Environmental Statement 2022

(Consolidated version)

DÖRKEN IMPRINT

Contact person:

Bernd Kleinevoß
Environmental Management Officer
Dörken Coatings
Phone number: 02330/63-404
Fax number: 02330/63-354

Jantken Drumann
HSE Specialist Dörken Coatings
Phone number: 0171 1510 368

Sebastian Sochacki
Quality and Environmental Manager
Dörken Membranes
Phone number: 0151 6710 7681

Tim Simon Kröffges
Environmental Management Officer
Dörken Membranes
Phone number: 0163 366 3201

Other contact persons of the department of the Dörken Service:

Astrid Grabosch
Environmental Management Officer
Dörken Service
Phone number: 02330/63-611
Fax number: 02330/63-431

Robin Neuser
Head of HSE
Dörken Service
Phone number: 02330/63-341
Fax number: 02330/63-431

Barbara Maliouka
Waste Representative
Dörken Service
Phone number: 49 2330 63 855
Fax number: 02330/63-431

DÖRKEN

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1. The Company

1.1. About EMAS - Environmental Statement

With the present EMAS environmental statement, we would like to report to our customers, employees, owners, authorities, and neighbourhood about the improvement of the environmental performance reached by the company Ewald Dörken AG.

The topic of environment and health is of a crucial importance to the company DÖRKEN. For the companies, the general compliance, and if feasible, the overperformance, of the legal regulations in the field of development, production, application, use, storage, and disposal shall be applied.

Since 2004, the company has been participating voluntarily in the European Union's Community Environmental Management and Audit System (the so-called EMAS).

The environmental statement of the year 2022 relates to the financial year 2021 with regard to figures and data and covers the period from 01 January 2021 to 31 December 2021.
The figures, facts and information reported in this context apply to the German locations in Herdecke and Hagen.

Due to new calculation bases, higher data quality and updated information, figures from previous periods could not be comparable. In such individual cases, the present amended information would be subject to an explanation.

Foreword by the Board of Management

"It is not only for what we do that we are held responsible, but also for what we fail to do. " (Molière)

As a family-owned company with over 125 years of company history and operations in the branch of the chemical industry, we act exactly according to the above-mentioned motto. In this context, our employees are our highest asset and that is exactly the reason why we live a respectful and open relationship with each other. Another aspect which is logical to us is a family-friendly working environment. What is also a matter of course for us as is an occupational pension plan and the offer of sports and health care in the company.
However, we are also particularly committed to the conservation of the resources and to the protection of our environment. For the said reason, we have already decided a few years ago to obtain certifications based on quality and environmental management systems.
Since the foundation of the company, our headquarters have been located in Herdecke, so we feel deeply connected to our neighbourhood and to the region both as a company and as an employer. The foundation Dr. Carl Dörken Stiftung which was founded in 1987 supports cultural activities, schools and sports clubs. However, the entire company Dörken together with its employees is also always financially committed. This happens with lots of personal commitment to projects implemented throughout the region.
Consequently, the start of a sustainability project for the entire group of companies was just a further consistent step for us. This overarching project will form the framework of all our activities carried out in this important field in the future. With this first sustainability report, we are making our efforts and activities in the sense of sustainability transparent for our employees and for our neighbours, but also for our customers and suppliers.
After laying the foundation for new ideas in the course of this year, we are looking forward to many exciting projects to keep the world of tomorrow a world which is worth living in.

1.2. Company profile

The company Ewald Dörken AG is a family business with around 1,000 employees based in Herdecke and Hagen in Germany. Within the holding, two business units of Dörken GmbH & Co. KG and Dörken Coatings GmbH & Co. KG produce quality products in the fields of films, paints, and corrosion protection.

The company DÖRKEN GmbH & Co. KG (hereinafter shortly referred to as **Dörken Membranes**) offer reliable system solutions for wind and moisture protection, building waterproofing, and protection as well as drainage for flat roofs. The highly innovative functional layers are used for protection around the house - or as an individual solution in the industrial field. In collaboration with our partners, we are shaping the future of individual buildings up to urban architecture.

The company Dörken Coatings GmbH & Co. KG (hereinafter shortly referred to as **Dörken Coatings**) are specialists in the field of high-quality surface protection. They offer solutions for a wide range of applications, such as for example high-performance corrosion protection or high-quality coatings with dispersions and coatings on components, facades as well as interior walls. Last but not least, we are a reliable and qualified partner for pigment pastes and clay systems.

The company Dörken Service GmbH (hereinafter shortly referred to as **Dörken Services**) stands behind the two business units as a strong third unit with its services in the main areas of HR, Purchasing Management, Finance/Controlling, Investor Relations, IT/GM/HSE (Health/Safety/Environment).

Fig. 1: Dörken – an innovative family business

In 1892, the brothers Dr. Carl Dörken and Ewald Dörken founded the company Ewald Dörken oHG in order to manufacture paints, varnish, and rust protection paints at the site located in the Wetterstraße 58 in the German town of Herdecke. At the end of the 19th century, the production of consumer and industrial goods was subject to a real explosion. In this context, the demand for coatings to protect a wide variety of surfaces is increasing as well. The growing construction industry also requires construction paints fulfilling a wide range of requirements.
With their experience as a chemist and as a trained businessman, the brothers Dr. Carl Dörken and Ewald Dörken decide to start their manufacturing work.

Fig. 2: Company development between 1892 and 1963

Since then, the responsibility for the family business has been passed on from generation to generation, always ahead of the basic principle of sustainable as well as continuous development. In this manner, the company DÖRKEN developed from a small paint factory into an internationally acting company.

Fig. 3: Company development between 1973 and 2020

Today, the two wholly-owned subsidiaries DÖRKEN Coatings and DÖRKEN Membranes are successfully positioned in their respective markets and have become real innovation leaders in their industries.

1.3. Corporate policy

"We are developing the long-term strategy for shaping our future from our history as well as from our aspiration as a family business."

The slogan "Dörken protects values" always stands for high-quality goods and services supporting our growth together with the growth of our customers in the future. As a company acting in the field of the chemical industry, we are particularly committed to the protection and preservation of the environment.

"We are guided by the wishes and objectives of our customers and commit ourselves to comply with the legal requirements (in terms of environmental and occupational safety). The basis of our business relationships is the trust of our customers in our performance, in our future viability as well as in our serious approach. "

- Our customers purchase goods and services of an agreed quality from us, and they do it under safe conditions. We need to make sure they get what they purchase, and this is always the case!

The company's objectives are the following: The preservation of the company, the fact that we ensure its independence and its business sites as well as the pursuit of profit require economic action and the planned use of all operational factors.

We seek and develop innovative technologies and then translate them into products and services giving our customers new impulses in order to achieve their own objectives.
We must produce our defined Dörken quality as cost-effectively as possible to maintain our level of competitiveness. Furthermore, it is to be ensured that transport, packaging, and contents are made in the safest way possible. The price-performance ratio of our products and services must be the right one both for our customers and for ourselves.

To be able to achieve the above-mentioned principles, all DÖRKEN employees contribute - everyone in his/her own area of competence!

Only by working all together we will be able to achieve what we share: secure jobs, the maintenance of the company and a lasting profit, by considering the official and voluntary requirements. To achieve this objective, the employees have to feel comfortable in their workplace and must strive to fulfil the tasks assigned to them responsibly and as error-free as possible. And the executives must create the framework conditions which are necessary to achieve the said objective. The promotion of quality, environmental, energy, and safety awareness is one of the constant management-related tasks.

In order to ensure that the commitment of the individual to our Dörken quality under the most environmentally friendly, energy-efficient, and safe conditions possible results in the desired overall success, we have set up an integrated management system according to the norm of DIN EN ISO 9001, 14001 and in compliance with EMAS. The objective pursued by this system is to ensure that the stated objectives are put into practice on a daily basis. Together with all managing directors and with all employees, the Management Board undertakes to comply with the requirements of the said integrated management system and to further develop it by considering the state of the art, the requirements of the general public (authorities as well as neighbours), the corporate basic principles and the customer requirements.

The Executive Board and the Managing Directors are responsible for the enforcement as well as for the maintenance of the established integrated management system. The representatives of the Integrated Management System support the implementation and receive the full support from the Executive Board and the Management. Through the training and education of the employees, thanks to the organizational integration of environmental protection into the company's processes and the constant internal and external audits, it can be ensured all actions are taken in compliance with the requirements of the management system. Generally speaking, this objective includes the compli-

ance with the applicable statutory regulations such as the continuous improvement of environmental protection, quality and product responsibility, plant and transport safety as well as the responsible handling when it comes to energy resources.

Furthermore, regardless of the applicable laws and regulations, we apply the "Good Management Practices EMAS".

- In this context, a sense of responsibility for quality, energy saving, environmental protection and occupational safety is promoted at all levels.
- The impact of every new activity, product and process is checked.
- The impact of the current activities will be evaluated and monitored, and all the important activities will be evaluated in terms of their impact on the environment.
- In this context, the suitable measures are taken in order to prevent or to remove the pollution of the environment. Emissions and waste generation are reduced to a minimum level and the resources are maintained. And this happens with technologies which are as environmentally friendly as possible.
- In this context, the suitable measures are taken in order to prevent any accidental emissions.
- The compliance with the environmental policy is subject to our monitoring.
- In the event the environmental policy and the objectives are complied with, the required measures will be taken.

Procedures are being developed• together with the authorities in order to reduce the impact of accidents to a minimum level.

- The public is informed about the environmental impact of the company.
- All customers will be advised when it comes to the environmental aspects of the products.
- The company Dörken acts on the contractual partners working on the site to behave in the same manner as it is the case for the DÖRKEN employees themselves.

In our function as Board of Directors and Management, we are committed to ensuring that, in addition to the good management practices, the targets we set annually for what concerns our company policy are met, that the adequate resources are provided for quality, environmental protection, occupational safety and energy efficiency and that our employees are trained and instructed accordingly.

Herdecke February 2019 Board and Management

2. Scope of the EMAS applied by the Dörken companies

The following Dörken companies define the scope relating to EMAS:

The company Dörken GmbH & Co. KG (hereinafter shortly referred to as **Dörken Membranes**)
The company Dörken Coatings GmbH & Co. KG (hereinafter shortly referred to as **Dörken Coatings**)

The business sites are in 58313 Herdecke at Wetterstraße 58 and in 58098 Hagen at Brüninghausstraße 8.

The business site located in Herdecke is the headquarters of the Dörken companies. Here all the above-mentioned companies are housed.

The company Dörken GmbH & Co. KG has an ancillary seat located at the site in Hagen.

The Chairman of the Board of the Ewald Dörken AG is Mr. Thorsten Koch
The Managing Directors of the company Dörken Membranes are Mr. Thorsten Koch, Mr. Christian Harste and Mr. Ingo Quent
The Managing Directors of the company Dörken Coatings are Mr. Thorsten Koch and Dr. Gerhard Reusmann

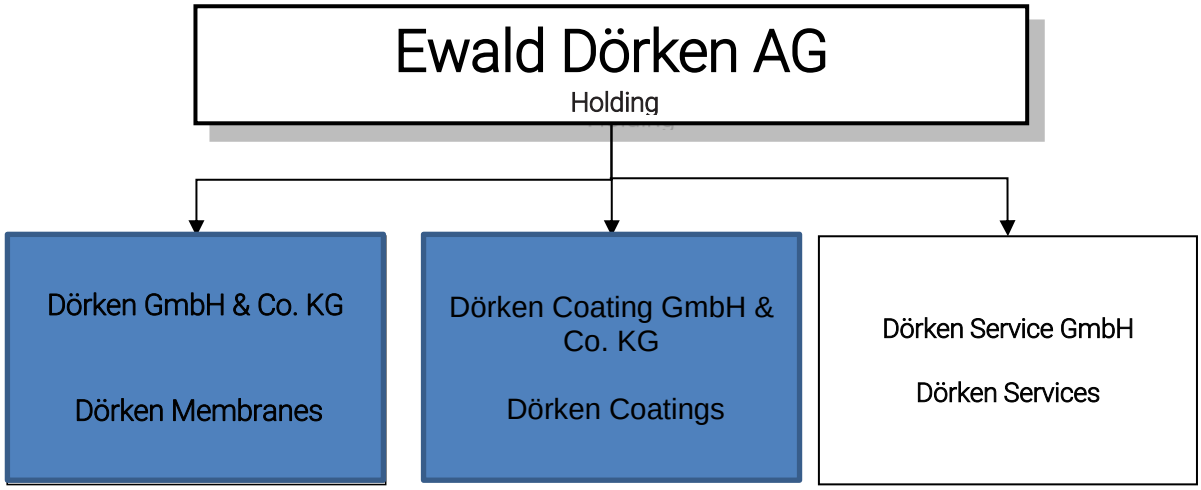

Fig. 4: Organisation of the Dörken companies and scope of the EMAS (in blue)

Other Dörken companies which do not belong to the present environmental statement;
Ewald Dörken AG (Holding)
Dörken Service GmbH
Production of the company Dörken Zubehör GmbH (a 100% subsidiary of the company Dörken GmbH & Co. KG)
The company Multitexx GmbH & Co. KG (a 100% subsidiary of the company Dörken GmbH & Co. KG)
The WISCHEMANN group (a 100% subsidiary of the company Ewald Dörken AG)

2.1. The business site located in Herdecke at Wetterstraße

The Dörken Membranes division processes polymers such as for example polyethylene and polypropylene. Furthermore, operating equipment, packaging as well as auxiliary equipment are used. The said materials are processed by means of extrusion plants, calanders and winding blocks. For storage-related purposes, various silo and shelving systems are located on the business premises.

The Dörken Coatings division processes binders, resins, solvents, and pigments. Furthermore, operating equipment, packaging and auxiliary equipment are used. The said equipment items are processed by means of agitators, containers, and mills. For storage-related purposes, various silo and shelving systems are located on the business premises.

The company Dörken Service assumes central tasks in the fields of Human Resources, Purchasing Management, Finance/Controlling, Investor Relations, IT/O (IT & Organisation) BM (Building Management), HSE (Health/Safety/Environment) for the manufacturing divisions.

750 employees are employed at the business site in Herdecke.

The distribution of tasks can be found in the following table.

Dörken	Membranes	Coatings	Services
Research and development	●	●	
Manufacturing	●	●	
Maintenance and/or servicing of production and operating facilities	●	●	
Raw material storage	●	●	
Shipping from the production to the external logistic partner	●	●	
Sales and order processing	●	●	
Production and/or quality inspection	●	●	
Integrated Management	●	●	
Human Resources			●
Purchasing Management			●
HSE / Health, Safety, & Environment			●
Finance / Controlling, Investor Relations			●
IT/O (IT & Organisation)			●
Building Management			●
Advertising and Marketing			●

Table 1: Distribution of tasks within the Dörken Companies

Due to the slope having a gradient of approximately 9% and the grown structures, a number of coordination tasks between the individual operating parts are needed because there is a shared infrastructure at this business site (this applies for example when it comes to power supply, fresh and wastewater network, cooling systems, etc.). The business site at Wetterstraße is almost completely built up and sealed at a level of 92%.
The area of approximately 75,000m^2 includes a sealed area of approximately 69,300m^2.
In the direct surroundings of the business site, there is a school (the Robert Bonnermann Schule) whereby the Hagen – Dortmund railway line runs in the immediate vicinity.
The river Ruhr is about 100 m away from the site (linear distance).
The access to the factory premises is through the centre of Herdecke through the B 234. The gate 1 of the business site is located directly on the B 234 at the Wetterstraße. The gate 1 is constantly occupied by the team of the employees of the company or by a security guard. The location of the fire alarm centre (the so-called BMZ, Brandmeldezentrale), the fire brigade control panel and the emergency plans are located there as well. The external company employees log on and off at the gate 1. Here they will be briefed and given their ID cards with which they can gain access through the access control system.
All visitors sign in and out of new administrative buildings in the new entrance foyer.
Another main entrance is located on the upper part of the Schillerstraße (gate 6 gateway north). Additional gates are located at the Wetterstraße next to the Villa Frieda (gate 2), in the lower part of the Schillerstraße (gate 3). There are two other gates in the street "Auf der Helle" (gate 4 and gate 5)

The operating hours of the company Dörken Membranes are from Monday to Sunday in three-shift operation whereby the company Dörken Coatings and Dörken Services has operating hours from Monday to Friday from 06:00 am to 6:00 pm.

Several parking spaces are available for the employees in the immediate vicinity.
Separate visitor parking spaces are located directly opposite the main entrance in the car park "Ruhr-Parkplatz".
Particular danger points are transformer stations, radioactive thickness measuring systems (permanently enclosed), explosion-proof areas, areas in which the firefighting with water is prohibited, CO_2 extinguishing systems, gas cylinder storage, tank systems as well as compressors.

Fig. 5: The business site located in Herdecke at Wetterstraße

(1) Parking spaces for employees	(2, 5, 6, 10) Production Dörken Membranes	(3, 11) Dörken Coatings raw material warehouse
(4) Storage silos of Dörken Membranes	(7, 8, 9, 15) Production Dörken Coatings	(12) Application technology Dörken Coatings / Membranes
(13) R&D Dörken Membranes/ Laboratories of Dörken Coatings	(14) R&D Dörken Coatings	(16) Administration
(17) Purchasing Management	(18) IT/ HSE/ Works Council	(20) Visitor parking spaces

2.2. Business site in Hagen

At the business site in Hagen-Vorhalle, Brüninghausstraße 8, 58098 Hagen, there are several production facilities of the company Dörken Membranes, employing 150 people.

There, webs with structured surfaces and spunbonded fabrics are manufactured. At the site, the productions are the associated goods receipts and storage options of the finished goods. The total area of the site is approximately 78,000 m². Approximately 22,900 m² of it are built while approximately 28,000 m² of it are fixed. Consequently, there is a sealed area of 50,900 m².
The business site is located in a direct location with adjacent residential development. In the immediate vicinity there is the train station of Hagen-Vorhalle. The railway line from Hagen to Dortmund

runs directly adjacent to the factory premises. In a distance of approximately 200 m (linear distance), there is the river Ruhr, while in a distance of approximately 50 m there is a catchment basin of the Ruhr cleaning.
The main access to the site is through Brüninghausstraße 8. The gate control is carried out by a fire brigade key box and an external guard service. The operating hours are from Monday to Sunday in three-shift operation. Due to the assigned security service, the site is also looked after outside of the operating hours. This means that the site guarantees a full-time occupation. The parking spaces are located directly on the factory premises.
Particular danger points are a transformer station, a radioactive thickness measurement system (permanently enclosed), a contaminated landfill as well as a gas cylinder storage and compressor systems. For manufacturing-related purposes, polymers such as polyethylene are used. Furthermore, operating materials, packaging and auxiliary materials are used. Extrusion lines, calandars, and winders are used for manufacturing-related purposes. Furthermore, silo and shelving systems are available for storage.
On the open space, a new production plant for the company Dörken Membranes is planned to be completed by 2023.

Fig. 6: Business site in Hagen

(1) Manufacturing department (burl track)

(2) Warehouse silo raw materials (burl tracks)

(3) (4) (5) Warehouse of finished goods

(6) Manufacturing department (spunbonded fabrics)

(7) Warehouse finished goods (spunbonded fabrics)

(8) Warehouse raw materials (spunbonded fabrics)

(9) Manufacturing department (membranes)

(10) Company Dörken Zubehör GmbH

(11) Parking spaces for employees

(12) Gatekeepers

2.3. Structural modifications

2.3.1. Herdecke

In order to comply with the legal requirements of German Technical Instructions on Air Quality Control (the so-called "TA Luft"), the existing chimney was replaced by a higher one in June 2022 in order to achieve an optimised removal of the exhaust air.

2.3.2. Hagen

At the business site in Hagen, the construction project has been completed, both buildings and parking spaces have been handed over to the company Dörken Membranes since the beginning of the year 2022.
The new manufacturing facilities are currently being tested there and the employees working there are being trained in parallel.

2.4. Organisational Changes

The management of Health/Safety/Environment (HSE) was taken over by Mr. Robin Neuser on 1 March 2022.

3. The company Dörken Coatings

High-performance micro-layer corrosion protection systems, building paints, dispersion paints, pigment preparations and pastes, whether solvent-containing, solvent-free or on an aqueous basis, are the result of a largely automated production process.
During a first step, the raw materials (pigments, binders, solvents) are removed from the storage facilities and provided by means of a scale or dosing device (quantity or volume counter) according with the respective recipes. After that, the raw materials are processed in the dissolver in order to be mixed in a further agitator during the subsequent step.

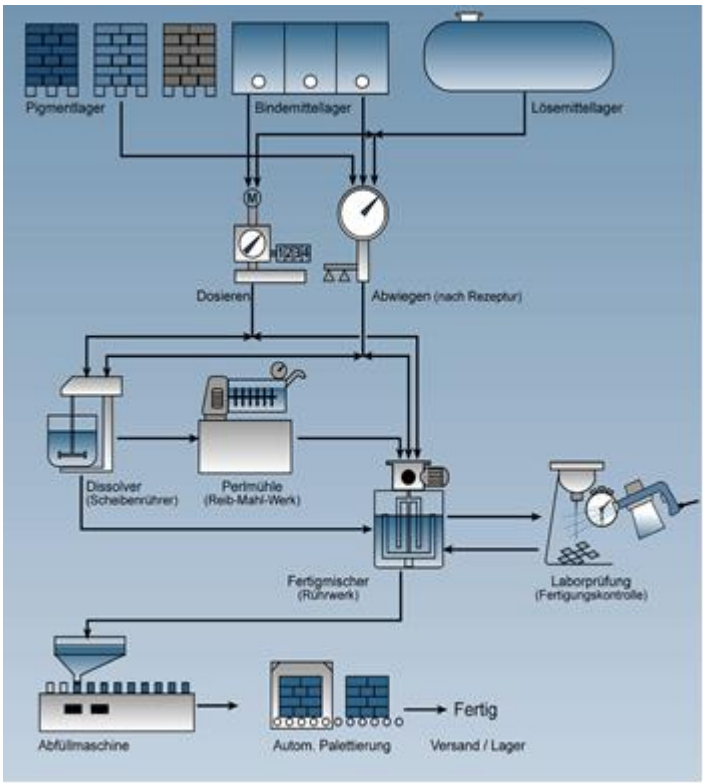

Fig. 7: Manufacturing schedule for the company Dörken Coatings

Under certain circumstances, it is needed to grind the mixture in order to break up the pigments within a bead mill. After passing through the final mixer, the product is subjected to a quality check in the laboratory. If the coating systems, paints, building paints, emulsion paints and pigment pastes comply with the strict quality criteria, they are finally filled, packaged and palletized ready for dispatch in the course of the subsequent steps. After that, the ready-to-ship pallets will be stored in the warehouse for finished goods until they are picked up. The products are delivered to qualified processors and to wholesalers and processed by an expert professional.

The company Dörken Coatings manufactures the environmentally friendly alternative for the respective product area. The use of these products is limited exclusively by the offered options and the will of the processors (the professionals) to use environmentally friendly alternative products (such as products with contain a low level of solvents, are free of aromatics, and water-dilutable). If optimal solutions are not feasible because of qualitative issues, the company Dörken Coatings nevertheless tries to come up with at least partial solutions achieved by internal development work.
The topic of environment and health is of a crucial importance. For the company, the concept of general compliance applies, and if possible, even the concept of the over-compliance with the legal requirements in terms of production, application, use, storage, and disposal shall be implemented.
The company Dörken Coatings is market leader in the field of manufacturing of chromium (VI)-free corrosion protection systems.

4. The company Dörken Membranes

The company Dörken Membranes is a developer, manufacturer, and distributor of railways for building, civil engineering, engineering, gardening, and landscaping, such as for example for the protection of foundation walls, for drainage as well as lower deck railways and steam barriers. Foundation wall protection products protect the buildings from moisture from the ground, while the underlay membranes and the steam barriers offer protection against high humidity level within the roof constructions.
In the production of the webs in the Dörken membrane, plastic granules from a silo, an octabine or from bags are transported through pipelines to an extruder. Here, additives such as for example colour granules or stabilizers are metered into the plastics. Within the extruder, the plastics melt due to temperature and pressure. The liquid plastic mass is pressed out of the extruder through a nozzle and then reaches a rotating roller. Depending on the product, flat materials such as for example woven fabrics or nonwovens flow in. The solidifying mass is transported further and wound up by different rollers. After that, the manufactured rolls are cut to saleable lengths.

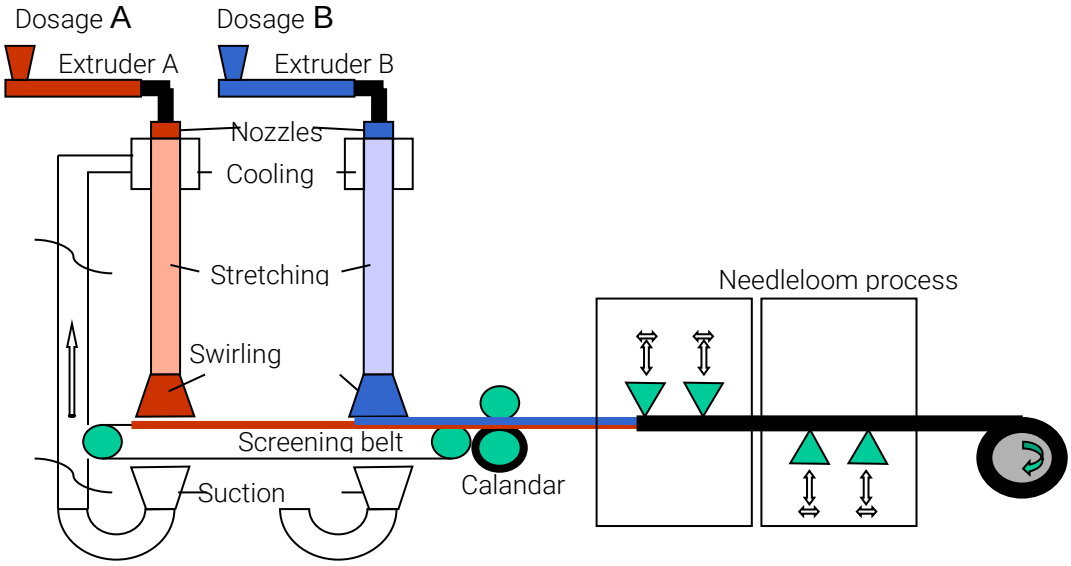

Fig. 8: Process diagram of the spunbonded nonwoven system

In addition to the production of membranes, the company Dörken Membranes also produces nonwovens for lower deck membranes. For this purpose, raw materials are automatically fed into the extruders from silos through the pipelines. Additives such as paints are automatically dosed into the raw materials according to the recipes through the weighing systems. In the extruders A and B, the mixture is melted at temperature and transported with a screw to the extruder outlet. Under pressure, the molten mass is forced through a nozzle and through a perforated plate.
This operation results in fibres. The said fibres are cooled with air and then stretched during this process. In this case, the cross section of the nonwoven fibres is subject to a reduction. The drawn fibres are deposited on a wire belt which transports the nonwoven fibres to two rolls of the so-called calander. Inside the calandar, the loose nonwoven fibres are spot-welded due temperature and pressure. As an alternative, the loose nonwoven fibres can be consolidated through the needleloom process. The downstream rewinder winds the fleece produced during this process into large rolls for further processing. A schematic diagram is shown here in the following.

The majority of the finished products is delivered to wholesalers and processed by professional craftsmen.

5. Environmental Rules

The Dörken companies use the software Quentic to continuously monitor potential legal changes. The Legal Compliance module is a framework agreement entered into with the company EcoCompliance GmbH. Every quarter, the legal experts and specialists of the company inform about legal changes. If there is a need for action for the company, a measure will be automatically triggered in the software Quentic. In this case, the respective function owner must process the respective measure. In this context, the software provides a very useful basis in terms of documentation and proof. For the Dörken Group, the following environmental regulations from the table are particularly important:

No.	Legislative framework	Scope of meaning
1	Federal Emissions Control Act (Bundesimmissionsschutzgesetz “BimSchG”)	Herdecke and Hagen
2	4. Federal Immission Control Ordinance (Bundesimmissionsschutzverordnung "BImSchV")	Herdecke
3	12. Federal Immission Control Ordinance (Bundesimmissionsschutzverordnung "BImSchV")	Herdecke
4	42. Federal Immission Control Ordinance (Bundesimmissionsschutzverordnung "BImSchV")	Herdecke and Hagen
5	Water Resources Act (Wasserhaushaltsgesetz "WHG")	Herdecke and Hagen
6	Chemicals Act (Chemikaliengesetz ChemG)	Herdecke and Hagen
7	Closed Substance Cycle Waste Management Act (Kreislaufwirtschaftsgesetz KrWG)	Herdecke and Hagen
8	Atomic Energy Act (Atomgesetz)	Herdecke and Hagen
9	Radiation protection ordinance (Strahlenschutzverordnung)	Herdecke and Hagen
10	Renewable Energies Act (Erneuerbare-Energien-Gesetz EEG)	Herdecke and Hagen
11	Federal Soil Protection Act (Bundesbodenschutzgesetz BBodSchG)	Herdecke and Hagen
12	Law on the Transport of Dangerous Goods (Gesetz über die Beförderung von gefährlichen Gütern GGBefG)	Herdecke and Hagen
13	Regulation on Commercial Waste (Gewerbeabfallverordnung GewAbfV)	Herdecke and Hagen
14	Energy Services Act (Energiedienstleistungsgesetz EDLG)	Herdecke and Hagen

No.	Legislative framework	Scope of meaning
15	EC Regulation under the number 1221/2009 (the so-called EMAS III) with the amendments included in the EMAS Regulation according to the (EU) amending regulations under the number 2017/1505 dated 28 August 2017 and the (EU) regulation under the number 2018/2026 dated 19 December 2018.	Herdecke and Hagen
16	Directive on extinguishing water retention (Löschwasser-Rückhalte-Richtlinie LöRüRL)	Herdecke and Hagen
17	Technical instructions relating to the protection against noise (the so-called TA Lärm)	Herdecke and Hagen
18	Technical instructions on air quality control (TA-Luft, Technische Anleitung Luft)	Herdecke and Hagen
19	Odour immission guideline (Geruchsimmissions-Richtlinie GIRL)	Herdecke and Hagen
20	Regulation on solvent-based paint and lacquer (Lösemittelhaltige Farben- und Lack-Verordnung ChemVOCFarbV)	Herdecke

Table 2: Legal framework applicable in the environmental field

Further legal requirements can be found in the legal register of the software Quentic.

The Dörken Group stands for the safety of its employees and of the residents as well as for the protection of the environment which are more important than quality and production profit. The company daily works with highly qualified specialists. If deviations are found in the software Quentic during the legal review, countermeasures will be taken immediately by involving the authority if needed. This procedure ensures the legally compliant operation of the systems.

We currently comply with all environmental statutory rules and regulations.

5.1. Continuous checks relating to legal conformity

The continuous check carried out in order to ensure compliance with the law is of crucial importance within the DÖRKEN companies. To check the respective framework conditions, the following methodological procedures are carried out:

- Internal audits by the Integrated Management Officers acting in collaboration with a specialist of the HSE department
- Regular safety and environmental inspections carried out by the specialists of the HSE department
- Audits of documents carried out by the specialists of the HSE department
- Regular processing of the legal duties in the software Quentic carried out by managers supported by the HSE department
- Audits at waste management companies carried out by the waste representative
- Informing executives about the significant legal changes made through the software Quentic

The operators of the respective fields are responsible for the fulfilment of the legal compliance according to the delegation of duties.

6. Dörken Integrated Management System

The quality-related idea was developed at Dörken at a very early stage. During the last 40 years, environmental and occupational health and safety have become increasingly important due to our own objectives, to the wishes of our customers and because of the laws.
Since 2000, organizational changes have been carried out continuously. In this manner, in particular, we were able to strengthen the fields of environmental protection, energy efficiency, quality assurance and occupational health and safety within the company. Today, the issues relating to

– Quality Management (QM)

– Environmental protection/energy efficiency (US)
– Occupational safety (AS)

are treated equally. We are talking about an integrated management system.
Organization, competences, and processes such as for example handling customer inquiries, complaints, hazards, accidents, requirements and own ideas are regulated in the context of process-related descriptions and by procedural and work instructions. The organisational structure of the delegates is represented on the following page.

The constantly optimized control loop (environmental audit, improvement measures, review, public relations, reporting, etc.), which better illustrates the interaction of all activities, is recorded here in the following.

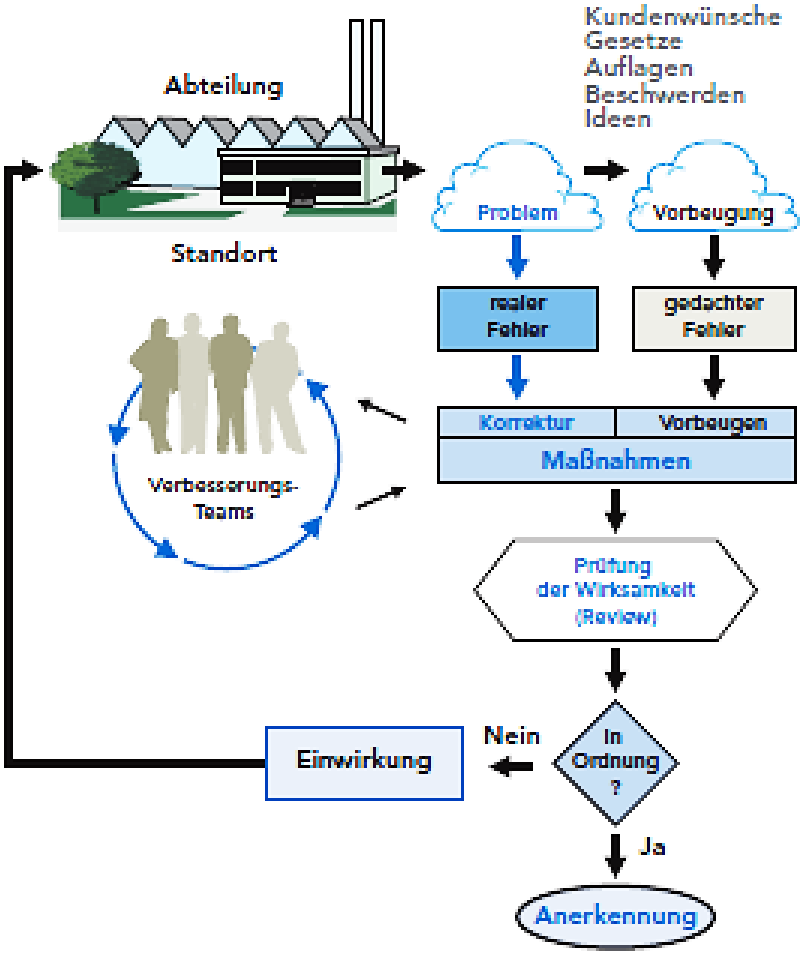

Fig. 9: Control loop relating to the integrated management system

The majority of the documents and data are now prepared in such a manner that they are stored in the EDP network of the company Dörken. The processes of the company Dörken are regularly evaluated and are subject to a continuous improvement. In this context, what particularly counts are the corrective measures. Important components of the control loop are also the building blocks of "Responsible Care" (in German: verantwortliches Handeln), an initiative of the chemical industry which was started over 25 years ago and includes the topics listed here in the following:

– Product responsibility
– Occupational health and safety
– Plant and transport safety

6.1. Organisation and competences

For the DÖRKEN companies, the safety of employees and residents as well as the protection of the environment are paramount. A clear and transparent organisational structure of operational representatives, including the competences defined for this purpose, leads to compliance with legal requirements and the assurance of efficient processes. The operational representatives for the integrated management system (IMB) report directly to the management/board of directors. They work closely with the other operational officers according to the representation shown in the figure.
For the eventuality there are internal emergency and alarm plans at disposal. Operational alarm and emergency response plans are drawn up in collaboration with the authorities acting in the fields of fire and civil protection. In the event of major events, there is a corporate team being at disposal of the company. The operational guidelines will ensure that managers and employees receive basic information relating to specific procedures.

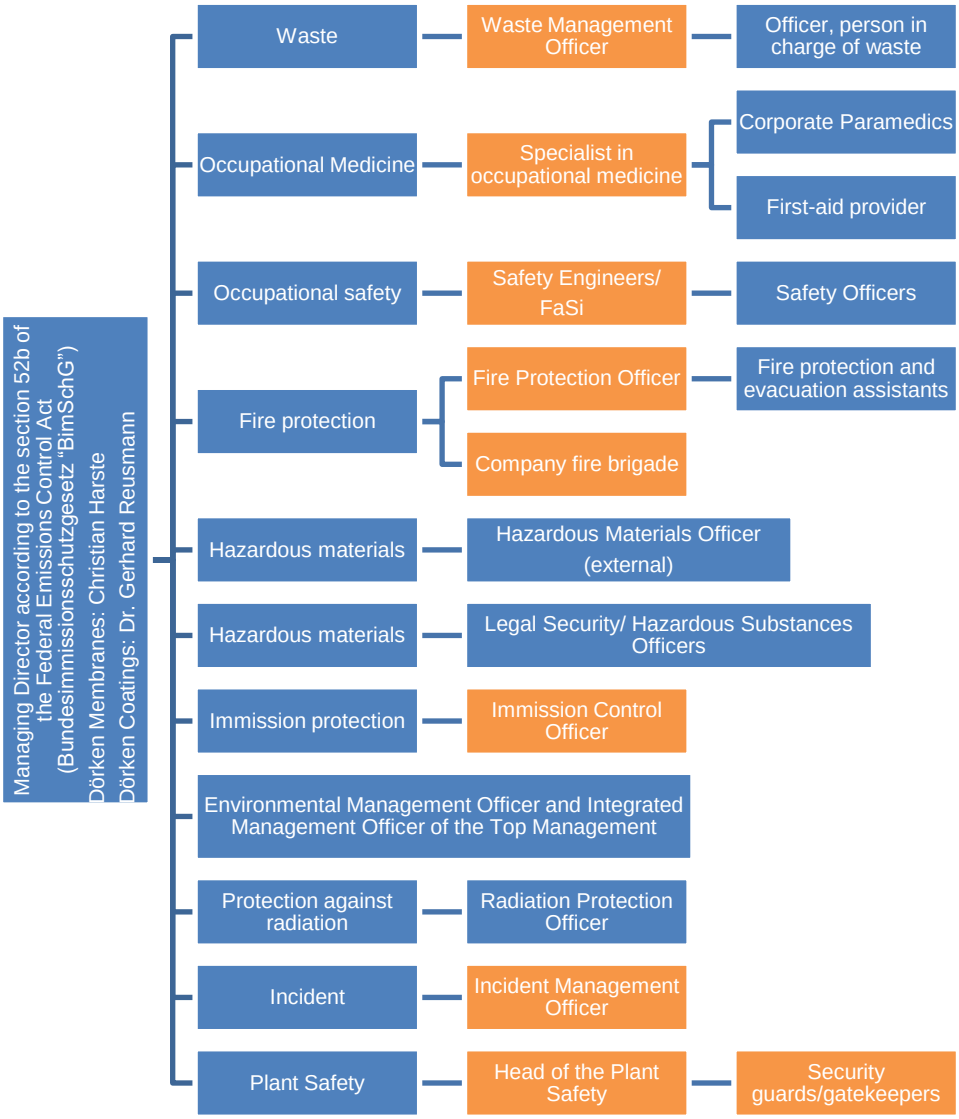

Fig. 10: Organizational chart of the companies of Dörken

The delegate functions are not fully subordinated in the respective producing company divisions or the managing directors according to the section 52b of the Federal Emissions Control Act (Bundesimmissionsschutzgesetz "BimSchG"). The following functions - highlighted in orange in the organizational chart - are subject to professional as well as disciplinary supervision under the head of the Health, Safety & Environment department within the company Dörken Service GmbH:

Officers	Name	Business division
Waste Management Officers	Ms Barbara Maliouka	Dörken Services
Fire Prevention Officer	Mr Benedikt Eusemann	Dörken Services
Safety Engineers/FaSi	Mr Robin Neuser Ms Tabea Renelt Mr Matthias Salewski	Dörken Services
Emission Control Officer	Ms Barbara Maliouka	Dörken Service
Head of Rapid Response Team Corporate Fire Brigade	Mr Robin Neuser	Dörken Service
Incident Management Officer	Ms Astrid Grabosch	Dörken Service
Head of the Plant Safety	Mr Robin Neuser	Dörken Service
Environmental Management Officer	Mr Bernd Kleinevoß	Dörken Coatings
Integrated Management Officer	Mr Tim Simon Kröffges	Dörken Membranes
Environmental Management Officer	Ms Astrid Grabosch	Dörken Service
HSE Specialist	Ms Jantken Drumann	Dörken Coatings
Quality and Environmental Manager	Mr Sebastian Sochacki	Dörken Membranes

The specialist in occupational medicine is a permanent employee.

The decentralized HSE functions of the safety officer as well as the fire and evacuation assistants are available in sufficient numbers in all the divisions of the company and are appointed in writing.

For the respective operating companies, we will ensure a legal duty through the order.

6.2. Employee participation

The continuous improvement of the preventive and additive environmental protection of the company shall take place through the direct involvement of the employees. For the said purpose, all employees are offered the opportunity to propose optimization options to the corporate suggestion system. During the recent months, for example, among these proposals, there were proposals relating to the examination of state subsidies offered for the energy costs. After its receipt, the optimisation proposal is evaluated by the respective specialist departments.

6.3. Environmental audit

In this context, one of the main instruments is the regular environmental audit (internal audits), with which the functioning of all processes is checked for compliance with the applicable specifications. If needed, an adequate action requirement is included in the action plan and processed by the competent persons in the course of the specified period.

A fundamental point is the verification of compliance with the relevant environmental regulations and the other binding obligations giving us legal certainty.
For the purpose of the implementation of the EMAS as amended in 2017, we have defined in particular the external and internal issues having a positive or negative impact on our environmental management system. In this context, we have described in more detail the involved parties which are relevant for the environmental management system.

.
These parties include the following categories:
- Customers,
- Neighbours,
- Legislators and authorities,
- Professional associations,
- Credit institutes/insurance companies,
- Mayors,
- Employees,
- Suppliers,
- Owners/Managing Directors.

Their requirements and expectations were assessed by considering both environmental risks and opportunities. From this background we will be able to derive concrete measures and obligations (objectives).

Furthermore, we have analysed the stages of the life cycle of the products manufactured by us, from the extraction of raw materials, through development, product manufacture, delivery, and use, to the end of use, to determine whether they may be influenced.

The present environmental statement informs the involved parties about all relevant activities, data, and facts as well as about the intended objectives and measures.

Based on the policy of the company Dörken and the corporate strategies of the companies of DÖRKEN, the objectives and measures for their implementation are defined. In this manner it is intended to further increase environmental performance by achieving savings and exploiting the existing potential for improvement.

The final step consists of the review of the management system, the legal compliance, and the environmental statement by an independent and accredited environmental expert witness.

6.4. Internal/external communication

6.4.1. Internal communication

In this context, the companies of DÖRKEN make use of various options:
- During the annual meetings, senior executives and works councils are kept up to date with the most recent activities. Special topics, such as for examples objectives, programme developments, new procedures, company suggestions, responsibility, etc., are elaborated in small teams and then discussed together.
- All employees are trained at regular intervals.
- The environmental statements are published.
- The discussion of the proposals from the "company suggestion system" also contributes to the communication.
- However, the internal integrated management audits (environmental protection, occupational protection and safety, quality) shall not be limited to surveys and evaluations. Since there are also discussions!
- Posters, short conversations, and training, as well as teamwork in quality and environmental circles support communication as well.
- All the information is provided through intranet.

6.4.2. External communication

On the home page of the DÖRKEN GROUP, you can view the environmental statement and the updates associated with it.

Furthermore, the environment-related activities are reported on the website
- www.doerken-nachbarn.de/
- Press releases.

- Participation in working groups of associations.
- Assistance offered at the customers' sites if there are issues.
- Distribution of “Among Us” to the field service and/or to the consumers.
- Opening of the company premises for authorities and residents by the management of interested groups.
- As a member of the German VCI (Verband der Chemischen Industrie, English: Association of the Chemical Industry), the companies of Dörken participate in the international initiative “Responsible Care” (in German: "Verantwortliches Handeln").

7. Environmental aspects

Environmental aspects are aspects concerning organisational activities, products and services which may have an impact on the environment. In this context, a distinction is made between direct and indirect environmental aspects.

The companies Dörken Membranes and Dörken Coatings evaluate the environmental aspects based on the life cycle of the single products.

Fig. 11: Environmental aspects based on the life cycle of the single products of Dörken Membranes

Fig. 12: Environmental aspects based on the life cycle of the products of Dörken Coatings.

7.1. Evaluation relating to the environmental aspects of the companies of Dörken

Environmental aspects	Environmental consequence	Manufacturing[1]			Products[2]				Emergency situation[3]			
		Direct Indirect	Substantial		Direct Indirect		Substantial		Direct Indirect		Substantial	
			M	C	M	C	M	C	M	C	M	C
Energy consumption electricity	Global warming, consumption of resources	Direct	Yes		Indirect		No		Not applicable			
Energy consumption district heating	Global warming, consumption of resources	Direct	Yes		Indirect		No		Not applicable			
Energy consumption gas	Global warming, consumption of resources	Direct	Yes	No	Not applicable				Not applicable			
Energy consumption diesel	Global warming, consumption of resources	Direct	No		Not applicable				Not applicable			
Consumption of resources	Damage to the environment, consumption of resources	Direct	Yes		Not applicable				Not applicable			
Land consumption	Reduction of biodiversity, surface sealing	Direct	Not applicable		n/a				Not applicable			
Soil contamination	Soil degradation, environmental damage	Direct	No	Yes	Indirect		No	Yes	Direct		Yes	
Handling of hazardous substances	Environmental damage	Direct	Yes		Indirect		No	Yes	Direct		Yes	
Hazardous waste	Damage to the environment, consumption of resources	Direct	Yes		Indirect		No	Yes	Direct		Yes	
Non-hazardous waste	Damage to the environment, consumption of resources	Direct	No		Indirect		No		Direct		Yes	

Environmental aspects	Environmental consequence	Manufacturing[1]			Products[2]				Emergency situation[3]			
		Direct Indirect	Substantial		Direct Indirect		Substantial		Direct Indirect		Substantial	
			M	C	M	C	M	C	M	C	M	C
Water/waste water	Consumption of resources, generation of waste water	Direct	No		Indirect		No	Yes	Direct		Yes	
Emissions at the business site	VOC, dust, odor nuisance, greenhouse effect	Direct	Yes		Not applicable	Indirect	Not applicable	Yes	Direct		Yes	
Emissions from the electricity supply	Global warming, consumption of resources	Indirect	Yes		Not applicable				Not applicable			
Emissions from third-parties' vehicles	Traffic volume, emissions and fine dust	Indirect	No		Not applicable				Not applicable			
Emissions by noise and vibrations	Molestation of residents, hearing loss caused by noise	Direct	Yes		Not applicable				Direct		Yes	
Environmental performance and/or behaviour of contractors, subcontractors, suppliers, and subsuppliers	Environmental damage,	Indirect	Yes		Not applicable				Direct		Yes	

Fig.12: Evaluated environment-related aspects

1 ➔ Manufacturing means: environmental aspects arising in the course of the manufacturing process of the single products
2. ➔ Products means: environmental aspects generated by the products (use/disposal)
3 ➔ Emergency situation means: environmental aspects resulting from non-determined conditions and/or emergency situations
not applicable = not applicable or not being within the scope of the environmental management system
M ➔ Dörken Membranes C ➔ Dörken Coatings

The direct environmental aspects can be controlled and influenced by the companies Dörken Membranes and Dörken Coatings.
The indirect environmental aspects cannot be fully controlled and influenced.
The significant environmental aspects have been defined and categorised according to the criteria listed here in the following:

- Environmental aspects due to the manufacturing of products
- Environmental aspects through the products
- Environmental aspects resulting from non-designated conditions and emergency situations

The environmental aspects are evaluated according to environmental hazard and potential for improvement in order to define environmental objectives and environmental programs.

8. Core indicators

8.1. Reference value

The reference value for the business sites located in Herdecke and Hagen for the core indicators energy efficiency electricity energy, total energy efficiency, material efficiency, waste, biodiversity, and emissions is the manufactured quantity [t] of the finished goods.
For the core indicators natural gas and the consumption of diesel fuel used for the in-house transport in Herdecke, the reference value is the manufactured quantity [t] used in Herdecke.

Reference value		Herdecke	Hagen
Manufactured quantity [t]	2018	21,761	10,587
	2019	21,878	12,487
	2020	24,227	12,522
	2021	25,428	12,139

Table 3: Reference quantities Manufactured quantity.

The reference value of the energies for heating purposes is the built-up area [m^2] of the respective business locations.
At the business site located in Herdecke, district heating is evaluated, while at the business site in Hagen, the natural gas is evaluated with this reference value.

Reference value		Herdecke	Hagen
Built-up area [m^2]	2018	31,000	15,350
	2019	31,000	15,350
	2020	32,600	15,350
	2021	32,600	15,350

Table 4: Reference values for the built-up area

8.2. Energy efficiency

8.2.1. Electrical energy

Different energy resources are used at the business sites located at Wetterstraße and in Hagen. The main energy source for all the fields is the electricity.
Due to the energy-intensive production of the composite construction films – partially due to temperatures of the extruders of > 200 °C during the manufacturing process – in general, the energy consumption can be described as high.

The electricity is mainly used for manufacturing-related purposes. For this reason, it is directly related to the manufactured quantities of the single companies of Dörken.

For the said purpose, core indicators are formed for the business sites located at Wetterstraße and in Hagen.

Electricity		Herdecke	Hagen
Consumption [MWh]	2018	21,404	13,386
	2019	19,823	12,108
	2020	22,908	12,918
	2021	23,625	14,647
Energy efficiency [MWh/t]	2018	0.98	1.27
	2019	0.91	0.97
	2020	0.95	1.03
	2021	0.93	1.06

Table 5: Energy efficiency of the electricity

A new production facility for the company Dörken Membranes was built at the business site in Hagen in 2021.
The new plants are currently in the qualification phase and will replace the old technologies of the business site in Herdecke starting from 2023.

8.2.2. District heating

The district heating is only used at the business site in Herdecke. It is used exclusively for heating purposes. The district heating is fed in at six points at the business site. The consumption is determined through meters. The built-up area of the site is used as a reference value.

In order to be able to make a comparison concerning the annual calculated ratio values between the district heating and the built-up area, the climate-adjusted figures are represented.

District heating	Herdecke	
Consumption [MWh]	2018	7,531
	2019	8,271
	2020	8,579
	2021	9,078
Climate-adjusted ratio of consumption of district heating in comparison with the built-up area [MWh/^{m2}] (GTZ 20/15)	2018	0.23
	2019	0.25
	2020	0.25
	2021	0.27

Table 6: Ratio of the district heating consumption in comparison with the built-up area

A direct assignment for the single companies of Dörken is not feasible. The costs for the district heating are distributed by means of an allocation key. The energy consumption for this energy type is only determined for the business site in Herdecke.

The high-level energy consumption for the district heating is explained by the new construction of the administration department, which has been in use since the year 2020. During the year 2020, due to the pandemic, the activities were carried out in the home office. Only in 2021, the regular use of the new offices began.

8.2.3. Natural gas

At the business site in Herdecke, the natural gas is used in the manufacturing field exclusively at the company Dörken Membranes in its coating plant.
MKS will use natural gas for the curing oven in the pilot plant until 2020, while starting from 2021 this will exclusively apply to the company Dörken Membranes.

Natural gas	Herdecke	
Consumption [MWh]	2018	3,556
	2019	3,368
	2020	4,079
	2021	4,259
Energy efficiency [MWh/t]	2018	0.16
	2019	0.15
	2020	0.17
	2021	0.17

Table 7: Energy efficiency of natural gas

Since 2020, a thermal exhaust gas purification (catalytic after-burning) has been in operation in the coating plant of the company Dörken Membranes. This treatment of the exhaust gases results in the additional gas consumption.
The business site in Hagen uses this energy for heating purposes.
In order to evaluate the consumption of natural gas, a climate-adjusted ratio of natural gas consumption compared to built-up area is used.

Natural gas	Hagen	
Consumption [MWh]	2018	2,233
	2019	2,228
	2020	2,218
	2021	2,182
Climate-adjusted ratio of consumption of natural gas in comparison with the built-up area [MWh/^{m2}] (GTZ 20/15)	2018	0.14
	2019	0.14
	2020	0.14
	2021	0.14

Table 8: Ratio of the consumption of natural gas in comparison with the built-up area

The consumption of the natural gas has a direct impact on the environment because the emissions are generated directly at the respective site. The values are very close to each other in the course of the analysed period.

8.2.4. Diesel fuel

The diesel fuel is exclusively used at the business site in Herdecke to refuel the forklifts. The consumption of diesel fuel is not relevant and is not controlled by key figures.

Diesel		Herdecke
Consumption [MWh]	2018	382
	2019	382
	2020	358
	2021	240
Energy efficiency [MWh/t]	2018	0.018
	2019	0.017
	2020	0.015
	2021	0.009

Table 9: Energy efficiency of the diesel

8.2.5. Total energy consumption

The total energy consumption is shown according to the business site for what concerns the consumed quantity of energy.
These key figures are for information purposes only and are not used for the definition of any objectives.

Total energy		Herdecke	Hagen
Consumption [MWh]	2018	32,873	15,619
	2019	31,843	14,336
	2020	35,925	15,136
	2021	37,203	16,828
Share of renewable energy [MWh]	2018	12,286	7,683
	2019	12,225	7,467
	2020	15,234	8,591
	2021	15,073	9,344
Energy efficiency [MWh/t]	2018	1.51	1.48
	2019	1.46	1.15
	2020	1.48	1.21
	2021	1.46	1.39
Energy efficiency [MWh/t] renewable energy	2018	0.57	0.73
	2019	0.56	0.60
	2020	0.63	0.69
	2021	0.59	0.77
Share of renewable	2018	0,62	
energy	2019	0,57	
	2020	0,65	
	202	0,65	

Table 10: Total energy consumption

8.3. Material efficiency

In the companies of Dörken, raw materials are needed for various manufacturing processes. Due to the different product ranges, the types of raw materials which are used here differ considerably. For the companies Dörken Coatings and Dörken Membranes, the key figures in terms of material efficiency are determined. The objectives are defined for this environmental indicator.

8.3.1. Business site in Herdecke

	2018	2019	2020	2021
Material consumption [t]	25,216	25,689	28,152	30,102
Material efficiency [t/t]	1.16	1.17	1.16	1.18

Table 11: Material efficiency at the business site in Herdecke, Wetterstraße

8.3.2. Business site in Hagen

	2018	2019	2020	2021
Material consumption [t]	9,870	11,001	10,234	12,447
Material efficiency [t/t]	0.93	0.88	0.81	1.03

Table 12: Material efficiency in Hagen

8.4. Water

The consumption of water at the companies of Dörken is used both for sanitation and manufacturing-related purposes.
In the manufacturing process of the membranes, water is required for cooling purposes, air scrubbers and for the dilution of the printing inks. In addition to the city water, well water is used for cooling purposes.

During the manufacturing of coatings, only city water is used for cooling purposes as well as for the production of aqueous products (the so-called WBC).

The key figures are determined based on the respective site. This indicator is not considered as a significant environmental aspect.

Water		Wetterstraße	Hagen
Consumption [m^3]	2018	27,355	10,826
	2019	25,761	10,130
	2020	23,794	9,407
	2021	29,186	10,044
Key figure [m^3/t]	2018	1.29	1.02
	2019	1.05	0.81
	2020	1.18	0.75
	2021	1.26	0.827

Table 13: Consumption of water

8.5. Waste

In this context, a distinction is made between hazardous and non-hazardous waste.
Hazardous waste includes the following waste types:
Aqueous sludges (AVV 08 01 16); plastics (AVV 15 01 02, AVV 17 04 03, AVV 20 01 39); wood (AVV 15 01 03); mixed municipal waste (AVV 20 03 01); paper, cardboard, carton (AVV 20 01 01); metals (AVV 17 04 05, 17 04 07); mixed packaging (AVV 15 01 06); mixed construction and demolition waste (AVV 17 01 07, AVV 17 09 04, AVV 17 06 04, AVV 17 08 02); and non-hazardous chemicals (AVV 08 01 12, AVV 08 04 10, AVV 12 01 17, AVV 16 03 04, AVV 16 03 06)

Non-hazardous waste mainly includes the following types:
Components (packaging) containing hazardous residues (AVV 15 01 10, AVV 15 02 02, AVV 15 01 11), paint and varnish waste (AVV 08 01 11, AVV 08 04 09, AVV 08 01 16), hazardous chemicals (AVV 07 02 08, AVV 11 01 11, AVV 12 01 12, AVV 16 05 06, AVV 16 05 07), solvents and solvent mixtures (AVV 14 06 03); and machine and/or transmission oil (AVV 13 02 05).

Waste type / Year		Hazardous waste in Herdecke 2018	2019	2020	2021
Packaging containing hazardous residues	[t]	213.9	375.1	150.8	256.8
Paint and varnish waste	[t]	157.2	158.5	162.3	138.2
Chemicals	[t]	5.5	7.5	9.2	9.6
Electronic waste	[t]	8.5	3.9	3.2	4.1
Solvents and solvent mixtures	[t]	20.4	13.9	0.1	1.0
Machine/transmission oil [t]	[t]	1.0	3.2	1.0	1.0
Total quantity [t]	[t]	**407**	**562**	**327**	**411**
Key figure: Proportion of hazardous waste in comparison with the manufactured quantity	[kg/t]	**19**	**26**	**13**	**16**

Table 14: Waste

Waste type / Year		Non-hazardous waste in Herdecke 2018	2019	2020	2021
Aqueous sludges	[t]	568.6	541.7	615.3	775.6
Plastics	[t]	369.9	370.6	375.8	375.0
Wood	[t]	163.0	176.6	161.8	248.8
Mixed municipal waste	[t]	102.2	94.8	97.6	113.3
Paper, cardboard, carton	[t]	89.7	32.1	83.6	104.8
Metals	[t]	41.1	40.2	28.3	45.7
Mixed packaging	[t]	37.0	22.5	22.5	39.9
Chemicals	[t]	13.4	11.8	12.0	27.9
Mixed construction and demolition waste	[t]	3.4	0.9	9.7	29.9
Total quantity [t]	[t]	1,390	1,291	1,407	1,761
Key figure: Proportion of non-hazardous waste in comparison with the manufactured quantity	[kg/t]	64	59	58	69
Separate collection rate [%]		**92.2**	**94.9**	**94.4**	**95.2**
			All waste in Herdecke		
Total quantity of total waste [t]		**1,797**	**1,853**	**1,733**	**2,172**
Key figure: Proportion of non-hazardous waste in comparison with the manufactured quantity	[kg/t]	**83**	**85**	**72**	**85**

Table 15: Waste

Waste type / Year		Hazardous waste in Hagen 2018	2019	2020	2021
Machine/transmission oil	[t]	1.9	2.1	2.0	3.1
Electronic waste	[t]	0.7	0.6	0.0	0.4
Packaging including residues	[t]	0.2	0.1	0.1	0.2
Paint and varnish waste	[t]	0.0	0.0	0.0	3.3
Total quantity	[t]	**2.80**	**2.76**	**2.08**	**6.99**

Key figure: Proportion of hazardous waste in comparison with the manufactured quantity	[kg/t]	0.85	0.35	0.39	0.26

Table 16: Waste

Waste type / Year		Non-hazardous waste in Hagen 2015	2016	2017	2018
Plastics	[t]	81.1	93.0	161.1	168.5
Mixed municipal waste	[t]	52.3	50.6	53.5	58.9
Wood	[t]	33.0	32.2	31.3	51.5
Paper, cardboard, carton	[t]	28.5	52.7	70.2	48.8

Table 17: Waste

Waste type / Year		Non-hazardous waste in Hagen 2015	2016	2017	2018
Aqueous sludges	[t]	7.3	0.3	0	3.0
Metals		3.2	2.0	1.1	2.8
Mixed construction and demolition waste		0.7	0	2.6	1.2
Total quantity		206	231	322	335
Key figure: Proportion of non-hazardous waste in comparison with the manufactured quantity [kg/t]		19.5	18.5	25.7	27.6
Separate collection rate [%]		99.99-	93.40	91.10	93.30
		Total waste in Hagen			
Total quantity of the total waste	[t]	209	233	324	342
Key figure: Proportion of the total waste to the manufactured quantity	[kg/t]	20	19	26	28

Table 18: Waste

8.6. Biodiversity

Consumption of land in Herdecke		2018 - 2021
Total surface	m²	75,000
Sealed surface	m²	69,280
of which built up until 2019	m²	32,600
starting from 2020	m²	31,000 since 2020
Near-natural surface: green façade and roof greening	m²	6,120
Near-natural area away from the business site	m²	3,500

Table 19: Consumption of the land in Herdecke

The business site in Herdecke has increased by 1,600 m2 due to the new administration building. The sealed area amounts to 92%.

Key figure [m^2/t]	Total surface	Sealed land	Built area	Near-natural at the business site	Near-natural away from the business site
2018	3.58	3.2	1.4	0.3	0.2
2019	3.4	3.2	1.4	0.3	0.2
2020	3.1	2.9	1.4	0.3	0.1
2021	3.0	2.8	1.3	0.2	0.1

Table 20: Key figure relating to the consumption of land in Herdecke.

The near-natural area away from the business site is located below the car park "Ruhr-Parkplatz". This is an allotment site and a natural embankment.

Consumption of land in Hagen		2018-2021
Total surface	**m^2**	**78,200**
Sealed surface	m^2	50,900
of which built up until 2020	m^2	15,350
starting from 2021	m^2	22,870
Near-natural surface: green façade and roof greening	m^2	27,300
Near-natural area away from the business site	m^2	0

Table 21: Consumption of land in Hagen

Key figure [m^2/t]	Total surface	Sealed land	Built area	Near-natural at the business site
2018	7.4	4.8	1.5	2.6
2019	6.3	4.1	1.3	2.2
2020	6.3	4.1	1.3	2.2
2021	6.4	4.2	1.3	2.3

Table 22: Key figure relating to the consumption of land in Hagen

The sealed area at the business site in Hagen amounts to 65%.

8.7. Emissions

The emissions of greenhouse gases N2O, CH4, PFC, SF6 are not relevant for both business sites.

The CO2 equivalents shown in the table are determined starting from the emissions of natural gas and diesel as well as from the emissions of refrigerants.
The refrigerants refilled in the refrigeration systems at the business site in Herdecke with a CO2 equivalent of 35 t are not significant if we compare them to the other CO2 quantity which is emitted directly.

The total emissions include dust, SO2, NOX as well as organic substances without greenhouse gases
In the course of the manufacturing of lacquers, paints, dispersions and coating systems, volatile organic compounds (the so-called VOC) are formed. The key figure relating to the VOC is significant for the manufacturing processes at Dörken Coatings.

The CO2 emissions from electricity and district heating are indirect emissions.

Emissions	Year	Wetterstraße	Hagen Vorhalle
INDIRECT	2018	2,407	1,505
Greenhouse gases [t]	2019	1,740	1,063
Electricity	2020	2,328	1030
CO_2 equivalents	2021	3,136	1,011
INDIRECT	2018	1,491	0
Greenhouse gases [t]	2019	1,638	0
District heating	2020	1,699	0
CO_2 equivalents	2021	1,797	0
DIRECT	2018	1,170	647
Greenhouse gases [t]	2019	1,099	646
CO_2 equivalents	2020	1,295	643
	2021	1,345	633

Key figure Greenhouse gases [t/t]	2018 2019 2020 2021	0.05 0.05 0.05 0.05	0.06 0.05 0.05 0.05
Emissions	Year	Wetterstraße	Hagen Vorhalle
Total emissions [t] without greenhouse gas	2018 2019 2020 2021	7 8 6 7	0.5 0.5 0.5 0.5
Key figure Total emissions [kg/t]	2018 2019 2020 2021	0.31 0.32 0.29 0.31	0.05 0.06 0.05 0.03

Table 23: Emissions

9. Environmental incidents

No incidents.

10. Complaints

No incidents.

11. Objectives /Objective evaluation of the objectives of 2019-2021

11.1. Dörken Coatings

11.1.1. Energy efficiency

Reduction of the specific consumption of energy per production volume by 5 percent.

Initial value 2018: 404 kWh/t
Target value 2021: 384 kWh/t

Measures / programme:

In the area of the manufacturing of Functional Coatings, a bead mill from the 1980s and a bead mill from 1995 were replaced during the fourth quarter of 2019 by a basket mill which can be operated more energy-efficiently and can also cleaned more efficiently. The more efficient cleaning also results in the reduction of the proportion of hazardous waste, such as for example the proportion of solvent mixtures.
Due to the corona pandemic, no significant investments have been implemented in the manufacturing-related area.

Energy efficiency (electricity)	kWh/t
2018	404
2019	429
2020	466
2021	456

Table 24: Energy efficiency relating to the Coatings

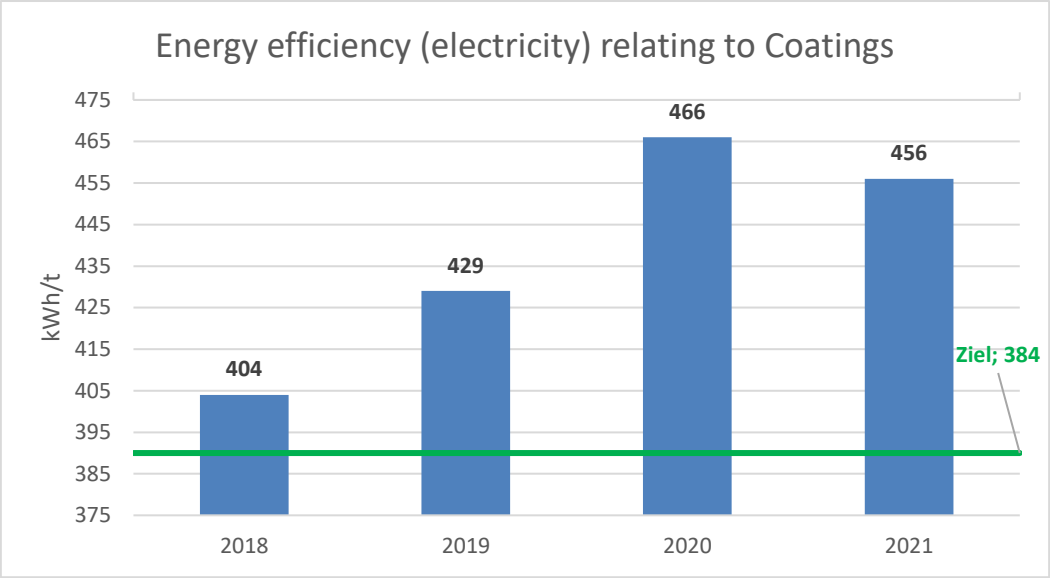

Fig. 13: Target evaluation relating for the Coatings

The reduction of specific energy efficiency has not been achieved. The cause for it is found in the manufacturing process of the pastes. During the manufacturing process of the biocide-free pastes, energy-intensive water treatment is needed. And this type of treatment has been in operation now since 2021. Another reason is the energy-intensive bead mills used in the manufacturing process of the said biocide-free pastes.
In addition, during the year 2021, the new Coatings administration building was put into operation.

11.1.2. Material efficiency

Confirmation of the material efficiency even in case of an expansion of the product portfolio.

Initial value	2018: 1.02 t/t
Target value	2021: 1.02 t/t

Material efficiency	t/t
2018	1.02
2019	1.04
2020	1.05
2021	1.03

Table 25: Material efficiency relating to Coatings

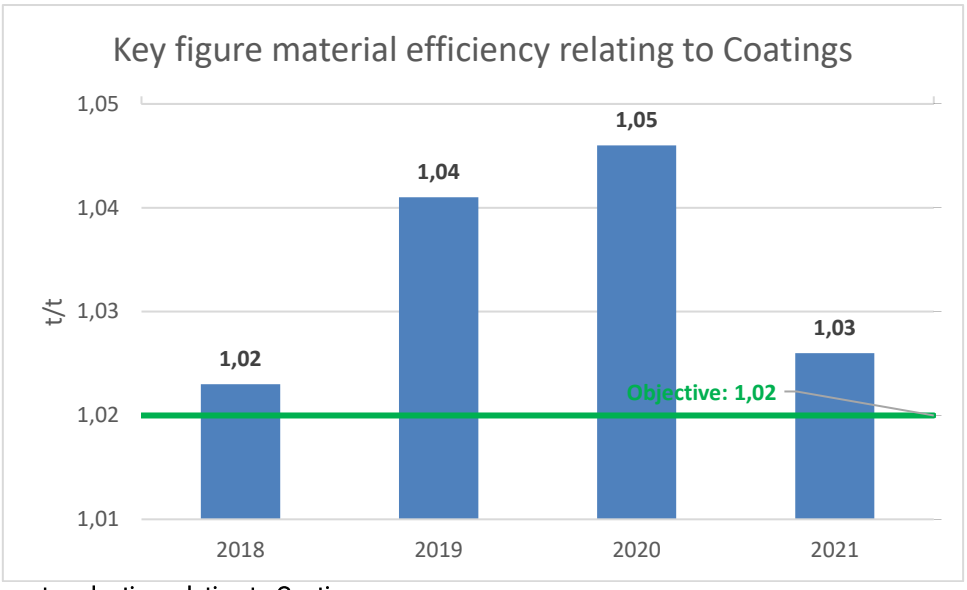

Fig. 14: Target evaluation relating to Coatings

The material efficiency deteriorated in 2019 and 2020 due to the economic conditions, in particular in the automotive industry. The result was a reduction of the manufactured volumes in the efficient plants operated in the CPC sector. In the WBC and pastes sectors, the manufactured volumes have increased significantly, whereby this mainly happened in less energy-efficient and in old plants.

11.1.3. Specific waste

11.1.3.1. Reduction of the total specific waste

Initial value 2018: 95 kg/t
Target value 2021: 85 kg/t

Measures:

The following measures have been planned in order to reduce the amount of specific waste:

- Determination of the streams of waste of the paint companies,
- Identification of the main sources of waste generation,
- Identification of specific objectives for the existing waste types;

Total of specific waste	kg/t
2018	95
2019	107
2020	70
2021	101

Table 26: Total of specific waste relating to Coatings

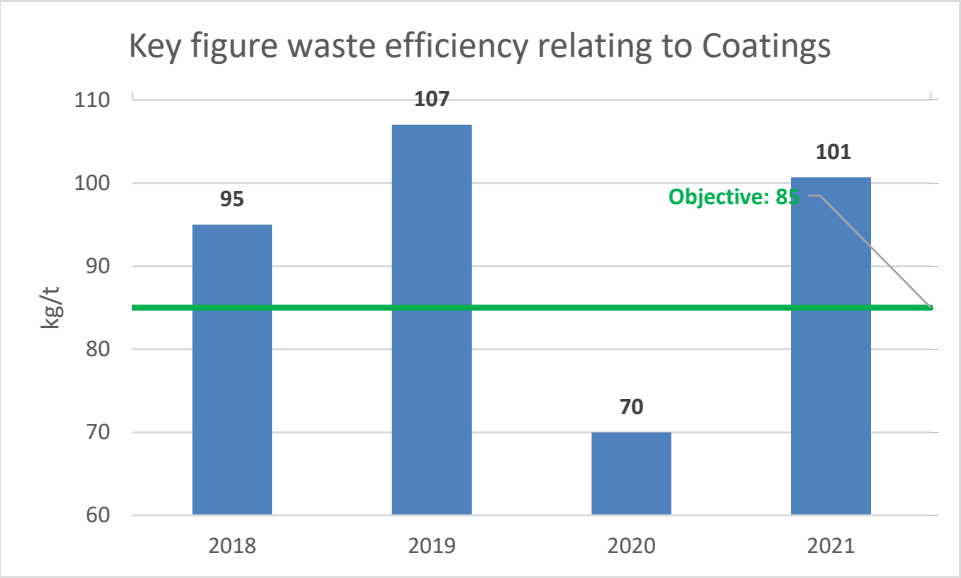

Fig. 15: Target evaluation relating to Coatings

The reduction of the waste efficiency has not been achieved.
For what concerns the year 2019, the reason for it is the packaging including hazardous residues. Due to the supply bottlenecks in the raw materials industry, the raw materials were shipped in small batch sizes (less reusable IBC containers, increased deliveries carried out in barrels as well as in small shipping containers).
For what concerns the year 2021, the "non-hazardous" water sludge was identified as the reason for the said development. This sludge was generated by the manufacturing of the pastes. By switching to biocide-free pastes, all pipelines of the manufacturing units were rinsed with water and disposed of.

11.1.3.2. Reduction of the amount of specific hazardous waste

Initial value	2018: 45 kg/t
Target value	2021: 40 kg/t

Measures:

Compare the measure stated for the total of the specific waste

Specific hazardous waste	kg/t
2018	45
2019	60
2020	29
2021	30

Table 27: Specific hazardous waste relating to Coatings

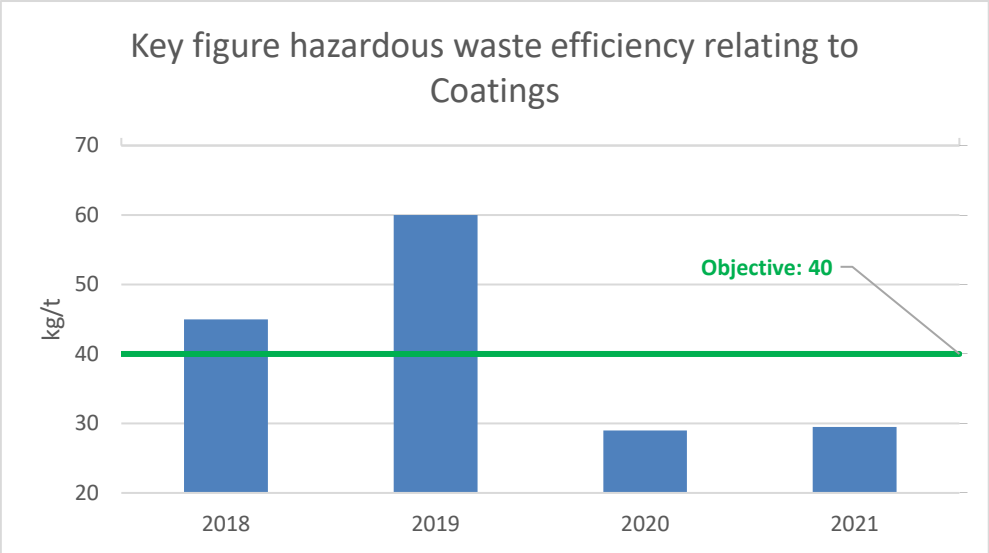

Fig.16: Target evaluation relating to Coatings

The objective has been achieved.

11.2. Dörken Membranes

Framework conditions of the objectives:
In the context of the program „Werksstruktur 2023“ (in English: Factory Structure 2023) at the end of the year 2020 and/or at the beginning of the year 2021, two new manufacturing lines will be operated at the business site of Hagen-Vorhalle.
First of all, both lines are operated in parallel with the already existing plant at the business site in Herdecke.
As soon as both new manufacturing lines are operated in a way guaranteeing the stability of the process, we will subsequently shut down the old redundant and old plant park.

Energy efficiency:
The two new production lines are significantly more energy-efficient than the old plant park they should replace. At the moment, we start from the assumption of a potential saving of around 3,000 MWh per year. Consequently, we have identified a potential of savings of around 15% in comparison with the year 2018. However, we will only be able to profit from these savings in the context of an operation guaranteeing a stable process and after having shut down the old plant park. In other words, this will be feasible from 2022 onwards.
In 2021, we expect the opposite trend due to the unproductive commissioning and learning curve with regard to the finished product output with the new production technologies as well as the parallel operation to the old plant park. This means that in 2021 we will probably consume 5000 MWh more in comparison with the reference year.

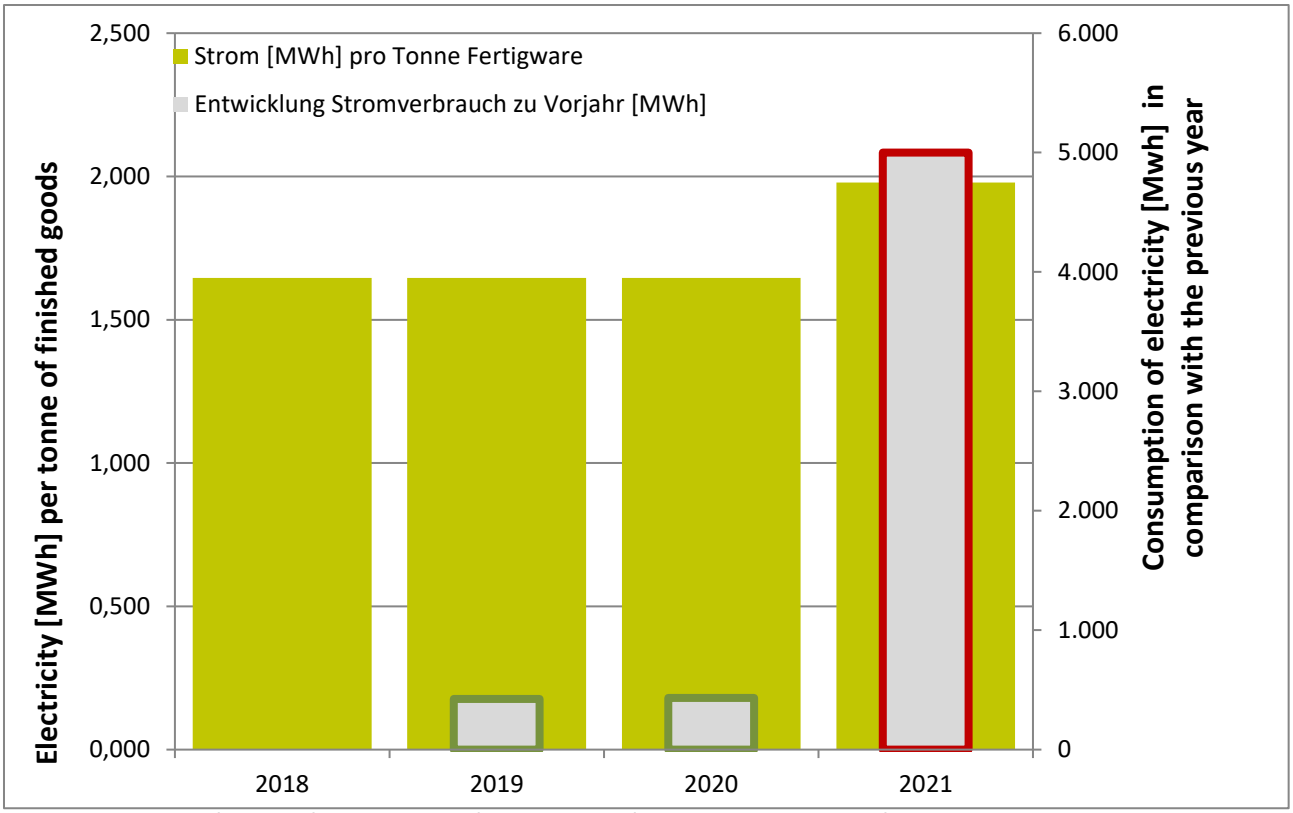

Fig. 17: Development of the specific consumption of electricity and of the annual consumption of electricity

Target: In 2021, the key figure of the specific consumption of electricity should not exceed < 2 MWh/ton of finished goods

11.2.1. Energy efficiency (electricity)

Reduction of the specific consumption of energy by 15%
The energy efficiency consists of the total power consumption in relation to the total manufactured quantity of the diaphragm coming from Herdecke and Hagen.

Initial value	2018:	1.646 MWh/t
Interim objectives	2019/2020:	1.646/1.646,MWh/t
Target value	2021:	1.979 MWh/t

The process-stable production at the new plants in Hagen-Vorhalle will be delayed. The qualification of the new plants and of the new products is expected to require a parallel operation of the plants during the years 2021 and 2022. Although the objective has been achieved, measures have also been adopted in order to counteract the longer increased energy demand.

Measures:

- Optimization of the product portfolio in Herdecke as well as the manufacturing planning (few conversions and consequently also a more reduced heating and cooling phase on the old systems.

Energy efficiency (electricity)	MWh/t
2018	1.214
2019	1.220
2020	1.140
2021	1.206

Table 28: Energy efficiency relating to Membranes

The energy efficiency objectives have been achieved.

11.2.2. Specific waste

Reduction of waste:
In the context of the commissioning of the two new manufacturing lines and the associated learning curve, we expect significantly increased rejects and consequently a significantly increased generation of waste. Among other things, this increase is due to our use of new technologies. In the context of the process-stable operation starting between the end of 2021 and the beginning of 2023, the scrap rates and consequently also the waste volumes will be subject to another significant reduction.
For this reason, our objective is the reduction of the quantity of waste at the existing plants during the years 2019 and 2020 to such an extent that this reduction can compensate for the increased amount of waste in the course of the year 2021.

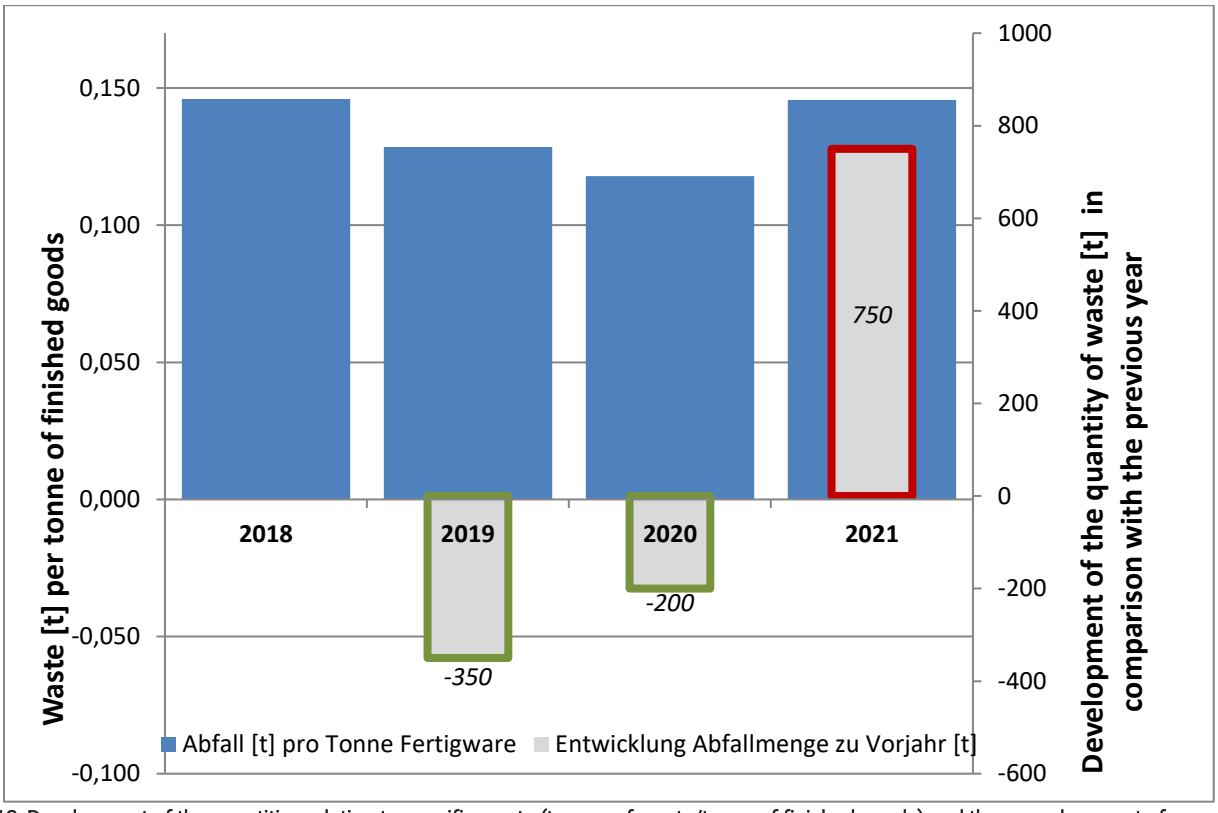

Fig. 18: Development of the quantities relating to specific waste (tonnes of waste/tonne of finished goods) and the annual amount of waste [t]]

Objective: The key figure of the quantity of specific waste should be reduced from 0.146 in 2018 to 0.118 within the year 2020. The objective for 2021 is a quantity of specific waste amounting to ≤ 1.46.

Reduction of total quantity of specific waste by 19%

Initial value	2018:	0.146 t/t
Interim objectives	2019:	0.129 t/t
Interim objective	2020:	0.118 t/t
Target value	2021:	0.146 t/t

The process-stable production at the new plants in Hagen-Vorhalle will be delayed. In addition, a higher volume of waste than the one expected will be generated during the qualification of the new manufacturing facilities.
This is due to the following facts:
- Start-up and/or retraction of the new plants and qualification of new product range.

- Qualification of employees at the new plants
- At the same time, continuation of the manufacturing process at the old site.

Due to the fact that the qualification of the new plants and of the new products is expected to take more time than it was planned in the beginning, the shutdown of the old plants and the conversion to the new one was postponed to 1 January 2023. As a consequence, the old plants will only be switched off successively starting from 1 January 2023.

Measures:
- Reduction of the product portfolio,
- Definition and standardization of the plant parameters,

Total of specific waste	t/t
2018	0.146
2019	0.123
2020	0.118
2021	0.156

Table 29: Total of specific waste

The objective for the year 2019 has been exceeded. The objective for the year 2021 has not been achieved. However, the overall objective over the total duration of the objective has been barely achieved.

12. Objectives / Environmental programmes from 2022 to 2025

12.1. Dörken Companies

Reduction of the indirect emissions from the electricity by 100 percent

Initial value 2021: 4,147 t_{CO2}equivalents
Target value 2025: 0 t_{CO2}equivalents

Programme	Project data	Last update
Shift from the electricity to the renewable energy (electricity supplier) Company as a whole	Costs: EUR 50 thousand per year as of 2021 Deadline: end of 2022 Competent department: Purchasing Department	Implementation starting from March 2022. Since that date, the $_{CO2}$equivalent has reached the target value of 0 t. Approximately 691 t were accumulated in the course of the year 2022.

12.2. The company Dörken Coatings

12.2.1. Energy efficiency

Reduction of the specific consumption of energy per production volume by 5 percent.

Initial value 2021: 456 kWh/t
Target value 2025: 433 kWh/t

Programme	Project data	Last update
Replacement of the bead mill P2 CPC manufacturing → More efficient plant in terms of energy	Costs: 200 KEUR Deadline: June 2023 Competent Person: Project Engineer	Commissioned

Planning of the technical adaptation of the water treatment Manufacturing of the paste → Energy savings achieved through the shutdown of the plant at the weekend	Costs: 10 KEUR Deadline: end of 2023 Competent Person: Project Engineer	Planning

12.2.2. Material efficiency

Confirmation of the material efficiency even in case of an expansion of the product portfolio.

Initial value 2021: 1.03 t/t
Target value 2025: 1.03 t/t

Programme	Project data	Last update
Compare program item 1 under energy efficiency, the new bead mill is also more efficient in terms of material efficiency CPC manufacturing	Costs: 200 KEUR Deadline: June 2023 Competent Person: Project Engineer	Commissioned
New bead mill of 20 liters in the manufacturing of pastes	Costs: 100 KEUR Deadline: end of 2023 Competent Person: Project Engineer	Implementation in progress

12.2.3. Specific waste

Reduction of the total of the specific waste by 10 percent

Initial value 2021: 101 kg/t
Target value 2025: 90 kg/t

Programme	Project data	Last update
Supplier integration for raw material Reduction of packaging waste Manufacturing CPC → Return and reuse of packaging	Costs: 10 KEUR Deadline: end of 2023 Competent department: Purchasing Department	Implementation in progress

12.2.4. Emissions (VOC)

Reduction of solvent-contaminated exhaust air in the context of CPC manufacturing by 30%

Initial value 2021: 4.53 t C / year
Target value 2025: 3.17 t C / year

Programme	Project data	Last update
Biological exhaust air purification system for the CPC manufacturing → Reduction of the emissions through the use of a biological scrubber	Costs: 800 KEUR Deadline: end of 2023 Competent Person: Project Engineer	Implementation in progress

12.2.5. Employee participation

Training of internal auditors with a focus on environmental protection and/or environmental management

Programme	Project data	Last update
Training of internal auditors with a focus on environmental protection and/or on environmental management Seminar: 4 days in whole	Costs: 25 KEUR Deadline: end of 2023 Responsible department: CSR	Implementation in progress Currently 14 group-wide participants have been planned

12.3. Dörken Membranes

Energy efficiency:

The two new production lines are significantly more energy-efficient than the old plant park they should replace. At the moment, we start from the assumption of a potential saving of around 3,000 MWh per year. Consequently, we have identified a potential of savings of around 15% in comparison with the year 2019. However, we will only be able to profit from these savings in the context of an operation guaranteeing a stable process and after having shut down the old plant park. In other words, this will be feasible from 2023 onwards.

In addition to 2021, we expect the opposite trend in 2022 due to the commissioning and learning curve with the new manufacturing lines and the parallel operation to the old plant park. The full savings potential will continue to unfold in the course of the following years by reaching its maximum level during the year 2025.

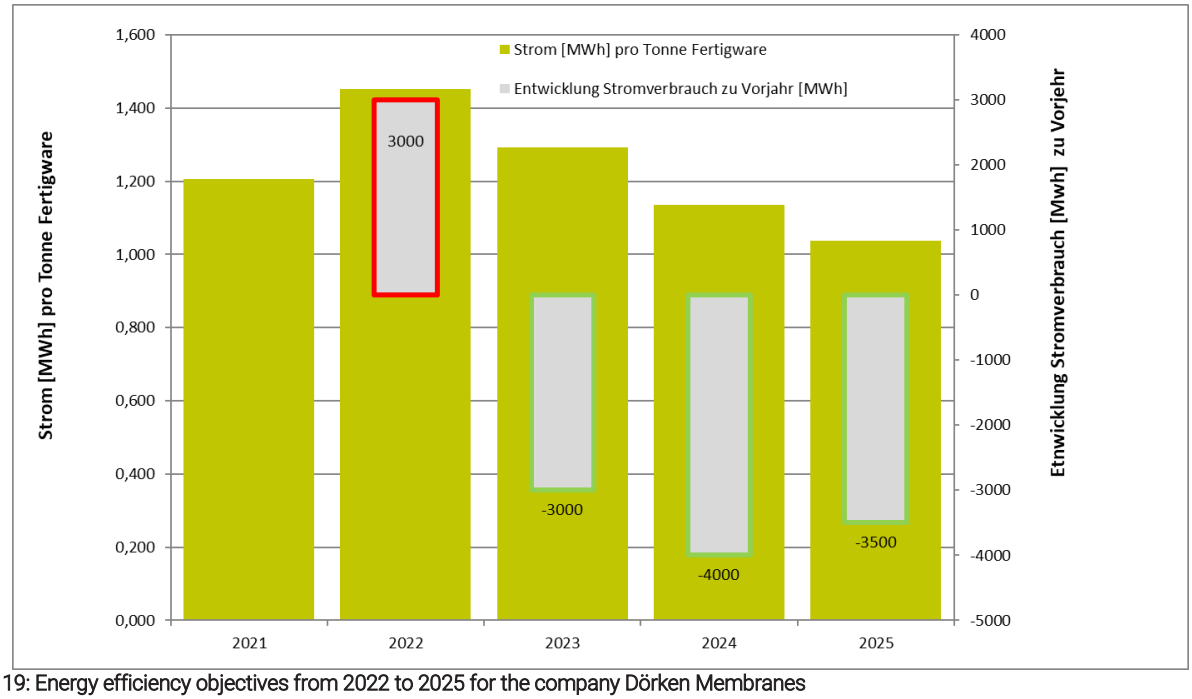

Fig. 19: Energy efficiency objectives from 2022 to 2025 for the company Dörken Membranes

Reduction of waste:

In the context of the commissioning of the two new manufacturing lines and the associated learning curve, we expect significantly increased rejects and consequently a significantly increased generation of waste during the years 2021 and 2022. In the context of the process-stable operation starting between the end of 2021 and the beginning of 2023, the scrap rates and consequently also the waste volumes will be subject to another significant reduction.

For this reason, our objective is the reduction of the amounts of waste at the existing plants during the years 2023, 2024 and 2025 to such an extent that the increased amount of waste in 2022 can be compensated for and reduced further.

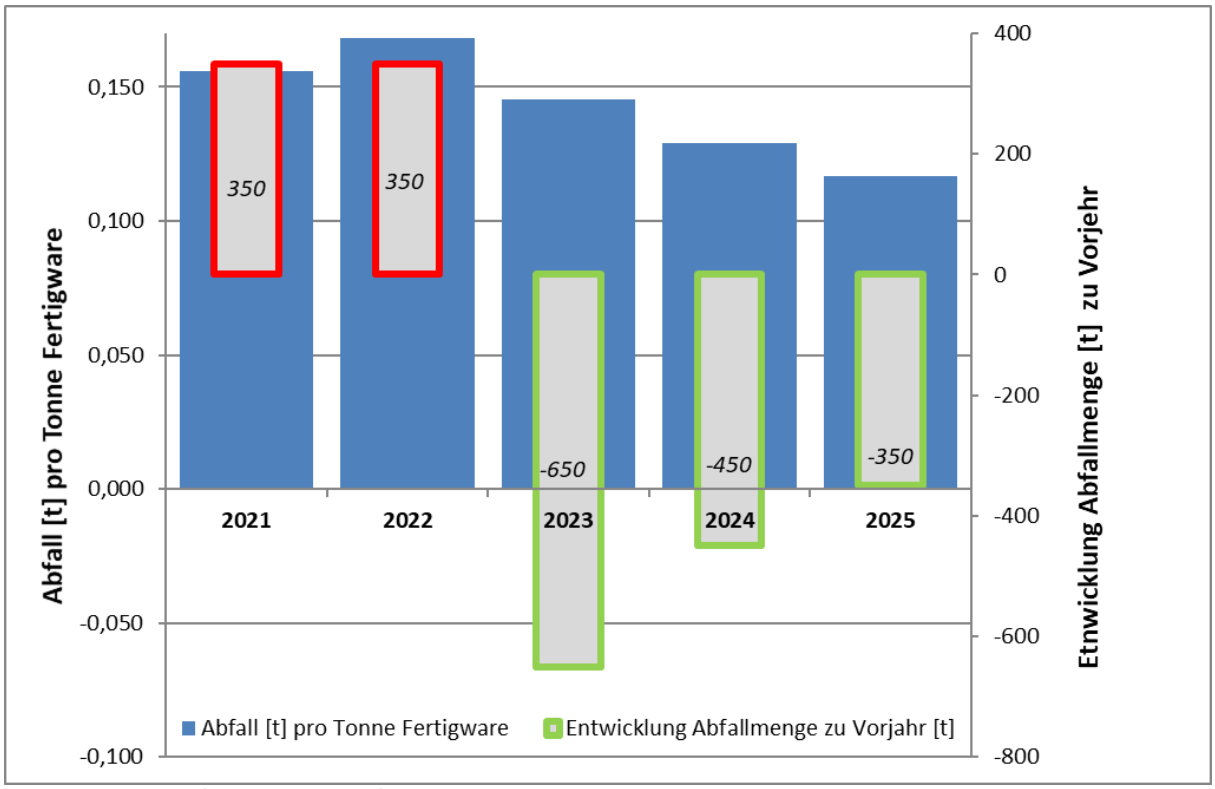

Fig. 20: Waste objectives from 2022 to 2025 for the company Dörken Membranes

12.3.1. Energy efficiency

Reduction of the specific consumption of energy per production volume by 15 percent.

Initial value 2021: 1.206 MWh/t
Target value 2025: 1.037 MWh/t

Programme	Project data	Last update
Procurement and qualification of 2 new manufacturing lines (Higher level of energy efficiency; Reduced scrap volume)	Costs: 15,600 KEUR Start: 2019 Deadline: 2023 Responsible department: Lean Office	Status in 2022: The plants have been procured and are currently in the qualification phase

12.3.2. Material efficiency

Confirmation of the material efficiency even in case of an expansion of the product portfolio.

Initial value 2021: 1.16 t/t
Target value 2025: 1.16 t/t

Programme	Project data	Last update
KVP manufacturing (various manufacturing optimization topics with a focus on material efficiency)	Costs: 105 KEUR Start: 2021 Deadline: 2022 Responsible department: Lean Office	Completed: Value so far stable
Introduction of a detection system for the error detection and rejection (scrap reduction)	Costs: 445 KEUR Start: 2022 Deadline: 2022 Responsible department: Procedural Planning	Implementation in progress

12.3.3. Specific waste

Reduction of the total of the specific waste below the level it had reached before the qualification of the new plants

Initial value 2021: 0.156 t/t
Target value 2025: 0.117 t/t

Programme	Project data	Last update
Optimization of edge trimming on a manufacturing plant in order to reduce the scrap production (scrap reduction)	Costs: 32 KEUR Deadline: 2021 Completion 2022 Responsible department: Procedural Planning	Implementation in progress
Introduction of a detection system for the error detection and rejection (scrap reduction)	Costs: 445 KEUR Start: 2022 Deadline: 2022 Responsible department: Procedural Planning	Implementation in progress

13. Validation certificate

The environmental expert witnesses listed here in the following hereby confirm that they have evaluated that the business sites meet all the requirements stated under the (EC) Regulation issued under the number 1221/2009 by the European Parliament and by the Council on 25 November 2009, as amended on 28 August 2017 and on 19 December 2018, on the voluntary participation of organisations in a Community eco-management and audit scheme (the so-called EMAS), as set out in the present environmental statement of the German company Ewald Dörken AG under the registration number DE-130-00031.

Name of the expert witness	Registration number	Approved for the areas (NACE)	
Dr. Ulrich Hommelsheim	DE-V-0117	20.3	Production of paints, printing inks and sealants
		22.23	Manufacture of building supplies from plastics
		46.73.6	Wholesale of paints and varnishes
		46.74.3	Wholesale of metal and plastic construction products
		46.75	Wholesale of chemical products
Dr. Sulzer	DE-V-0041	64.2	Investment companies
		70.1	Administration and management of companies and operations

By signing the present declaration, I declare the following:

- The audit and the validation have been carried out in full compliance with the requirements stated in the (EC) Regulation issued under the number 1221/2009 as amended by the (EU) Commission Regulation under the number 2017/1505 and by the (EU) Regulation issued under the number 2018/2026;
- The result of the audit and of the validation confirm that there is no evidence of non-compliance with applicable environmental regulations, and
- The data and indications included in the environmental statement give a reliable, credible, and truthful picture of all the activities carried out by the company.

The present statement cannot be equated with an EMAS registration. The EMAS registration can only be granted by a competent body according to Regulation (EC) issued under the number 1221/2009. The present statement must not be used as an independent piece of information for instruction of the public.

Berlin, 16.12.2022

Dr. Ulrich Hommelsheim
Environmental expert witness DE-V-0117

GUT Certifizierungsgesellschaft für Managementsysteme mbH
Environmental expert witness DE-V-0213
Eichenstraße 3 b
D-12435 Berlin

Phone number: +49 30 233 2021-0
Fax number: +49 30 233 2021-39
Email address: info@gut-cert.de

Dr. Georg Sulzer
Environmental expert witness DE-V-0041

GUT Certifizierungsgesellschaft für Managementsysteme mbH
Environmental expert witness DE-V-0213
Eichenstraße 3 b
D-12435 Berlin

Phone number: +49 30 233 2021-0
Fax number: +49 30 233 2021-39
Email address: info@gut-cert.de

The next updated and validated environmental statements will be presented in the month of December 2023 and 2024.

The next consolidated environmental statement will be presented during the month of December 2025.