100% subsidiary of the former Hüls AG. With the participation of Vestolit management and the approval of the anti-trust authorities, Mexichem S.A.B. de C.V. (Tlalnepantla, Mexico) acquired all shares in Vestolit on 1 December 2014, which a fund managed by Strategic Value Partners had held since September 2006. In September 2019, Mexichem changed its name to "Orbia Advance Corporation, S.A.B. de C.V.".

Employees, as at September 2021: 764

All of Vestolit's production plants are located on the grounds of Marl Chemical Park, an industrial chemicals park. The existing integrated structure of the chemical park ensures that infrastructure facilities are used efficiently and in a resource-saving manner:

- Raw material supply (e.g. rock salt brine, ethylene)
- Energy and equipment supply (e.g. electricity, steam, natural gas, water, cooling water, compressed air)
- Disposal facilities (waste water, waste)
- Emission and immission monitoring
- Organisation of hazard prevention (fire service, plant security)
- Departments for plant safety and industrial safety
- Medical service
- Specialist workshops

Raw materials and products are transported by pipeline and by ship, as well as in rail tankers and road tankers. There are good connections to the general road network and motorways. Marl Chemical Park has its own rail connection and its own inland port on the Wesel-Datteln Canal, both of which are shared by Vestolit.

6. Production

From rock salt and crude oil to PVC

Vestolit products are manufactured from the primary raw materials of crude oil and rock salt. In PVC, the proportion of the raw material base salt predominates.

Rock salt is obtained by extraction from a salt dome in Epe/Westphalia and is supplied as an aqueous solution via a pipeline. The caverns formed by this process are used to store natural gas and crude oil.

During the processing of crude oil in refineries, naphtha is also obtained in addition to other fractions (e.g. heating oil, petrol). Ethylene, propylene and other chemical raw materials can be produced by thermal cracking of naphtha.

Ethylene is the second raw material used for the production of Vestolit's products and is obtained via pipeline.

A fully integrated site

Vestolit operates a fully integrated site in Marl. Starting with salt processing and ethylene acquisition, all the process steps required to produce the preliminary products and the end product PVC are carried out at one site. The preliminary products are transported via pipelines to the next process stage. Vestolit neither purchases chlorine nor supplies it to customers outside the Marl site. Non-activated input materials and residues are reprocessed and returned to the process.

The production network

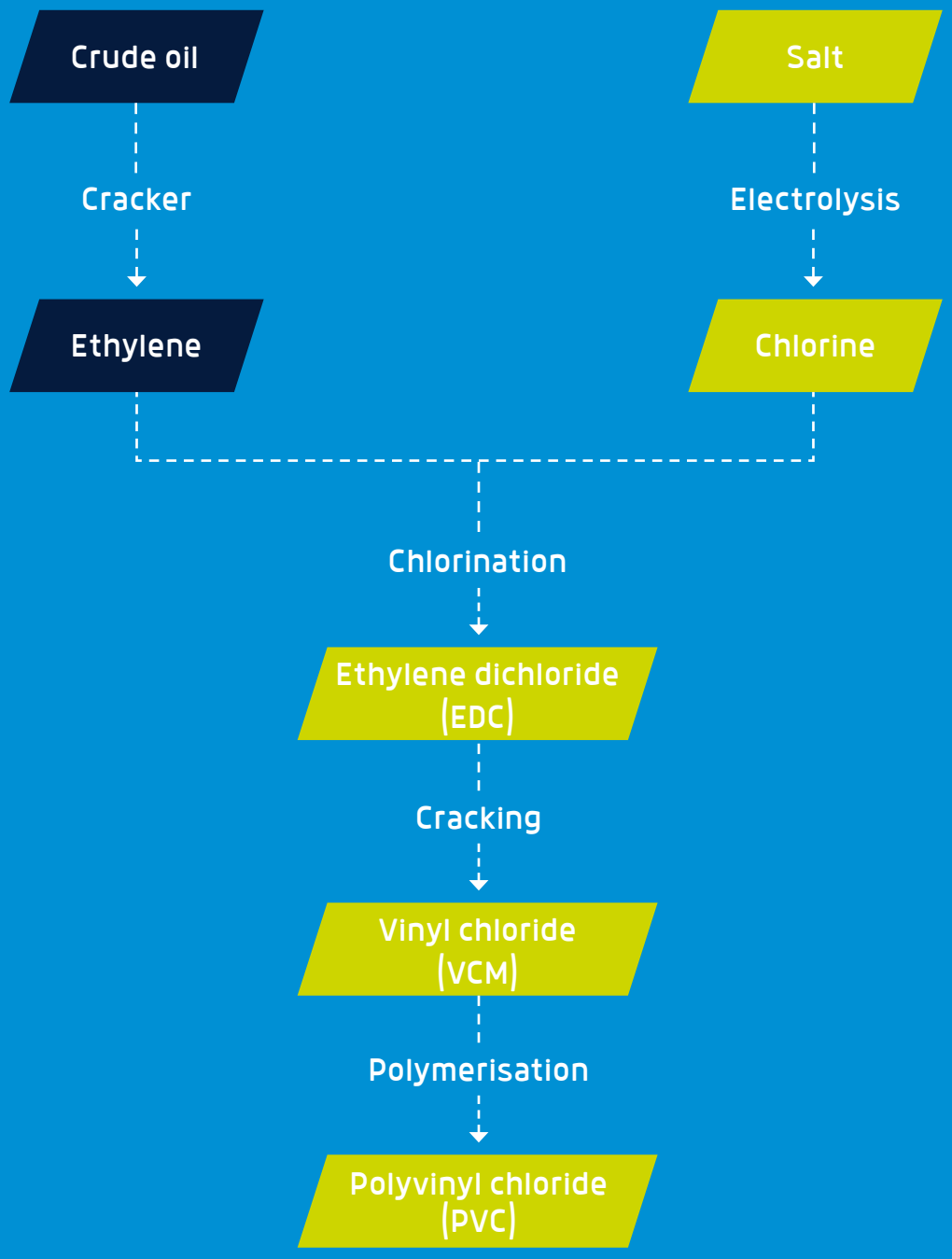
The salt dissolved in water is transported to the electrolysis. Vestolit operates a modern membrane electrolysis facility. In electrolysis, the salt solution is broken down into chlorine, caustic soda and hydrogen using electric current.

The chlorine is reacted with ethylene to form dichloroethane, which in turn is decomposed at high temperatures into vinyl chloride and hydrogen chloride.

The resulting hydrogen chloride is either reacted with ethylene and oxygen to form dichloroethane or can be processed to hydrochloric acid, converted with methanol to methyl chloride or with ethylene to ethyl chloride.

PVC (polyvinyl chloride) is produced from vinyl chloride by polymerisation. Vestolit generally operates two types of polymerisation processes: Emulsion and suspension polymerisation. The PVC produced is freed from non-reacted vinyl chloride in degassing equipment. The vinyl chloride recovered during degassing is returned to the process. After drying, the PVC is in powder form, which is packed in bags or delivered to the customer by silo vehicle.

The PVC synthesis



External production Vestolit production

7. Raw materials and auxiliary materials

In addition to rock salt and ethylene, Vestolit requires a number of other raw and auxiliary materials to manufacture products.

In total, around 611,000 t of purchased quantities of raw and auxiliary materials were used in 2020.

8. Products

PVC is Vestolit's target product for paste application and profile extrusion. A by-product of chlorine production is caustic soda. It is used in various branches of industry. Other by-products or sales products are hydrochloric acid (100%), methyl and ethyl chloride.

The table shows the main downstream applications and uses.

Products of Vestolit	Downstream applications	Downstream applications
PVC	Construction industry, automotive industry, medical technology	Window profiles, tubes, sheets, foils, cable sheathing, wallpaper, artificial leather, floor coverings, underbody protection, hoses
Caustic soda	Textile industry, aluminium industry, pulp/paper industry, flue gas desulphurisation	Neutralising/bleaching agents Decomposition agents, cleaning agents
Ethyl chloride	Construction industry, plastics production	Ethyl cellulose Catalysts for polyolefin production, metal alkyls
Methyl chloride	Construction industry, food and feed industry	Silicones Methylcellulose Butyl rubber
Hydrochloric acid	Food industry Metalworking industry Water treatment	Gelatine Spice extraction Stripping baths

PVC is versatile due to its properties. In addition, PVC stands out from other materials due to its durability, resource conservation, and its resistance to the elements and aggressive media.

Vestolit mainly produces PVC, which is processed into durable products, e.g. window frames. There are excellent recycling possibilities for most of these PVC products, so that used articles can be reused after their first life cycle.

In order to further develop new technologies and recycling schemes and to implement the voluntary commitment, the European PVC industry founded the VinylPlus initiative and subsequently VinylPlus 2030. In a 10-year programme, the initiative supports projects for the sustainable development of PVC throughout the product life cycle.

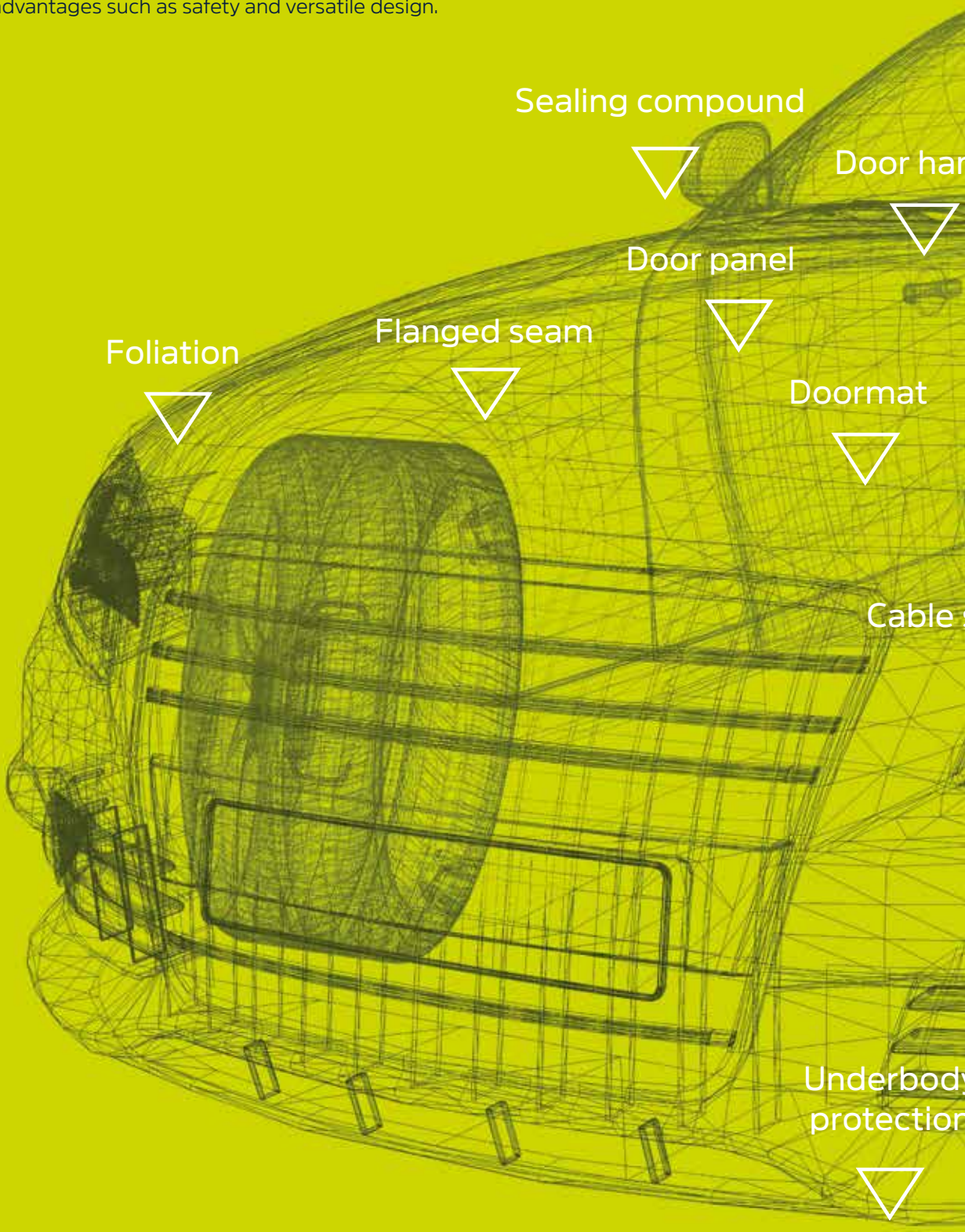
It will only be a home with us.

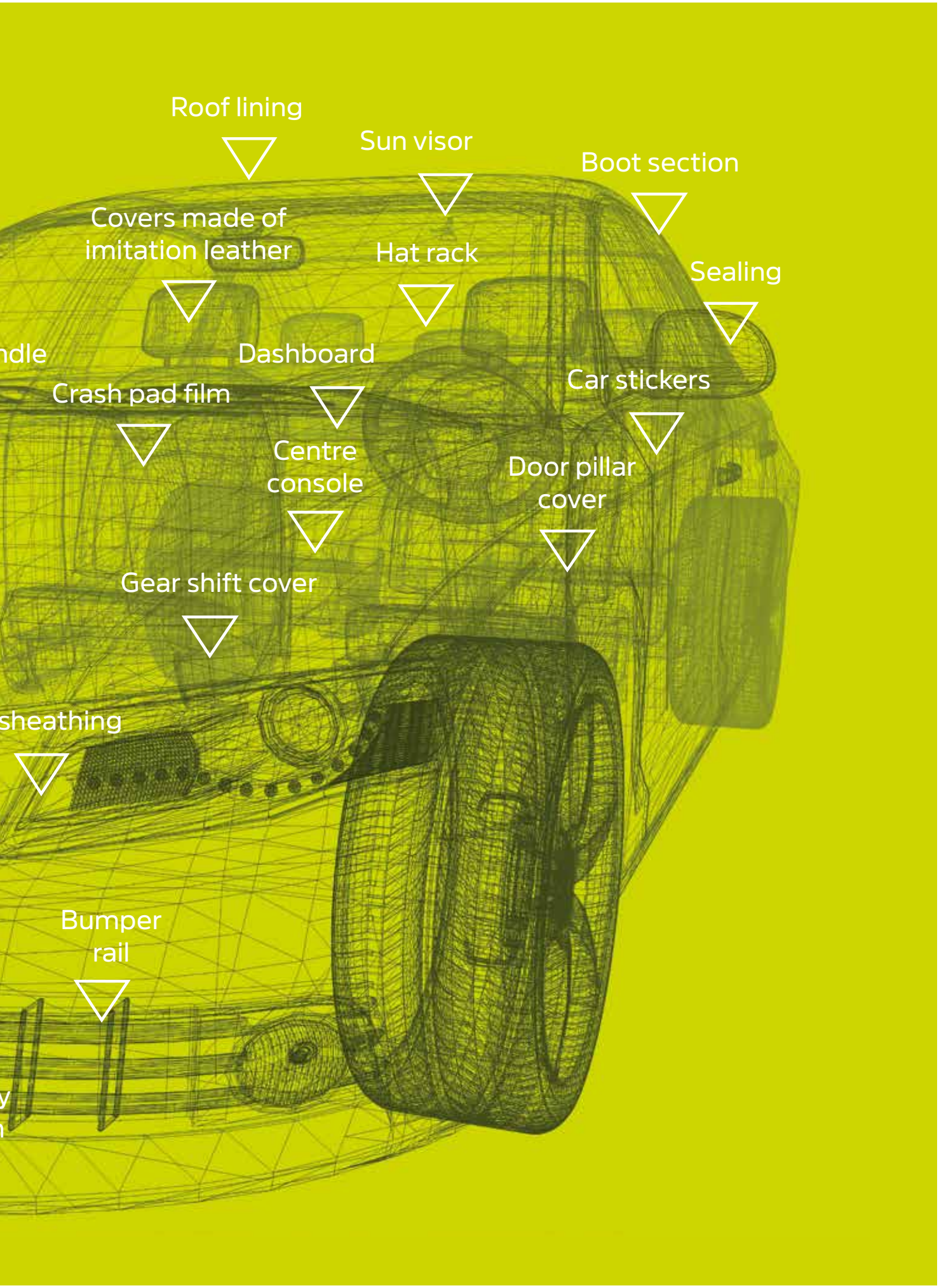
Vestolit products are widely used for products used in every home and provide benefits such as durability and resource efficiency.


Roofing membrane
vning/sunsail
Cable duct
Roller shutter box
Balcony parapet
Gas pipe
Designer
furniture
Door/window panel
ont door
Façade
Doormat
ssure pipe
Floor

A dream car is only possible with us.

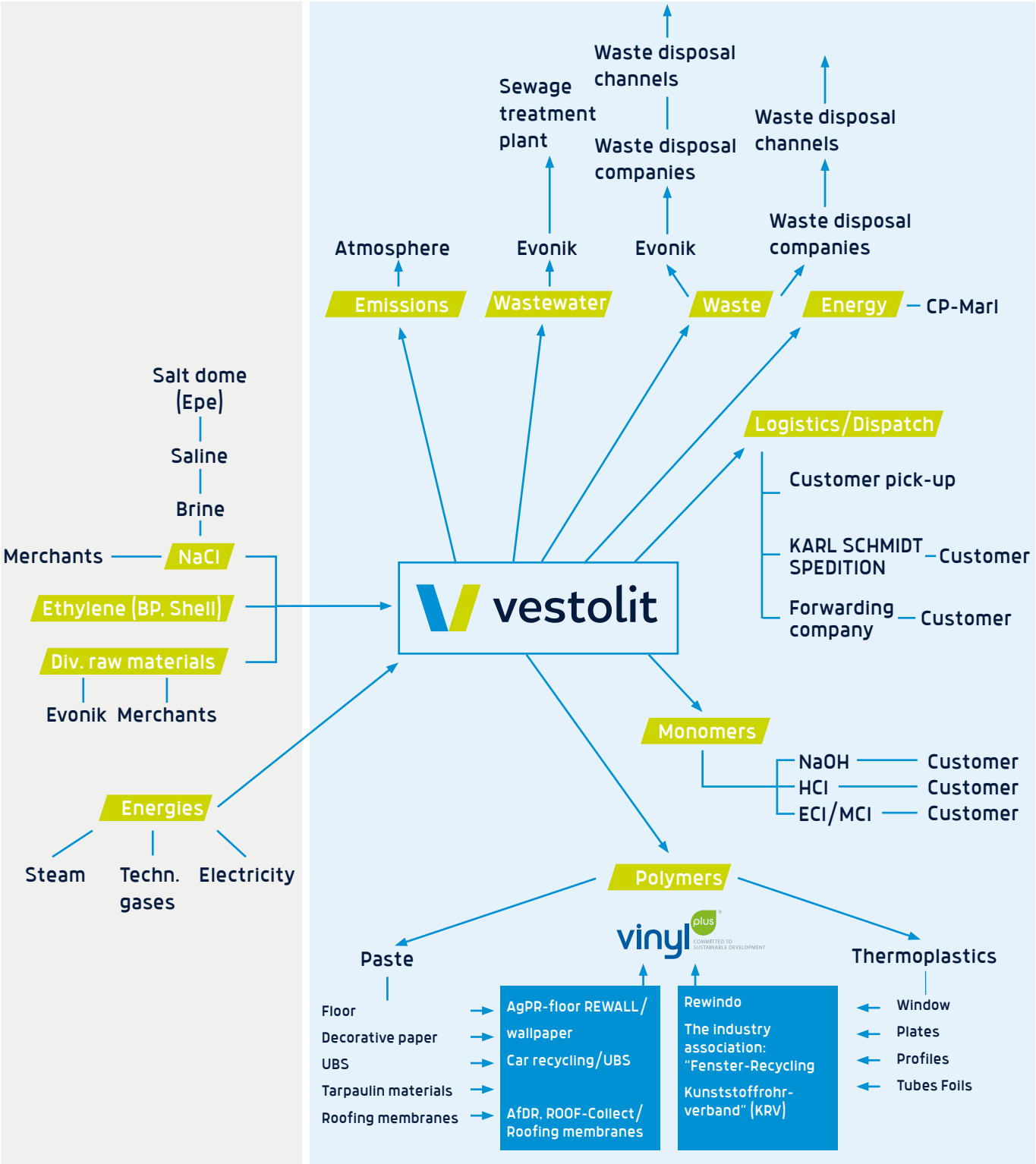
Vestolit products are often used for items found all around the car and provide advantages such as safety and versatile design.




Roof lining
Sun visor
Boot section
Covers made of imitation leather
Hat rack
Sealing
ndle
Dashboard
Car stickers
Crash pad film
Centre console
Door pillar cover
Gear shift cover
sheathing
Bumper rail

9. Product life cycle

From Vestolit's point of view, the product life cycle describes the phases of a product from the procurement of raw materials, development and production, through to transport, product use or product treatment at the end of its life cycle. The consideration of the life cycle serves the purpose of transparency, especially vis-á-vis our external stakeholders.
The interrelationships are shown schematically for clarification. Vestolit monitors and optimises the stages of the life cycle it sees as within the scope of its control and influence, and determines the environmental aspects for this purpose (see Chapter 11 "Environmental aspects and environmental data").



10. Environmental management system

10.1. Important information

The basis of this environmental statement is the EC Eco-Management and Audit Scheme (EMAS / EC) 1221/2009 of 25 November 2009 and the amending Regulation (EU) 2017/1505 of 28 August 2017, which fully takes into account the requirements of ISO 14001:2015 for environmental management systems.

The first Eco Management and Audit Scheme (EMAS) of 1993 was revised by the European Parliament and the European Council in the spring of 2001. The experience gained from the implementation of EMAS I should be used to ensure that EMAS II could provide even greater incentives for the continuous improvement of environmental performance. On 11 January 2010, the EMAS III Regulation entered into force to further support the adaptation process.

The basis for the continuous improvement of environmental performance is the industry's own responsibility to improve environmental protection as a whole. This includes the constant striving to reduce pollutant emissions, to improve alarm and hazard prevention plans, to intensify the training and further training of employees and to optimise the conservation of energy and resources. These objectives are monitored through environmental audits which uncover weak points, define improvement goals and include action programmes for their implementation. The main objectives and programmes are published in this declaration and are reviewed by an independent body, the environmental expert appraiser.

In accordance with EMAS, Vestolit understands its own Environmental Management System as part of its Integrated Management System (IMS), in which all aspects of environmental protection, health protection, occupational, plant and product safety, social responsibility and quality are combined in terms of both organisation and content. Recently, Vestolit has been certified according to ISCC (International Sustainability and Carbon Certification). This is a globally recognised sustainability certification system that covers the area of procurement and the use of sustainable raw materials with the mass balance approach. Among others, this involves the use of agricultural and forestry biomass, circular and bio-based materials as well as renewable energies. The ISCC certificate applies to the chlorine electrolysis, VC plant and polymerisation plants at the Marl site.

The Vestolit management system aims to achieve the following:

- The transparency of tasks and responsibilities
- Qualification of employees through training
- Constant self-review through internal audits
- Environmental protection in dialogue
- Safe processes through systematic control of production
- Continuous improvements through goals and action programmes
- Thinking and working in the interests of our customers and other important stakeholders

10.2. Organisation

An essential prerequisite for achieving corporate goals is a goal-oriented organisation. Vestolit's organisational structure reflects the high priority given to environmental protection in the company. The involvement of all employees in environmental management is crucial.

The Managing Director of Vestolit is responsible for operating the plant in accordance with Section 52b of the Federal Immission Control Act. Accordingly, he is the highest authority within the company with regard to operational decisions with environmental relevance.

The tasks and duties resulting from the operator's responsibility have been delegated by the Managing Director via the Head of Operations to the Heads of Production and to the Spokespersons of Management.

The Managing Director has appointed the Head of Management Systems/QS as the Management Representative and has entrusted him with the task of ensuring the application and maintenance of the Integrated Management System (IMS).

The Head of Operations supports Vestolit's Managers in environment-related tasks, monitors adherence to deadlines and maintains direct contact with specialist departments of the site service provider (Evonik Industries AG), which performs health, safety and environmental protection tasks for Vestolit.

Due to their activities, Environmental Protection Officers have direct insight into environmentally relevant processes. They act as the contact persons for all employees in environmental protection matters. They advise their colleagues on the safe execution of all work and inform the management about environmentally relevant deficiencies.

Like all companies located at Marl Chemical Park, Vestolit has signed an agreement committing itself to maintaining high standards in the areas of health, safety and environmental protection.

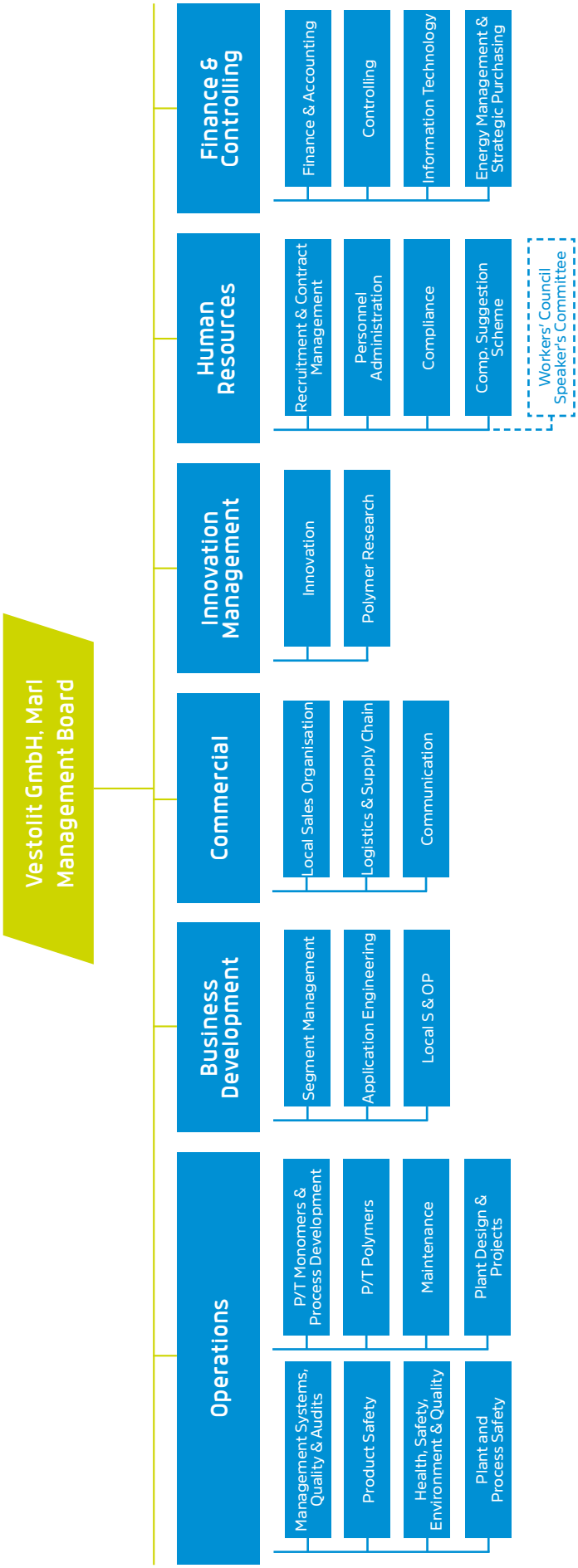
The company is thus fully integrated into the joint environmental protection and safety management system of Marl Chemical Park.

- Vestolit participates in the park's Plant Manager Standby Service ("Werkleiter-Bereitschaftsdienst"). The respective Plant Manager on duty has unrestricted access to Vestolit's production facilities in the event of environmentally relevant processes.
- The representatives appointed by Vestolit for immission, water, hazardous goods, radiation protection, waste and incidents are employees of external companies. They advise Vestolit and monitor compliance with laws and permits.
- The procurement of raw materials, technical materials and services is carried out on behalf of Evonik.

Vestolit has also commissioned Evonik Industries AG with the following activities:

- Fire protection/works safety/
- occupational safety
- Emissions monitoring
  Wastewater treatment
- Waste management
- Occupational safety

Organisation chart Vestolit GmbH



10.3. Qualification of employees through training

As Vestolit deals with large quantities of substances with different hazard potentials, the company attaches great importance to the qualification and further training of its employees in matters of occupational safety and operational environmental protection. Therefore, only qualified employees who have been trained in their areas of responsibility are assigned to such tasks.
Employees are informed and regularly instructed about the workplace-related safety and environmental protection requirements and other necessary measures.

Vestolit implements training and further education measures according to training requirements determined both on a general and personal basis.

The permanent training programme includes:

- Documents and briefings for new employees or employees in unfamiliar workplaces;
- Workplace-related training of employees by the company managers;
- Notification of all managers on current developments in environmental law.

There are also training programmes:

- for managers on environmental protection and environmental law;
- for specific groups of employees on subject areas in the areas of environmental protection and occupational safety (e.g. handling of hazardous substances, transport of hazardous goods);
- for marketing/sales staff product-related training;
- Review seminars on the subject of environmental protection;
- Seminars for plant managers;
- Seminars on the management of employees;
- Seminars on occupational health management.

10.4. Internal audits (environmental audits)

Vestolit regularly conducts inspections in all areas of operational safety and environmental protection. These include both periodic inspections and control tours, as well as meetings and reports in the areas of environmental protection, occupational safety and fire protection.

Vestolit supplements these measures with further reviews of environmental protection in accordance with the EMAS guidelines. This includes environmental auditing.

In this way, Vestolit ensures that all environmental protection measures taken are permanently reviewed, environmental protection standards are continuously improved and the environmental impact is reduced with the greatest possible consistency.

10.5. Environmental control and monitoring

Monitoring and control measures serve to ensure compliance with all internal safety standards, legal requirements and official regulations and to determine the environmental impact.

The effects are monitored, for example, by means of wastewater analyses and emission measurements at the exhaust air sources with the help of central and decentralised environmental protection facilities, by our own laboratories, by regular inspections and control measures and by external experts. Continuously operating measuring devices for chlorine, DCE (dichloroethane or EDC or ethylene dichloride), HCl (hydrochloric acid) and vinyl chloride (VC) are installed at particularly exposed locations.

Procedures are in place for taking corrective action in the event of deviations from safety and environmental standards.

10.6. Product and equipment safety

By using state-of-the-art technology, Vestolit contributes to ensuring that environmental goods are used as little as possible. The largely automated and computer-assisted production process reduces the risk of human error and provides the basis for safe process control. Internal monitoring techniques are used to detect hazards, which ascertain and register any deviations from normal operation. Thus, countermeasures can be initiated at an early stage.

In case of deviations from specified normal operation, countermeasures defined in advance are taken. In addition, the causes of malfunctions are systematically determined in order to initiate targeted preventive improvement measures. Facilities for the storage of raw, intermediate and end products are continuously monitored. Defined specifications for packaging and dispatch ensure that the goods reach the customer safely and that the customer receives all environmentally relevant product information.

Investment decisions should also be sustainable in the long-term, especially from the point of view of occupational safety as, well as ecological and toxicological considerations. Possible environmental effects of process changes are assessed in advance and are incorporated into the decision-making process.

10.7. Emergency organisation and crisis management

Since Vestolit's production facilities are located within Marl Chemical Park, Vestolit's Emergency and Crisis Management function is also integrated into the Park's organisation. Plant safety is safeguarded analytically, methodically and systematically by Vestolit with the help of a Safety Management System (SMS) and is subject to a continuous improvement process. In addition, Vestolit operates a management system for occupational safety based on ISO 45001.

Vestolit has thus created an effective organisation for hazard prevention so that the necessary safety measures can be taken quickly in the event of imminent or emerging hazards caused by the substances that are processed and produced.

Alarm plans specify measures for notifying the necessary emergency response personnel and informing the authorities, in order that effective measures can be taken to protect the population. According to a hazard prevention plan, the necessary crisis management is executed.

The own managers and employees are trained by conducting fire drills in the companies together with the fire service In addition, interactions within the Emergency and Crisis Management System are improved through inter-company staff exercises. The execution of the exercises is subject to evaluation. If necessary, technical and organisational measures are taken to optimise them.

10.8. Communication with our employees, our customers and the public

The annual environmental statement is intended to promote open dialogue with employees, customers, local authorities, the media and the public on environmentally relevant issues.

Via the environmental hotline at the Marl Chemical Park (Hotline No.: +49 2365-49-5555), reports or complaints can be received at any time. Every caller receives a competent answer within a short time.

Regular meetings and reports between all management levels promote a dialogue on environmentally relevant issues. Every employee can make suggestions for improving environmental protection at any time and especially at the regular safety meetings.

As part of the internal suggestion scheme, all employees are called upon to submit suggestions and ideas for improvements and savings. In addition, Vestolit has launched the "LaunchPad" initiative to strengthen its corporate development. Within the framework of "LaunchPad Challenges", employees can realise their own ideas, from concept development over their own project plan to implementation in production or administration. Previous challenges have been "reducing the ecological footprint", "digitalisation" and "future fit through cost reduction". Due to the success, further challenges are planned.

Customers are informed about all health and environmental effects of the products through safety data sheets and product information.

In addition, Vestolit's application technology service offers assistance in the environmentally friendly processing of its products.

The German PVC manufacturers and their customers, the PVC processors, are members of the industry association "Arbeitsgemeinschaft PVC und Umwelt - AGPU e.V."
In 2021, AgPU was renamed to VinylPlus Deutschland e.V.. In VinyPlus, environmentally relevant topics are dealt with jointly. The public is informed about the results.

10.9. Occupational safety

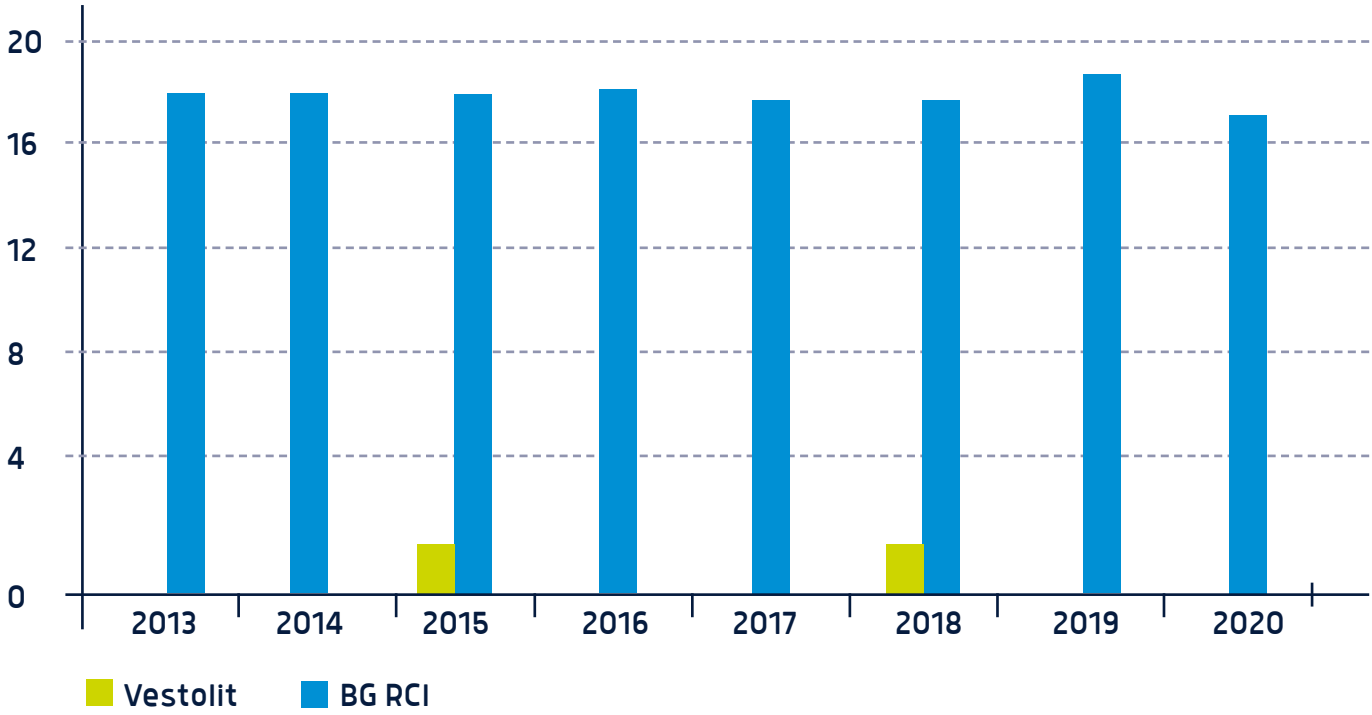
For Vestolit, occupational safety is synonymous with environmental protection.

In comparison to average values from the chemical industry, which are recorded and published by the Employer's Liability Insurance Association for the Chemical Industry, Vestolit's number of reportable accidents is significantly lower.

In order to further improve occupational safety, employees and management are being made even more aware of the topic of occupational safety. To this end, measures such as hazard and area-related safety inspections have been introduced.

Occupational safety measures are not limited to our own employees. Employees from external companies working at Vestolit are protected in the same way. Extensive regulations have been created for the safe deployment of employees from external companies.

Occupational safety: 1,000-man quota*



	2013	2014	2015	2016	2017	2018	2019	2020
Number of employees*)	708	719	710	711	717	727	746	755
Reportable accidents	0	0	0	0	0	1	0	0
1,000 man quota* Vestolit	0	0	1.4	0	0	1.4	0	0
1,000 man quota* Employer's Liability Insurance Association (BG) RCI	18.3	18.3	18.3	18.4	18.1	18.2	19.0	17.4

*) annual average

11. Environmental aspects and environmental data

The determination and evaluation of our environmental aspects is essentially carried out through an input-output analysis of the raw and auxiliary materials consumed, an analysis of the types of energy used as well as the waste and emissions generated (direct environmental aspects). A further evaluation is carried out for those environmental aspects over which we have no (or only limited) influence, e.g. transport and delivery traffic (indirect environmental aspects).

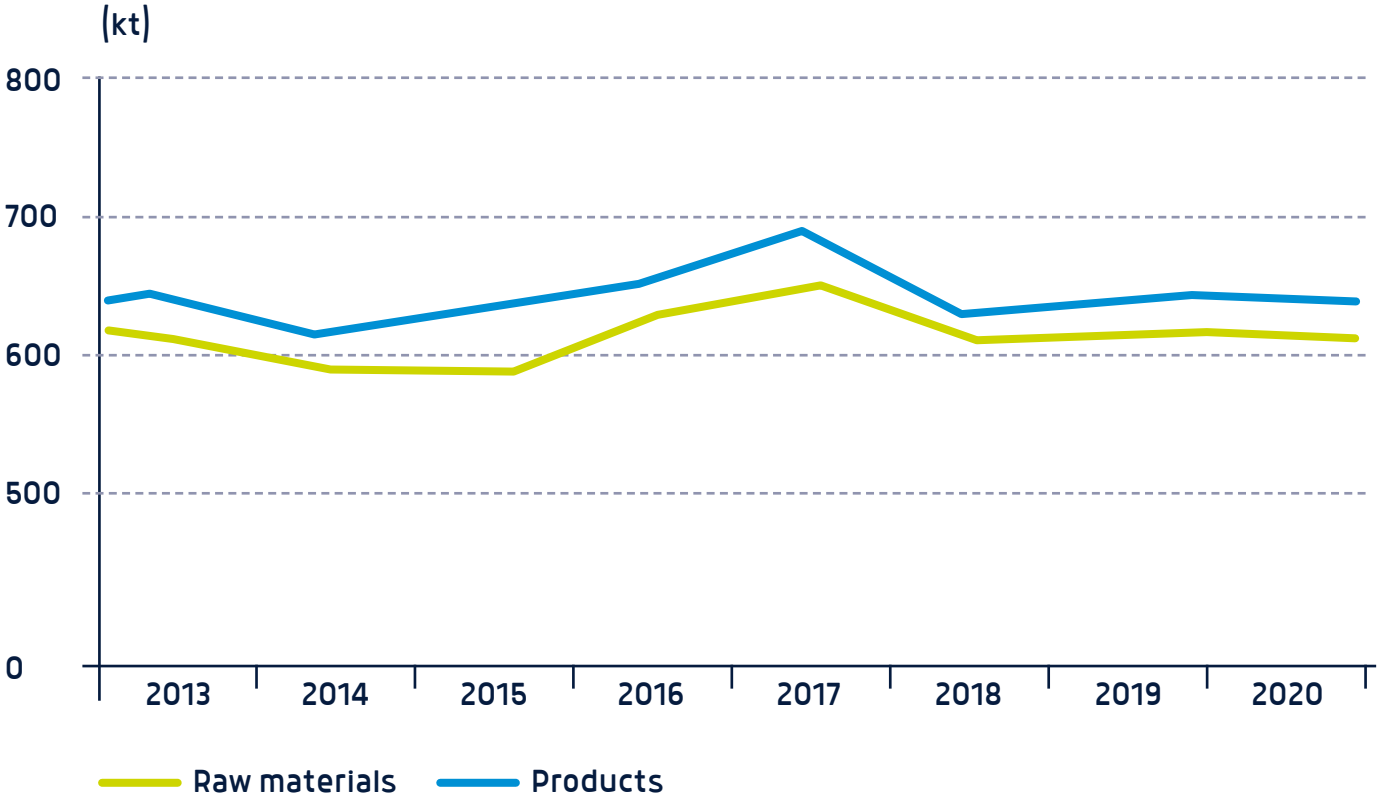
The determination and assessment of environmental aspects and impacts serves as the basis for deriving our environmental goals (see Chapters 4 and 12.1) and the concrete measures (see Chapter 12.1) to implement these goals.

11.1. Material efficiency

11.1.1. Input raw materials

Annual raw material consumption in relation to the quantity produced is a measure of material efficiency and is shown below:

	2013	2014	2015	2016	2017	2018	2019	2020
Raw material consumption [1,000 t]	./.*	./.*	./.*	./.*	./.*	./.*	./.*	./.*
Production volume [1,000 t]	./.*	./.*	./.*	./.*	./.*	./.*	./.*	./.*
Material efficiency [t raw material/t product]	0.94	0.95	0.92	0.96	0.95	0.96	0.94	0.96



* Raw material consumption and production volume are not shown for reasons of confidentiality. The corresponding data was submitted to the environmental expert appraiser.

11.1.2. Energy/energy efficiency

Annual energy consumption in relation to the quantity produced is a measure of energy efficiency and is shown below:

	Unit	2013	2014	2015	2016	2017	2018	2019	2020
ENERGY PROCUREMENT [1]	[tY]	6,721	6,627	6,753	7,116	6,944	6,544	6,872	6,665
SHARE EE	[tY]	678	695	781	815	986	943	1,070	1,131
ENERGY EFFICIENCY [3]	[GJ/t Prod.]	9.31	9.46	9.44	9.58	9.06	9.36	9.49	9.36
Electricity		4.11	4.23	4.04	4.08	3.97	3.98	3.92	3.90
Steam		3.84	3.72	3.79	3.79	3.55	3.72	3.82	3.80
Natural gas		1.12	1.35	1.35	1.53	1.33	1.44	1.48	1.54
Hot water		-0.22	-0.25	-0.23	-0.27	-0.27	-0.29	-0.32	-0.36
Cooling		0.47	0.40	0.48	0.45	0.48	0.52	0.59	0.48

[1]excl. energy returns
[2]EE – enewable energies, share of gross electricity consumption GERMANY: 45.4 % in 2020 (Source: BMU; AG Energiebilanzen)
[3]incl. energy returns

Electricity and steam are Vestolit's main energy sources, accounting for roughly 84% of total energy consumption.

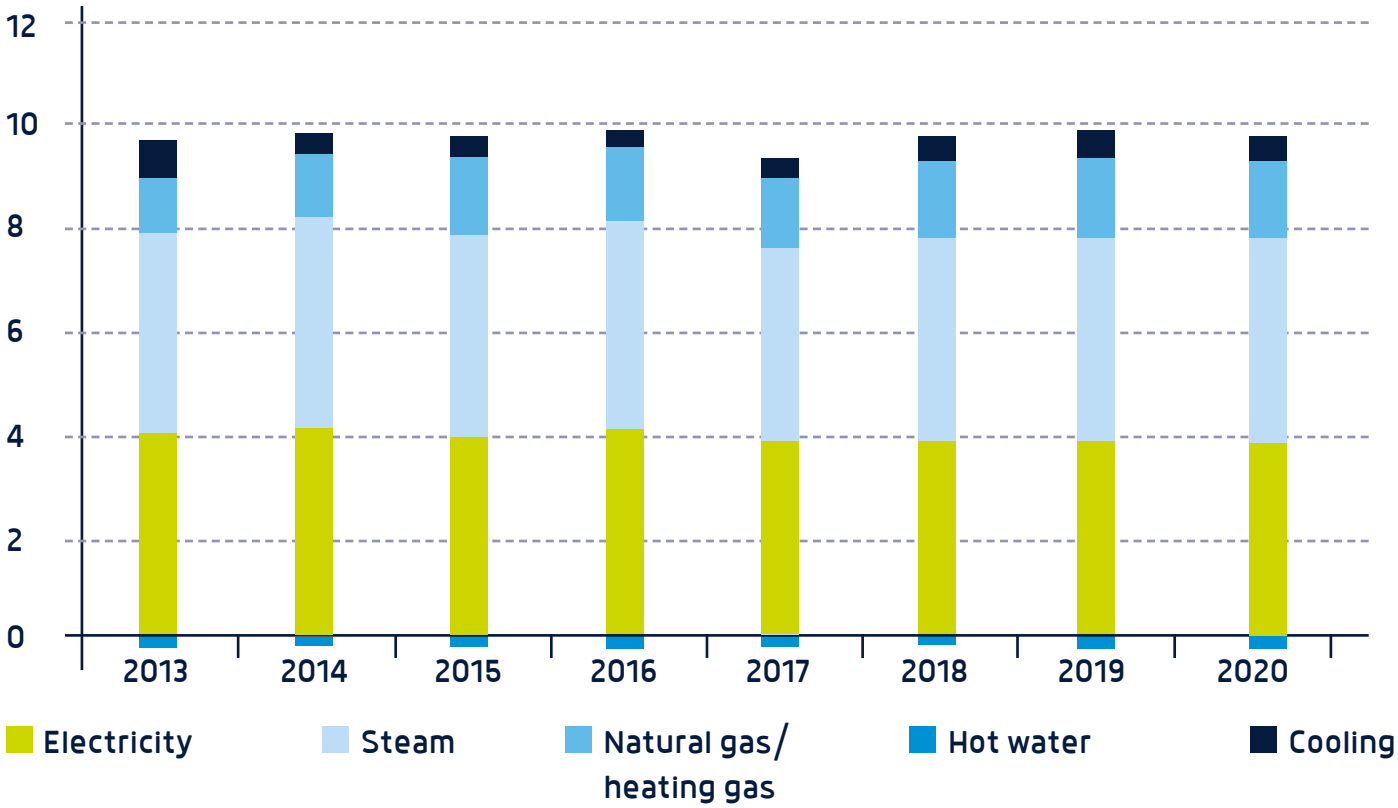
Electricity is mainly used in electrolysis to produce chlorine. In addition, electricity is used to drive agitators and pumps, among other things. Steam and hot water are used as a heating medium in many process stages, e.g. in the PVC drying plants. The energy from the condensate produced in this process is used in pre-heating stages.

The firing of the cracking furnaces in VC production and the auxiliary firing in the processing of residues are mainly operated with natural gas. Part of the waste heat is converted into steam, which is fed back into the steam network. Cold water and cooling water are used to remove process heat. Evonik Industries AG operates a network of re-cooling plants in Marl Chemical Park, which use air to cool down heated cooling water before it is fed back into the production plants.

Vestolit has set itself the goal of further optimising energy consumption. For example, after reducing specific electricity consumption in 2007 by building a membrane electrolysis plant, specific natural gas consumption has been reduced by almost half since 2006 by implementing the environmental goal "Use of H_2 from electrolysis as fuel in the cracking furnaces".

The reactivation of a drying plant in June 2017 has added another natural gas consumer. Due to the higher hydrogen use in the EDC cracking furnaces, the total natural gas purchase did not increase significantly. Furthermore, the introduction of the energy-efficient technology of disk atomisation, which is used to dry sensitive emulsions for the production of PVC, has resulted in significant energy savings in the reprocessing of a number of paste PVC types, which more than compensates for the slightly higher use of natural gas.

Specific energy consumption in GJ/t



11.2. Water supply and water consumption

The annual water consumption in relation to the quantity produced is a measure of efficient water use and is shown below:

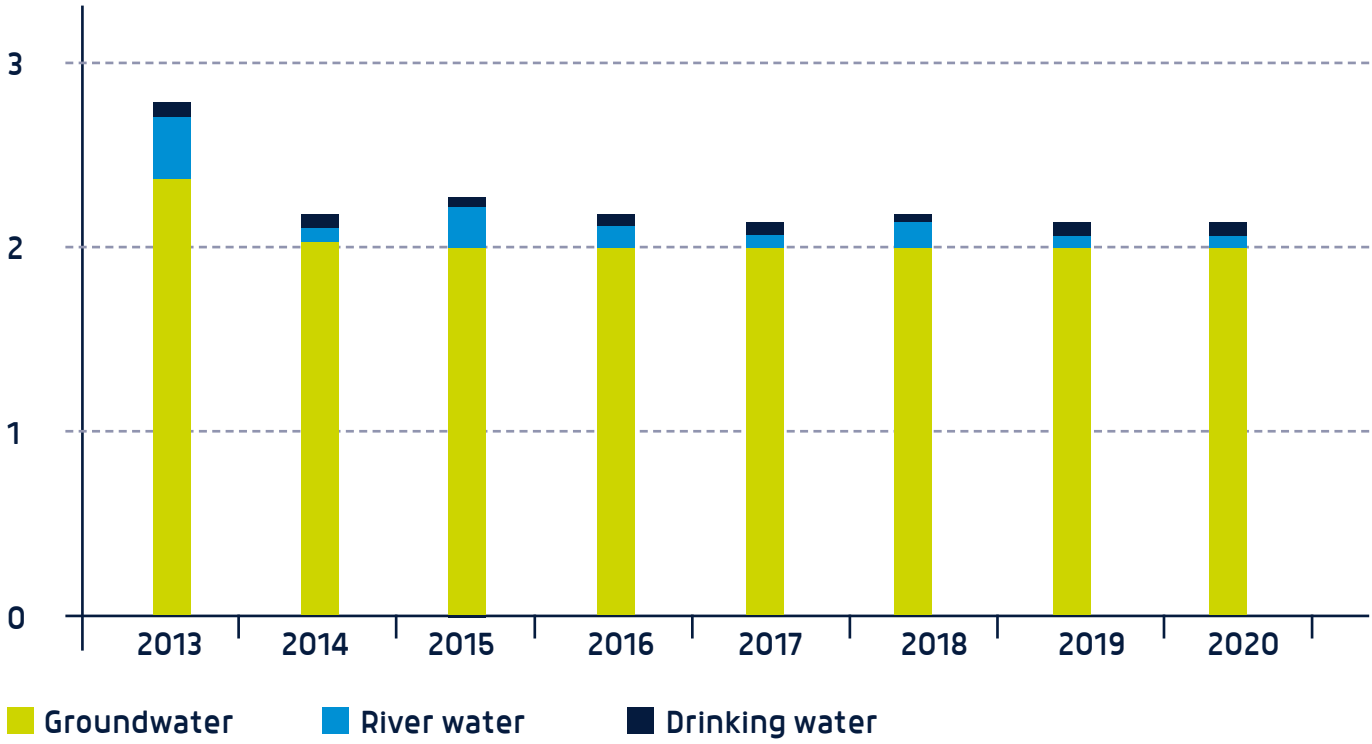
	Unit	2013	2014	2015	2016	2017	2018	2019	2020
Water consumption	1,000 m³	1,708	1,428	1,514	1,465	1,521	1,399	1,442	1,405
Spec. water cons.	m³/ t Prod.	2.63	2.28	2.35	2.20	2.22	2.23	2.23	2.20

Absolute water consumption dropped to a slightly lower level. The specific water consumption also remained at a low level.

Depending on the intended use and quality requirements, drinking water, groundwater and river water are used. Drinking water is only used if the quality requirements are very high. For example, the inside of the PVC reactors must be cleaned with drinking water taken from the public network. Drinking water is also used for sanitary purposes.

During the production of Vestolit products, salts present in the drinking water have an interfering influence. Therefore, desalinated water is used as process water. This water is taken from the groundwater and desalinated at Evonik Industries AG. Approx. 80 % of the water consumed comes from groundwater. River water is mainly used for cleaning work and for cooling apparatus. The declining trend in consumption is achieved by optimising cleaning processes.

Water consumption in m³/t product



11.3. Wastewater

Wastewater in Marl Chemical Park is discharged via two separate sewer systems.

Uncontaminated water (e.g. rainwater) is fed into the Lippe River via the rainwater and cooling water sewers. After pre-treatment or pre-cleaning in Vestolit's own plants, polluted water is channelled via the factory sewer for final cleaning in Marl Chemical Park's sewage treatment plants. Many production areas are exclusively connected to the factory sewer.
The processes leading to the factory sewer are subject to analytical monitoring.

If, in spite of all precautionary measures, water-polluting substances should enter the sewer, the waste water is collected in retention basins from where it is specifically treated.

Due to the decreased total production in 2020, the total volume of waste water requiring treatment decreased by 3.6 %.

	Unit	2013	2014	2015	2016	2017	2018	2019	2020
Spec. wastewater volume	m^3/t product	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1

The wastewater loads are monitored by means of self-monitoring and official measurements.

Vestolit, like all companies in Marl Chemical Park, disposes of its wastewater via Evonik's central wastewater treatment plants. As a result, the wastewater loads at the outlet of the treatment plants cannot be allocated to the individual companies and are, therefore, published in the chemical park's "Joint Environmental Declaration".

11.4. Emissions

Significant emissions are considered to be the so-called direct emissions that occur during production. Indirect emissions, such as those caused by the transport of products, are currently difficult to quantify.

In order to reduce the release of pollutants into the atmosphere, Vestolit operates, among other things, filter systems, air scrubbers and recovery systems for raw materials.

Emissions are regularly reported to the authorities together with the emissions declaration.

Vestolit adheres to the emission limits specified under statutory regulations and the approval notices.

The emissions essentially consist of the following:

- Nitrogen oxides (NOx) from combustion processes, which are operated for the treatment of exhaust gas streams and the processing of residues;
- Dust, mainly PVC dust from the drying plants;
- Volatile organic compounds, including vinyl chloride, formic acid and oxalic acid.

Environmental medium air – emissions in t/a

Total emissions

	2013	2014	2015	2016	2017	2018	2019	2020
SO_2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
NO_x	31.6	31.0	38.0	28.6	25.0	22.8	42.1	40.3
CO	0.9	0.9	1.6	1.1	1.2	1.2	2.3	2.3
Total dust	8.6	9.5	9.2	15.4	11.9	9.5	8.0	10.0
Otherwise anorg. components	0.7	0.7	1.0	0.7	0.7	0.9	0.9	0.5
volatile org. compounds Total	58.8	45.5	47.9	46.0	52.9	47.7	50.2	62.7
(without CO_2)	100.7	87.7	97.8	92.0	91.8	82.2	103.6	116.0

(Source: Annual emissions statement Vestolit, 11th Ordinance on the Implementation of the Federal Immission Control Act (BImSchV)

The increase in volatile organic compounds is due to the result of discontinuous emission measurements (formic acid or oxalic acid). Depending on the measurement result, this can lead to high computational fluctuations in the extrapolated emissions, which are consistently within the authorised limits. A negative trend for the environment is not evident.

The increase in the value for total dust is due to an increase in emissions in the PVC plant. In 2020, emission measurements showed higher dust concentrations in the exhaust gas from this plant than in 2019. Overall, the dust loading is at the level of the long-term average and well below the authorised limits. A negative trend for the environment is not evident from this increase.

The following table shows the development of scope 1 and scope 2 CO_2 emissions from 2015 to 2020. In addition - besides the Scope 2 emissions from electricity procurement - the emissions from energy procurement at the site (heat, compressed air, cooling, etc.) have been recorded and presented under the term "utilities" since 2020.

CO_2 emissions / specific CO_2 emissions kg/t production volume

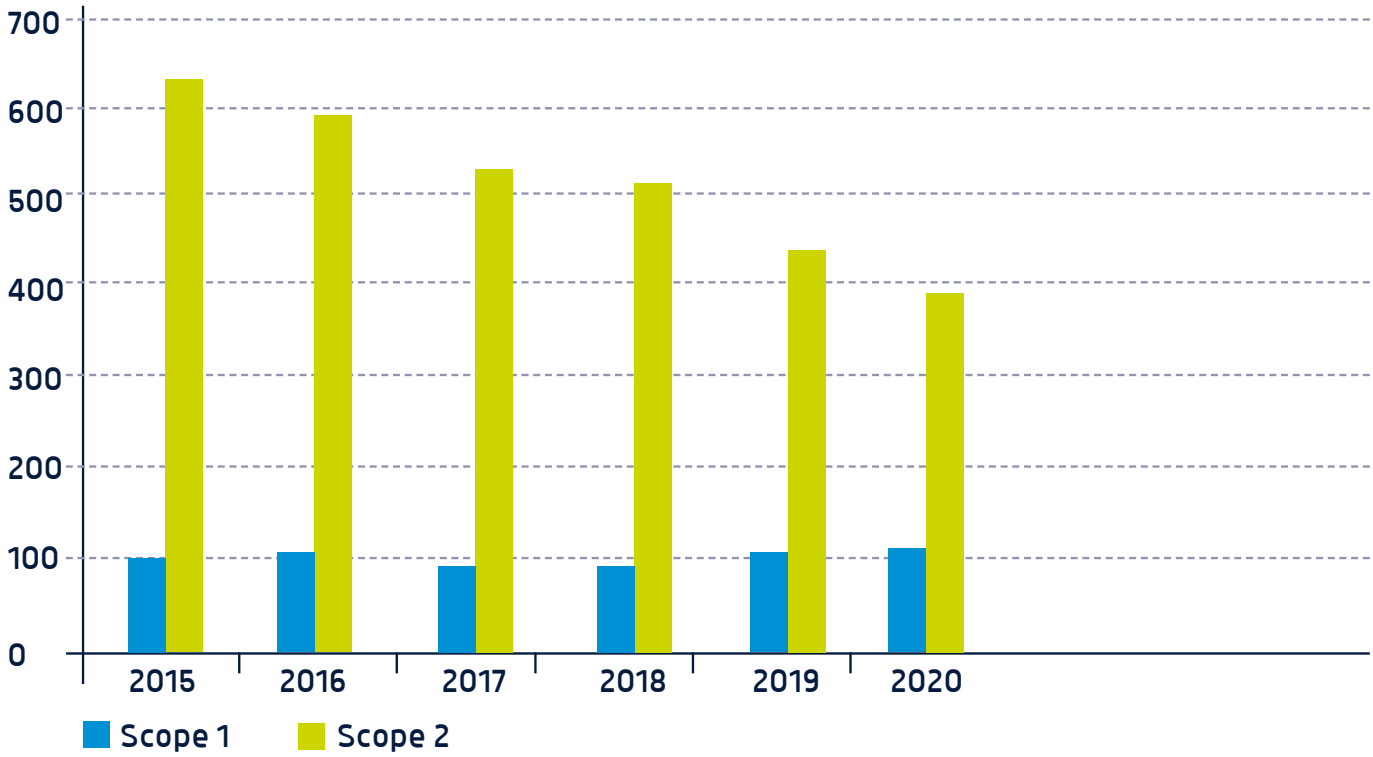
	Unit	2015	2016	2017	2018	2019	2020
Scope 1	(t)	73,330	78,880	72,531	71,205	76,646	75,749
spec.	(kg/t Prod)	114	119	106	114	118	119
scope 2 Power procurement	(t)	411,611	397,913	369,888	328,412	283,243	253,358
spec. power procurement	(kg/t Prod)	639	598	539	524	437	397
Scope 2 Utilities	(t)	n.k.	n.k.	n.k.	n.k.	n.k.	309,635
Scope 2 spec. total	(kg/t Prod)	n.k.	n.k.	n.k.	n.k.	n.k.	881

(Source: Federal Environment Agency German electricity mix 2020 projection; n.k. = not known)

From 2020 onwards, Vestolit will be provided with the corresponding values for Scope 2 emissions from energy procurement via Evonik Services GmbH. The CO_2 emissions resulting from the transport of our products (Scope 3) are currently not quantifiable due to the lack of data. We closely monitor this development on the basis of the VCI guidelines for determining CO_2emissions in the logistics of the chemical industry.

Vestolit is continuously working to reduce emissions to make PVC production more sustainable. This includes the development of non-fossil PVC, "blue liquor" and an increased use of hydrogen instead of natural gas in VC decomposition.

Specific CO_2 emissions kg/t production volume



11.5. Soil and groundwater protection

In production, substances hazardous to water are also handled. This requires special care and appropriate training of Vestolit employees. To prevent the escape of substances hazardous to water, apparatus, containers, tanks and pipelines are regularly inspected both internally and by experts. In addition, production areas, as well as unloading and filling stations in which water-hazardous substances are handled (or in which these substances are stored), are equipped with product-resistant catch basins or discharge surfaces. These areas are also regularly monitored internally and by experts.

A wide variety of production facilities have been operated on the grounds of Marl Chemical Park for over 70 years.

Wells are located at numerous points, with which the site owner Evonik monitors different groundwater horizons. Some wells at the edge of the chemical park site in the direction of groundwater flow are operated by Evonik as safety wells, for which it is responsible.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11.6. Waste

Waste generation in relation to the produced quantity is to be regarded as a measure for process capability and is shown below

	Unit	2013	2014	2015	2016	2017	2018	2019	2020
Total waste	t	5,038	4,953	4,997	5,230	4,239	8,142	6,011	4,876
Hazardous waste	t	3,648	3,987	4,421	4,394	3,575	6,432	4,516	3,860
Non-hazardous waste	t	1,390	966	576	836	664	1,710	1,495	1,016
Production volume	1,000 t	649	627	644	665	686	627	649	639
Special hazardous waste	t/kt prod.	5.6	6.4	6.9	6.6	5.2	10.2	7.0	6.0
Spec. total waste generation	t/kt prod.	7.8	7.9	7.8	7.9	6.2	13.0	9.3	7.6

Vestolit's waste disposal at the Marl Chemical Park site is handled by Evonik's waste management company. Of the total hazardous waste, 16.5 % is disposed of and 83.5 % is recycled (material/thermal or other type of recycling). Of the non-hazardous waste, 16.8 % is disposed of and 83.2 % is recycled (material/thermal or other type of recycling).

After use in the methyl chloride plant, used sulphuric acid is returned to the producer for recycling.

11.7. Noise and odour

Noise plays a subordinate role at Vestolit as an environmental impact, in view of the fact that noise-intensive machines and other equipment are soundproofed for occupational safety reasons alone.

As part of the Marl Chemical Park, Vestolit's production facilities are monitored by Evonik Industries AG with regard to noise pollution.

Marl Chemical Park is located in an area surrounded by industrial plants and residential buildings. Due to the significant distance between Vestolit's production plants and residential buildings, noise and odour pollution in the neighbourhood is relatively low.
In the years 1998-2020, there were no justifiable complaints from the local population. Odours were also not an issue in the period under consideration. It goes without saying that we follow up all enquiries from the neighbourhood and inform the people concerned about the results of our investigations.

11.8. Environmental incidents

No reportable, environmentally relevant event occurred during the reporting period.

11.9. Environmental costs

In the presentation, the operating costs are broken down into water, waste, air and noise protection.

Vestolit operates elaborate in-house preliminary treatment facilities for the treatment of wastewater streams.

Current operating costs in € million

	2013	2014	2015	2016	2017	2018	2019	2020
Water protection	5.9	5.9	5.9	6.2	6.5	5.4	5.8	6.0
Waste disposal	2.2	2.2	2.3	2.2	2.2	2.2	2.4	2.4
Air pollution control	1.2	1.2	1.2	1.3	1.3	1.0	1.1	1.2
Noise protection	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	9.4	9.4	9.5	9.8	10.1	8.7	9.4	9.7

11.10. Transport

The transport of raw materials, auxiliary materials and products is an indirect environmental aspect which we consider separately.

Transport of raw and auxiliary materials

95% of the raw and auxiliary materials are delivered by pipeline and ship. Only about 5 % of the transport of raw materials and supplies is by road and rail.

Transport routes – raw and auxiliary materials

Figures in %	2013	2014	2015	2016	2017	2018	2018	2020
Pipeline	88.5	92.1	94.3	91.2	89.0	91.0	91.5	90.3
Ship	6.6	6.5	3.7	4.2	6.5	4.0	3.3	4.6
Road	2.8	0.9	0.5	1.8	1.9	2.0	2.1	2.0
Rail	2.1	0.5	1.5	2.8	2.6	3.0	3.1	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Transport of products

Due to the customer structure, the majority of Vestolit products are transported by road. About 60% of the products are hazardous goods.

Transport routes – products

Figures in %	2013	2014	2015	2016	2017	2018	2019	2020
Pipeline	6.1	7.1	7.1	6.7	7.1	9.1	9.1	6.8
Ship	12.6	18.8	14.3	16.8	15.7	13.8	23.1	23.7
Road	68.0	61.6	65.5	65.5	64.6	62.4	57.1	59.0
Rail	13.3	12.5	13.1	11.0	12.6	14.7	10.7	10.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

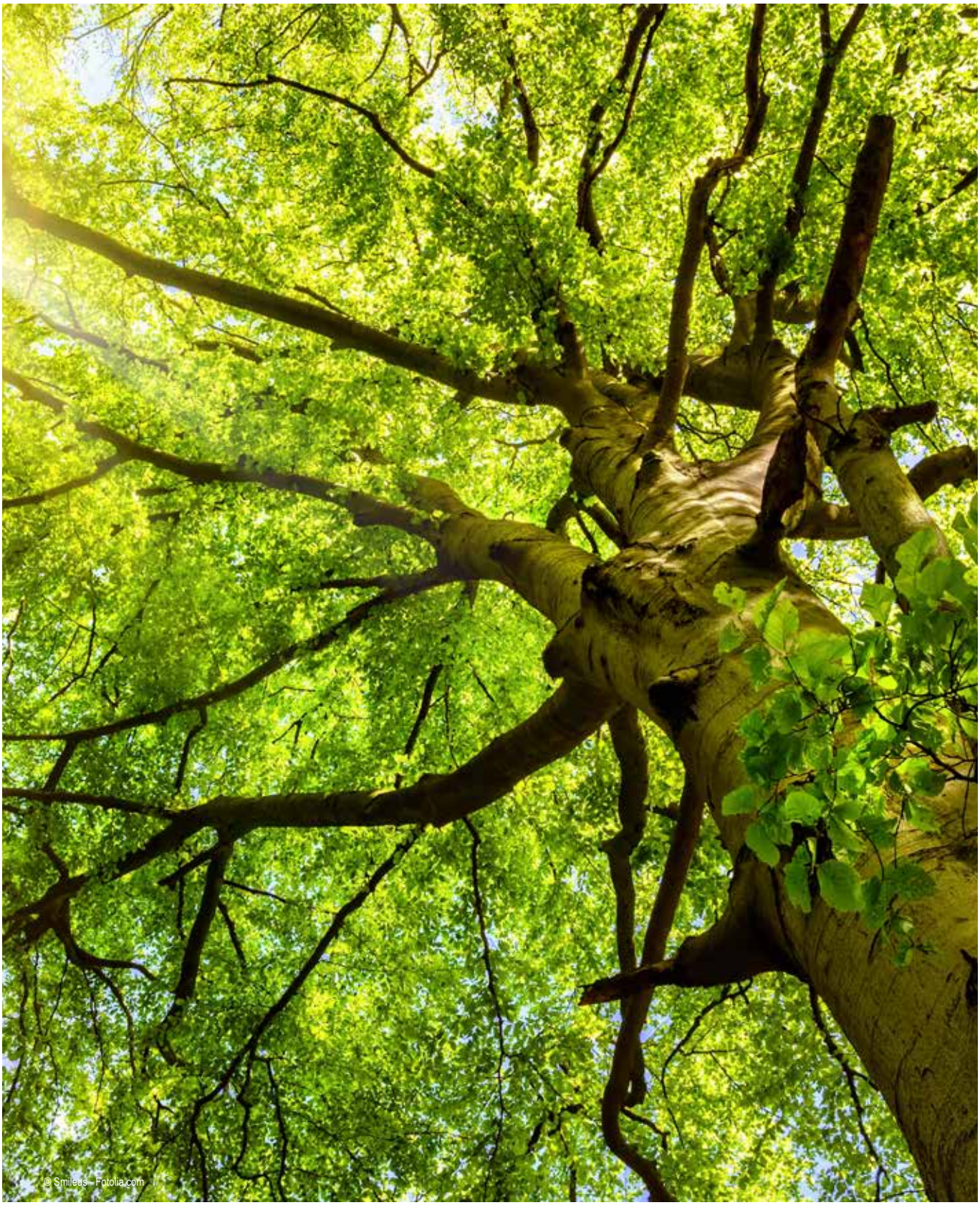
Using an evaluation system, only suitable transport companies are selected according to a special requirements profile. The repeat occurrence of deficiencies leads to their exclusion.

When transporting goods, the legal regulations typical for the transport mode are observed, especially when loading dangerous goods together.

11.11. Land use

The built-up area of Vestolit is 117,177 m^2.

As an integrated company in Marl Chemical Park, it would not be prudent to present a key figure in terms of "biological diversity/land use". Vestolit's areas are defined by building plots and cannot be changed.



12. Environmental and sustainability programme

Our actions are defined by our environmental and sustainability policy. Based on this, we have developed goals which we link to specific measures.

12.1. Environmental goals/programme 2020-2022

The present environmental programme 2020-2022 contains the goals, measures and deadlines, arranged according to the various elements of operational environmental protection. The necessary resources are provided in good time and in accordance with established procedures; responsibilities are defined within the framework of project management.

Energy & emissions

Objective	Measure	Date/As of
Saving nergy by introducing innovative control concepts	Introduction of APC (Advanced Process Control) in the VC plant.	III/2022
CO_2 reduction in the production of caustic soda using green electricity	Procurement of certified green electricity	Continuing
CO_2 reduction by producing biobased PVC products	Procurement of green bio-based ethene	Continuing
CO_2 reduction by approx. 7,400 t/a	Procurement of certified green electricity (17,500 MWh for 2021) with proof of origin	from III/2021
Reduction of the specific compressed air volume in spray drying (two-substance atomisation) compared to the previous year	Regular monitoring and adjustment of spray drying parameters (compressed air consumption) to the dispersion quality and particle size distribution of the PVC powder	Continuing
Reduction of specific energy consumption in electrolysis through technology upgrades 132,000 Gj/a	Conversion of one electrolyser per year to V6 zero-gap elements	IV/2024
Contribution to the stabilisation of the national energy supply by marketing primary control energy in the electrolysis sector	Cooperation with another external industrial enterprise to provide a frequency containment reserve as well as a quickly interruptible load for at least 80 % of the operating time	Continuing
Natural gas savings through alternative quench acid processing: 65,450 Gj/a	The quench acid produced in the MC process is no longer to be reprocessed in HCl recovery but in a new column to be built.	IV/2023
Energy savings in PVC production: 16,548 MWh/a	Conversion of the spray drying plant "H" to heat recovery, new heat exchanger for heating drying air (saving of steam)	II/2023

Wastewater

Objective	Measure	Date/As of
Savings in saline vapour condensate in brine treatment: 70,000 m^3	Recycling of saline condensate into the upstream process.	IV/2022
Savings of wastewater in PVC production: 40,000 m^3	Permeate extracted from PVC dispersions to be reused as water in polymerisation.	IV/2022
No waste water event relevant to the site	Detection of weak points with the possibility of substance leakage and the introduction of countermeasures	Continuing
Reduction of waste water	Installation of a new bisulphite dosing system in the VCECMC plant.	I/2023

Occupational health and safety

Objective	Measure	Date/As of
Reduction of occupational accidents	Behaviour-related safety inspections by managers; Occupational safety programme "Professionally Safe" with external consultation to establish a new occupational safety culture; Regular discussion of near misses and incidents in regular meetings.	Continuing
Health prophylaxis (Vestolit)	Continuation of Occupational Health Management	Continuing

12.2. Social responsibility

Sustainable corporate governance means active social responsibility vis-á-vis the company's stakeholders. At Vestolit, a steering committee systematically addresses the concerns of stakeholders and the resulting core issues and fields of action.

Our employees are the most important stakeholder group. We develop goals and action plans for them, for example in the areas of internal communication, occupational health management (OHM) and professional development and promotion. Vestolit also assumes responsibility for external stakeholders. For example, we attach great importance to the interests of young people and, as a partner to the "Jugend forscht" regional competition in Marl, we support the innovative ideas of young talents.

GENERATION R
RESPECT! Give it to get it.

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13. Declaration of validity

The undersigned EMAS environmental expert appraisers Dipl.-Ing. Jürgen Schmallenbach (registration no.: DE-V-0036), accredited or licensed for the area of production of plastics in primary form (NACE-Code 20.16), confirms to have verified whether the site or the whole organisation, as indicated in the Environmental Statement of Vestolit GmbH (Registration No. DE-S-156-00017), meets all requirements set out in Regulation (EC) No. 1221/2009 of the European Parliament and of the Council of 25 Nov. 2009 and Commission Regulation (EU) 2017/1505 of 28 August 2017 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

By signing this declaration, it is confirmed that

- the appraisal and validation have been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009 and Regulation (EU) 2017/1505
- the result of the appraisal and validation confirms that there is no evidence of non-compliance with the applicable environmental legislation,
- the data and information in the environmental declaration of Vestolit GmbH at the Marl Chemical Park site provides a reliable, credible and truthful picture of all activities of Vestolit GmbH at the Marl Chemical Park site within the area specified in the environmental declaration.

This declaration cannot be equated with an EMAS registration. EMAS registration can only be carried out by a competent body in accordance with Regulation (EC) No. 1221/2009. This statement may not be used as a stand-alone basis for informing the public.
Updated environmental statements are published annually.
The next consolidated environmental statement will be published in November 2023.

Marl, 11/18/2021

Dipl.-Ing (FH) Jürgen Schmallenbach
Environmental expert appraisers (DE-V-0036)
c/o Schmallenbach Consulting & Certification
Äpfinger Berg 3, 88437 Maselheim

CERTIFICATE

This is to certify that

VESTOLIT GmbH

Paul-Baumann-Straße 1
45772 Marl
Germany

has implemented and maintains a **Quality Management System**.

Scope:
Development, production and distribution of PVC and basic chemicals

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2015

Certificate registration no.	002518 QM15
Valid from	2020-12-13
Valid until	2023-12-12
Date of certification	2020-11-18

DQS GmbH

Markus Bleher
Managing Director

Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main, Germany

CERTIFICATE

This is to certify that

VESTOLIT GmbH

Paul-Baumann-Straße 1
45772 Marl
Germany

has implemented and maintains an **Environmental Management System**.

Scope:
Development, production and distribution of PVC and basic chemicals

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 14001 : 2015

Certificate registration no.	002518 UM15
Valid from	2020-12-13
Valid until	2023-12-12
Date of certification	2020-11-18

DQS GmbH

Markus Bleher
Managing Director

Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main, Germany

CERTIFICATE

This is to certify that

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Paul-Baumann-Straße 1
45772 Marl
Germany

has implemented and maintains an **Energy Management System**.

Scope:
Development, Production and Distribution of PVC and basic chemicals

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 50001 : 2018

Certificate registration no.	002518 EMSt18
Valid from	2020-11-18
Valid until	2022-12-14
Date of certification	2020-11-18

DQS GmbH

Markus Bleher
Managing Director

Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main, Germany

Legal Notice

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Orbia is a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.

vestolit

orbia
Advancing life together