

ENVIRONMENTAL STATEMENT 2022

with the environmental key figures of year 2021



BEFESA

Befesa Salt Slag Ltd.

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EMAS

GEPRÜFTES
UMWELTMANAGEMENT

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Foreword

With this environmental statement we inform the public about the current environmental situation of Befesa Salzschlacke GmbH, about already implemented measures for environmental protection as well as about the objectives to reduce the impact of our activities on the environment.

This Environmental Statement is prepared in accordance with *Eco-Management and Audit Scheme* / EMAS III Regulation (EU) No. 1221/2009, Commission Regulation EU 2017/1505 of 28.08.2017 amending Annexes I, II and III, as last amended by Regulation (EU) 2018/2026 of 19.12.2018 amending Annex IV.

It is written for the interested public and aims to provide information in a concise and understandable form.

If you have any suggestions or questions, please contact:

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We and the environment

Befesa Salzschlacke GmbH has an integrated management system that is certified in accordance with EMAS, DIN EN ISO 9001:2015, DIN EN ISO 14001:2015, DIN EN ISO 50001:2011 and DIN ISO 45001:2018. It is actively engaged in environmental protection by processing the salt slag generated as waste during the production of secondary aluminum into marketable products. Befesa Salzschlacke GmbH pursues the goal of keeping the environmental impact resulting from the production processes at the Hanover and Lunen sites as low as possible or avoiding it altogether. This is the only way to ensure sustainable development.

Befesa Salzschlacke GmbH is registered with EMAS according to NACE classification 20.1 "Manufacture of basic chemicals, fertilizers and nitrogen compounds" under registration number DE-133-00078 and has established an environmental management system in conjunction with EU Regulation No. 1221/2009 and EN ISO 14001:2015 to promote continuous improvement of environmental performance. The organization publishes an environmental statement and has an environmental verifier verify the environmental management system and validate the environmental statement. The business activity registered with EMAS is the production of chemical base materials, fertilizers, nitrogen compounds, etc.

Responsibility

We take responsibility for all our products, services and other business activities. We are aware of the importance of environmental protection and set the highest standards in this area.

Openness

We promote open dialog on environmental protection issues and strive to awaken and strengthen the environmental awareness of our employees, suppliers and customers.

1. Description of the organization and the Environmental Management System



1.1 Befesa

Befesa is an environmental services company specializing in both recycling of industrial residues from the steel industry and recycling services for aluminum and salt slag, as well as related logistical and other industrial services. The environmental services are divided into two business areas:

- Steel Dust Recycling Services
- Aluminum Salt Slags Recycling Services

Befesa has an Annual Installed Capacity to recycle 450,000 tons of salt slag and "Spent Pot Lining" (SPL) together in its two plants in Germany and one in Spain. Befesa believes in the circular economy and develops processes that, on the one hand, do not generate waste and, on the other, reintroduce secondary raw materials into industrial activity, reducing the need for non-renewable natural resources. Befesa's Salt Slags Division is part of the Aluminum Salt Slags Recycling Services business unit and has 3 locations in Spain and Germany. The organization is the world leader in the salt slag industry and uses cutting-edge technologies in its processes. Befesa Salzschlacke GmbH, the subject of this environmental statement, is part of the Salt Slags Division and includes the two German facilities.

Locations of Befesa Salzschlacke GmbH

The Hanover site



The branch of Befesa Salzschlacke GmbH in Hanover is located on the premises of a former forwarding agency in Hanover with the postal address:

Befesa Salt Slag GmbH

Hannover Branch

Am Brinker Hafen 6

30179 Hanover

The site of the former Hanse GmbH or Alsa GmbH and current Hanover branch has been operated at Brinker Hafen since 1991. The buildings located on the site were newly constructed in 1991 on an area of approx. 22,500 m² (of which approx. 19,500 m² sealed). A dedicated boiler house (natural gas < 10 MW) is operated there. The drinking water supply for the site is provided by the city of Hanover and treated sewer water is available for plant operation.

In the land use plan, the site and the immediate surroundings are designated as an industrial area. The nearest open water body is the middle channel at around 300 m in a southerly direction. The nearest residential area is on the other side of the canal, about 500 m from the plant boundary.

Site development

There are currently 71 Befesa employees working at the site. The company buildings and the administration building include a parking lot for employees' vehicles and various storage halls for salt slag and products. Furthermore, there is a workshop with a magazine on the site. Weighing of the delivered salt slag as well as the products we produce is done by our own truck scale.

The following plant components are operated:

- Dry section with grinding and screening
- Wet section with dissolution, waste gas treatment, alumina preparation and evaporation crystallization plant
- Storage of salt slag and products
 - Steam boiler plant

Jan. 1989	Permission to operate the salt slag processing plant
Jul. 1990	Construction of the crushing, grinding and screening plant
Apr. 1997	Construction of the Serox warehouse
Oct. 1998	Merger of Hannoversche Salzschlacke-Entsorgungsgesellschaft (Hanse) with Segl GmbH to form Alsa GmbH
Jun. 2009	Takeover of activities by Befesa S.A.
Nov. 2017	IPO
Nov. 2021	Fire damage to buildings and in production

On November 5, 2021, the Hanover site was damaged by fire. Through the intervention of the fire department of the city of Hanover, the spread of the fire could be limited. Fortunately, no persons were injured. The extinguishing water was collected in the building and forwarded to a specialized water treatment company.

In particular, the new exhaust air purification system of the Seroxhalle, which is currently under construction, was damaged. In addition, neighboring plant and building parts were affected, so that these also had to be replaced. In agreement with the trade supervisory office, the reconstruction was carried out based on the technology previously used without any changes requiring approval. It was thus notified in accordance with § 15 BImSchG. Only the reconstruction of the ASL hall required a building permit, which was applied for in April 2022 and granted in November 2022.

Inevitably, the entire plant was taken out of operation in the course of the fire incident. After evaluation of the damage caused, the affected plant and building parts were decontaminated and disposed of as far as necessary. At the same time, new parts were procured and installed, with a targeted selection of units with low energy consumption helping to improve energy efficiency. Other environmental aspects were also considered. It is expected that the reconstruction will be largely completed by the end of 2022 and that production will resume at the beginning of 2023.

The Lünen site

The Lünen branch of Befesa Salzschlacke GmbH is located on the premises of the Remondis - Lippewerk (formerly Vereinigte Aluminiumwerke AG - Lippewerk) in Lünen with the following postal address:

Befesa Salt Slag GmbH

Lünen Branch

Brunnenstrasse 138

44536 Lünen

The site is located in the district of Lippholthausen, parcel 3, parcel 125. In its previous use, the Vereinigte Aluminiumwerke was located on the site. At that time, the buildings were in operation as electrolysis halls. The Befesa Salzschlacke GmbH Lünen branch makes use of various infrastructural services provided by the Remondis Lippe Plant. Access is controlled via the general gate. Transport operations are registered at the gate. Trucks for incoming and outgoing transports are weighed on the Remondis scales. The facilities and buildings of Befesa Salzschlacke GmbH are supplied with energy, water, steam, compressed air and drainage by Remondis.

The buildings and grounds are partly owned or partly leased by Befesa Salzschlacke GmbH. In the land use plan, the site is designated as an industrial area. In a northerly direction, at approx. 500 m from Befesa's production facilities, there is the Lippe river as an open watercourse. In the southern direction, the Datteln-Hamm Canal is located at approx. 1,000 m.

Site development

There are currently 74 Befesa employees working at the site. The company buildings and the administration building include a parking lot for employees' vehicles. There is also a workshop with a warehouse on the site. The weighing of delivered and outgoing quantities is carried out by Remondis truck scales.

The following plant components are operated:

- Dry section with grinding and screening
- Wet section with dissolution, waste gas treatment, alumina preparation and Evaporation Crystallization Plant
- New Serox Dryer in Kiln House I
- Storage of salt slag and products

Apr. 1986

Commissioning of Segl I on the basis of building permit

May 1989

Construction of the salt slag storage hall

Apr. 1991

Commissioning of the Segl II

March 1997

Change of plant permit to recycling plant according to No. 8.10 the 4th BImSchV

Oct. 1998

Merger of Salzschlacke-Entsorgungsgesellschaft Lünen mbH (Segl) with Hannoversche Salzschlacke-Entsorgungsgesellschaft mbH (Hanse) to the Aluminium-Salzschlacke Aufbereitungs-GmbH (Alsa)

Jun. 2009

Takeover of activities by Befesa S.A

Nov. 2017

IPO

Dec 2018

Commissioning of the new Serox dryer

1.2 Activities, products and services

Input materials and products

At both Befesa Salzschlacke GmbH sites, aluminum-bearing salt slag and dross are fully processed. In addition, the Lünen site processes spent pot linings from primary aluminum production (Spent Pot Linings). Four products are obtained from these feedstocks. In detail these are:

- Ammonium sulfate (input material in the fertilizer and chipboard industry)
- Aluminum (feedstock for aluminum smelters)
- Resal smelting salt (feedstock for aluminum smelters)
- Serox (feedstock in the cement and mineral wool industry)

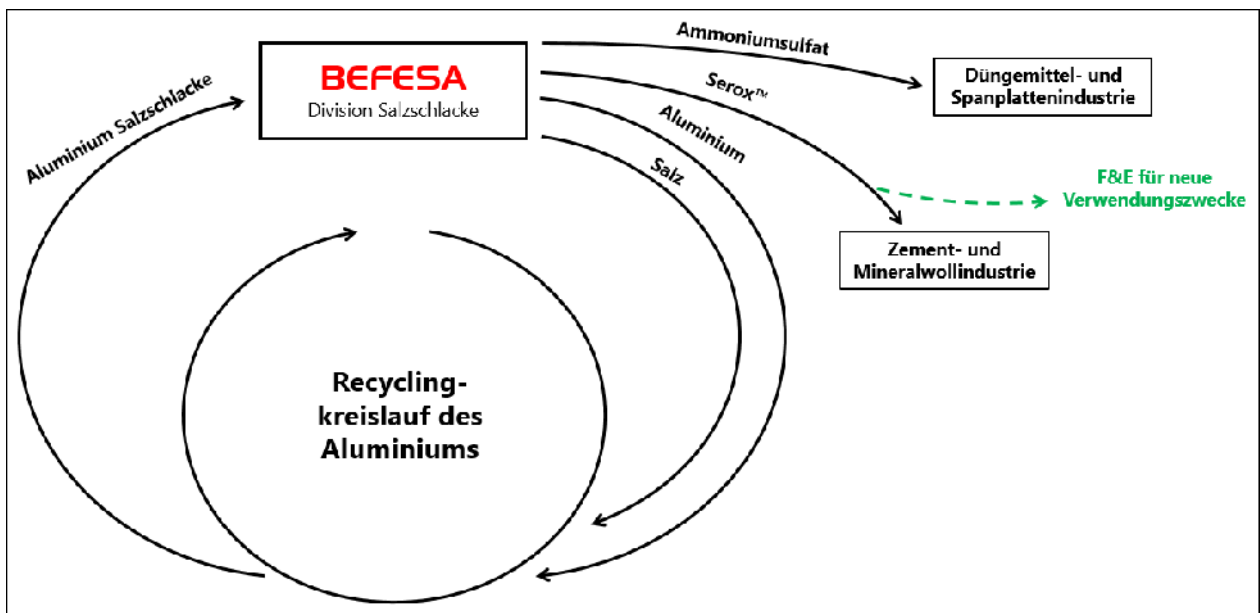


Figure 1: Formation and utilization of aluminum salt slag

The main auxiliary and operating materials used are sulfuric acid, hydrochloric acid and caustic soda. A detailed list of all auxiliary and operating materials can be found in the "Input/Output Data" tables in this document.

The feedstocks are processed in a combined process including mechanical and physico-chemical treatment. In the first processing stage, the salt slag is pre-crushed in several steps and the various aluminum fractions are separated. This is done in a mechanical preparation process. The aluminum is sold to aluminum smelters.



Figure 2: Aluminum granules



Figure 3: Resal

The remaining material (salt and insoluble oxides) is further processed in downstream processes (dissolution and solid/liquid separation). The dissolved salts are recrystallized and represent the second product (Resal) of the process. The salt is reused in the aluminum smelters.

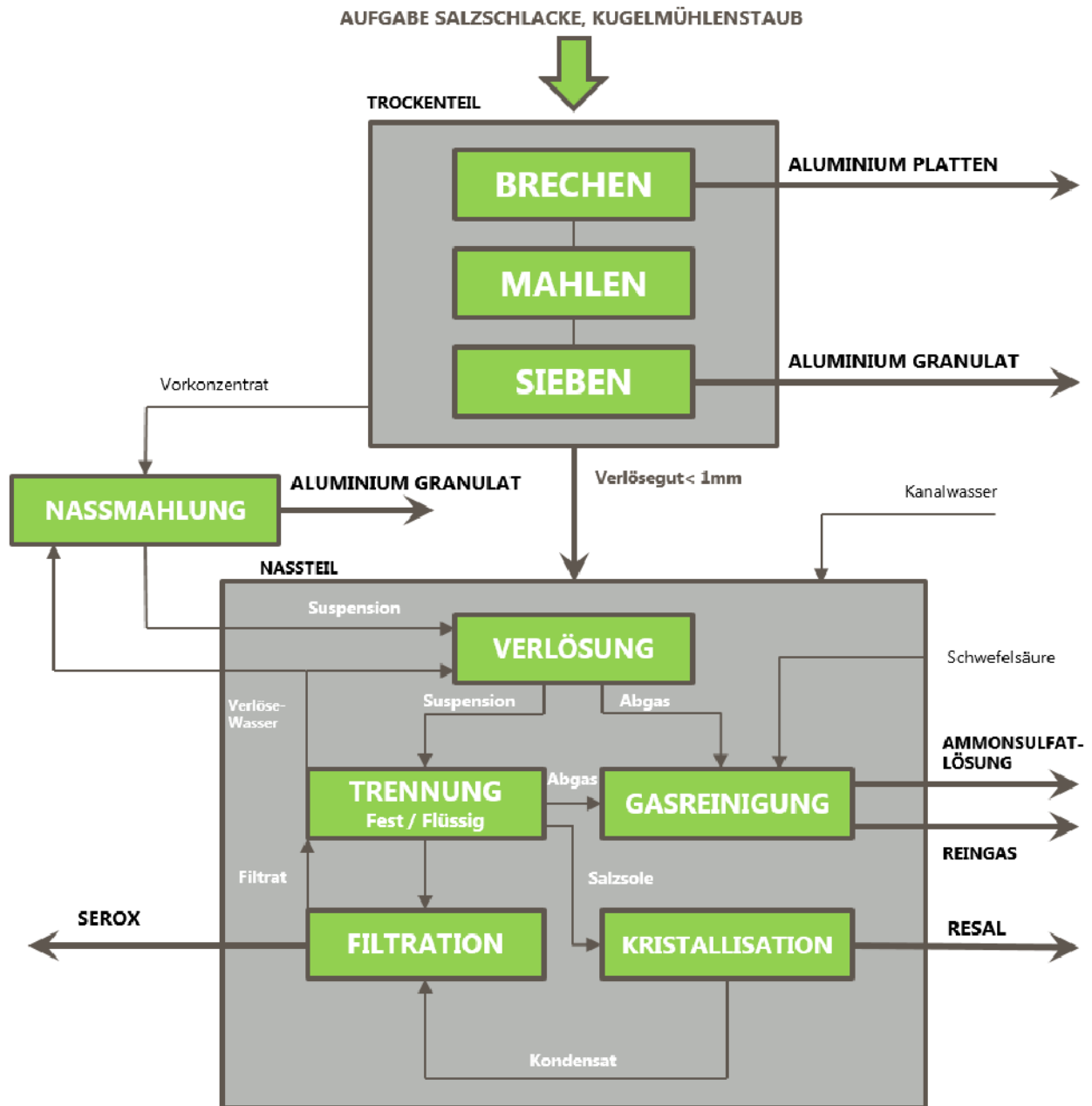
The insoluble oxidic components (Serox) are washed chloride-free and used in the cement industry and to produce mineral wool.



Figure 4: Serox

The fourth product is ammonium sulfate. It is obtained from the NH_3 -containing process waste gases with the addition of sulfuric acid. At the Lünen site, the ammonium sulfate is recrystallized and sold as a solid salt. At the Hanover site, the product is sold as an ammonium sulfate solution. The ammonium sulfate is used in the fertilizer and particleboard industries.

Process diagram Hannover

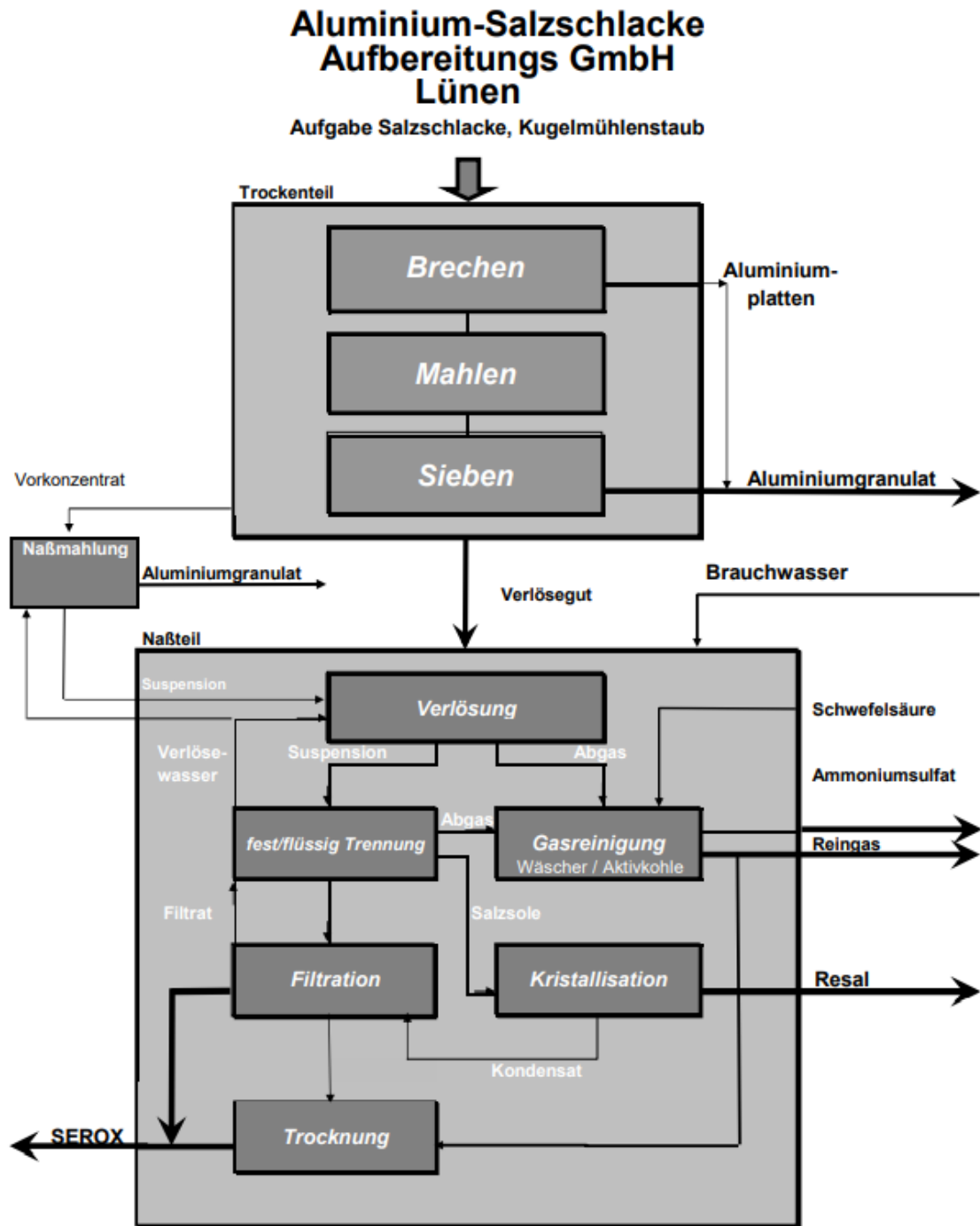


Input materials: Salt slag, mill dust

Products:

1. aluminum plates
2. Aluminum granules
3. Resal
4. Serox
5. Ammonium sulfate solution

Process diagram Lünen



Aufgabe: Salzschlacke und Kugelmühlstaub

Erzeugte Produkte:

1. Aluminium Granulat/-platten
2. Resal
3. SEROX/Oxiron
4. Ammoniumsulfat

Lünen, den 06.01.2022

1.3 Our environmental management system

Integrated management policy

As a leader in the recycling and reuse of raw and scrap aluminum, Befesa Salt Slag's priority is to strive for the best possible performance through safe, efficient and effective management in support of sustainable development.

Befesa Salt Slag's management is aware that the satisfaction of all relevant stakeholders (customers, direct and indirect (contractors and subcontractors) employees, authorities and legislators, social environment, etc.) is key to the success of its operational activities and, accordingly, implements the following policy, which establishes the following commitments:

- Commitment to safety and health, accident prevention and improvement of working conditions: Befesa Salt Slag protects the workplace safety and health of all employees (direct and indirect employees) by complying with legal and other requirements for worker safety and health and applies improvements to end unsafe behaviors and conditions and eliminate risks. To this end, the company uses an accident-free policy in which employee participation is an essential element in preventing workplace risks and promoting health. To this end, Befesa has implemented a workplace safety and health management system that meets the requirements of ISO 45001:2018.

- Commitment to a proper working climate, equal treatment in the workplace, development of competencies and balance between personal and professional life: Befesa Salzschlacke supports equal treatment in the workplace and training to improve the competencies of its employees, and promotes a climate of trust by meeting standards, analyzing employees' needs and expectations, and establishing standard rules in employment relationships based on integrity, responsibility, and loyalty.

- **Commitment to the quality of products and services:** Befesa Salt Slag is committed to providing its customers with products and services of the required quality based on continuous improvement in accordance with the strategic objectives of the company and taking into account the context of the organization and the needs and expectations of customers, assessing risks and taking measures to eliminate or mitigate these risks. To this end, Befesa has implemented a quality management system in accordance with ISO 9001:2015

- **Commitment to environmental protection:** Befesa Salt Slag is committed to preventing pollution and protecting the environment in accordance with applicable legislation and other commitments that Befesa may make, according to the context of the organization and considering its activities, products and services throughout their life cycle. To this end, the company maintains a system for identifying, assessing and reducing environmental impacts that promotes the rational use of natural resources and the reduction of waste, circular economy and continuous improvement. To this end, Befesa has implemented an environmental management system in accordance with ISO 14001:2015.

- **Commitment to energy efficiency and energy management:** Befesa Salt Slag recognizes the importance of efficient energy management and strives for maximum efficiency. To this end, Befesa maintains an energy efficiency management system that ensures continuous improvement in energy performance, including energy efficiency, energy use and energy consumption, sets targets for continuous improvement, ensures the availability of the necessary information and resources to achieve them, integrates energy performance into strategic decisions, and complies with regulatory and other energy and efficiency requirements. In addition, Befesa Salt Slag promotes the procurement of energy-efficient products and services. This behavior is confirmed by ISO 50001:2018 certification.

- **Commitment to confidentiality of confidential information and to the protection and appropriate treatment of personal data:** Befesa Salzschlacke treats information as confidential as a matter of principle, supports the security of legally protected data and the proper use of information technology while complying with all directives established by the Befesa Group, promoting the rationalization, optimization and simplification of data processing, and continuously improving the effectiveness and efficiency of IT systems.

- **Legal Obligation, Risk Reduction and Continuous Improvement:** Befesa Salt Slag is committed to taking into account the legal and other commitments made to their identification, assessment and elimination or reduction of identified risks, prevention of undesirable effects, continuous improvement, transparency, consideration of the needs and expectations of relevant stakeholders, consideration of the context and characteristics of the organization in the development of its strategy.



Befesa Salt Slag management guarantees the maintenance and application of this policy and that it is understood and accepted by all stakeholders.

This policy will be distributed and explained directly to all employees.

This policy is available to all interested parties upon request.

BEFESA Division Salzschlacke	Integrierte Politik des Unternehmens Befesa Division Salzschlacke	Fecha: 18/10/2021 Rev.: 09
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Integrierte Politik des Unternehmens Befesa Division Salzschlacke
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	P-IMS.08	
	Datum	18/10/2021
Erstellung und Revision:	Geschäftsführer Division Salzschlacke	
	Carlos Ruiz de Veye	
Bewertung:		
Genehmigt durch:	Geschäftsführer Division Salzschlacke	
	Carlos Ruiz de Veye	

 Division Salzschlacke	Integrierte Politik des Unternehmens Befesa Division Salzschlacke	Fecha: 18/10/2021 Rev.: 09
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Als führendes Unternehmen im Bereich des Recyclings und der Wiederverwertung von Roh- und Sekundäraluminium steht die Befesa Salzschlacke mit ihren Recyclingwerken in Valladolid (Spanien), Lünen und Hannover (Deutschland) im Mittelpunkt ihrer Tätigkeit, die durch eine sichere, effiziente und effektive Bewirtschaftung zu einer nachhaltigen Entwicklung beiträgt.

Die Geschäftsleitung von Befesa Salzschlacke ist sich bewusst, dass der Schlüsselfaktor für den Erfolg ihrer Tätigkeit die Zufriedenheit aller relevanten Interessengruppen (Kunden, direkte und indirekte Mitarbeiter (Auftragnehmer und Subunternehmer), Behörden und Gesetzgeber, soziales Umfeld usw.) ist, und führt dementsprechend in diesem Sinne die folgende Politik, die die folgenden Verpflichtungen festlegt:

1. **Verpflichtung zu Sicherheit und Gesundheit, Unfallverhütung und Verbesserung der Arbeitsbedingungen:** Befesa Salzschlacke schützt die Sicherheit und Gesundheit am Arbeitsplatz aller Mitarbeiter (direkte und indirekte Mitarbeiter) durch die Erfüllung der gesetzlichen und anderen Anforderungen an die Sicherheit und Gesundheit der Arbeitnehmer und wendet Verbesserungen an, um unsichere Verhaltensweisen und Bedingungen zu beenden und Risiken zu beseitigen. Hierzu nutzt das Unternehmen eine Politik der Unfallfreiheit, bei der die Beteiligung der Mitarbeiter ein wesentliches Element zur Vermeidung von Risiken am Arbeitsplatz und zur Förderung der Gesundheit ist. Zu diesem Zweck hat Befesa ein Sicherheits- und Gesundheitsmanagementsystem am Arbeitsplatz eingeführt, das die Anforderungen nach ISO 45001:2018 erfüllt.
2. **Verpflichtung zu einem angemessenen Arbeitsklima, Gleichbehandlung am Arbeitsplatz, Entwicklung der Kompetenzen und Ausgleich zwischen Privat- und Berufsleben:** Befesa Salzschlacke unterstützt die Gleichbehandlung am Arbeitsplatz und Schulung, um die Kompetenzen seiner Mitarbeiter zu verbessern, und fördert ein Klima des Vertrauens durch die Erfüllung von Normen, die Analyse der Bedürfnisse und Erwartungen der Mitarbeiter und die Festlegung von Standardregeln in den Arbeitsverhältnissen auf der Grundlage von Integrität, Verantwortungsbewusstsein und Loyalität. Befesa verfügt über ein internes Verfahren zur Verwaltung von Fehlzeiten, um die Ursachen für das Fernbleiben von der Arbeit zu beseitigen und das Recht auf aktive Arbeit für alle Mitarbeiter zu gewährleisten.
3. **Verpflichtung zur Qualität der Produkte und Dienstleistungen:** Befesa Salzschlacke verpflichtet sich, seinen Kunden Produkte und Dienstleistungen in der geforderten Qualität auf der Grundlage kontinuierlicher Verbesserung entsprechend den strategischen Zielen des Unternehmens und unter Berücksichtigung des Kontexts der Organisation und der Bedürfnisse und Erwartungen der Kunden anzubieten, Risiken zu beurteilen und Maßnahmen zu treffen, um diese Risiken zu beseitigen oder zu mindern. Zu diesem Zweck hat Befesa ein Qualitätsmanagementsystem nach ISO 9001:2015 eingeführt.
4. **Verpflichtung zum Schutz der Umwelt:** Befesa Salzschlacke verpflichtet sich, Umweltverschmutzung zu vermeiden und die Umwelt entsprechend den geltenden gesetzlichen Vorschriften und anderen Verpflichtungen, die Befesa eingehen kann, entsprechend dem Kontext der Organisation und unter Berücksichtigung seiner Aktivitäten, Produkte und Dienstleistungen über die gesamte Lebensdauer zu schützen. Hierzu unterhält das Unternehmen ein System zur Identifizierung, Bewertung und Reduzierung von Umweltauswirkungen, das einen vernünftigen Umgang mit natürlichen Ressourcen und die

BEFESA Division Salzschlacke	Integrierte Politik des Unternehmens Befesa Division Salzschlacke	Fecha: 18/10/2021 Rev.: 09
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Reduzierung von Abfällen, die Kreislaufwirtschaft und die kontinuierliche Verbesserung fördert. Hierzu hat Befesa ein Umweltmanagementsystem nach ISO 14001:2015 eingeführt.

5. Verpflichtung zu Energieeffizienz und Energiemanagement: Befesa Salzschlacke ist sich der Bedeutung des effizienten Energiemanagements bewusst und strebt nach maximaler Effizienz. Zu diesem Zweck unterhält Befesa ein System zur Steuerung der Energieeffizienz, das die kontinuierliche Verbesserung der Energieleistung einschließlich der Energieeffizienz, der Nutzung von Energie und des Energieverbrauchs sicherstellt, legt Ziele für die kontinuierliche Verbesserung fest, stellt die Verfügbarkeit der notwendigen Informationen und Ressourcen zu ihrer Erreichung sicher, integriert die Energieleistung in strategische Entscheidungen und erfüllt die gesetzlichen und anderen Anforderungen an die Energie und Effizienz. Darüber hinaus fördert Befesa Salzschlacke die Beschaffung energieeffizienter Produkte und Dienstleistungen. Dieses Verhalten wird durch die Zertifizierung nach ISO 50001:2018 bestätigt.

6. Verpflichtung zur Geheimhaltung vertraulicher Informationen und zum Schutz und zur angemessenen Behandlung personenbezogener Daten: Befesa Salzschlacke behandelt Informationen grundsätzlich vertraulich, unterstützt die Sicherheit gesetzlich geschützter Daten und die ordnungsgemäße Nutzung von Informationstechnologie bei gleichzeitiger Erfüllung aller durch den Befesa-Konzern festgelegten Direktiven, Förderung der Rationalisierung, Optimierung und Vereinfachung der Datenverarbeitung sowie kontinuierlicher Verbesserung der Effektivität und Effizienz der IT-Systeme.

7. Gesetzliche Verpflichtung, Risikoreduzierung und kontinuierliche Verbesserung: Befesa Salzschlacke verpflichtet sich, die gesetzlichen und anderen eingegangenen Verpflichtungen zu der Identifizierung, Bewertung und Beseitigung oder Reduzierung identifizierter Risiken, der Vermeidung unerwünschter Auswirkungen, der kontinuierlichen Verbesserung, der Transparenz, der Berücksichtigung der Bedürfnisse und Erwartungen der relevanten Stakeholder, der Berücksichtigung des Kontexts und der Eigenschaften der Organisation bei der Entwicklung seiner Strategie zu berücksichtigen.

Die Geschäftsleitung von Befesa Division Salzschlacke garantiert die Aufrechterhaltung und Anwendung dieser Politik und dass diese von allen Stakeholdern verstanden und akzeptiert wird.

Diese Politik steht allen Interessenten auf Anforderung zur Verfügung.

Diese Politik wird allen Mitarbeitern verteilt und unmittelbar erklärt



Carlos Ruiz de Veye, Director Geschäftsführer

Valladolid/ Hannover/ Lünen, Oktober 2021.

2. The integrated management system

The Integrated Occupational Safety, Environmental, Energy Efficiency and Quality Management System of Befesa Salzschlacke GmbH defines the approach to environmental protection, improvement of energy performance, quality assurance and safeguarding occupational safety in all areas of the company and thus contributes to a uniform understanding of all activities in the company that are relevant to the environment, energy performance, quality and safety.

The Integrated Occupational Health and Safety, Environmental, Energy Efficiency and Quality Management (IMS) describes the system as well as the definition of the necessary measures to ensure the proper application, monitoring and documentation of the IMS.

It serves to:

- define the environmental policy and set up the organizational structure to implement the environmental policy. This includes organizational elements such as the environmental management system (EMS), the allocation of tasks and material resources to positions, the definition of responsibility and competencies, the regulation of information flows, the provision of information to employees and communication with the public,
- to record and evaluate the environmentally relevant effects,
- monitor environmentally relevant processes and initiate corrective measures if necessary. This includes procedural instructions for the reduction of environmental impairments, the avoidance and recycling of waste, and the careful use of raw materials and energy,
- to check the functionality and performance of the organizational and operational structure and to assess whether environmentally relevant requirements are met, and targets have been achieved.

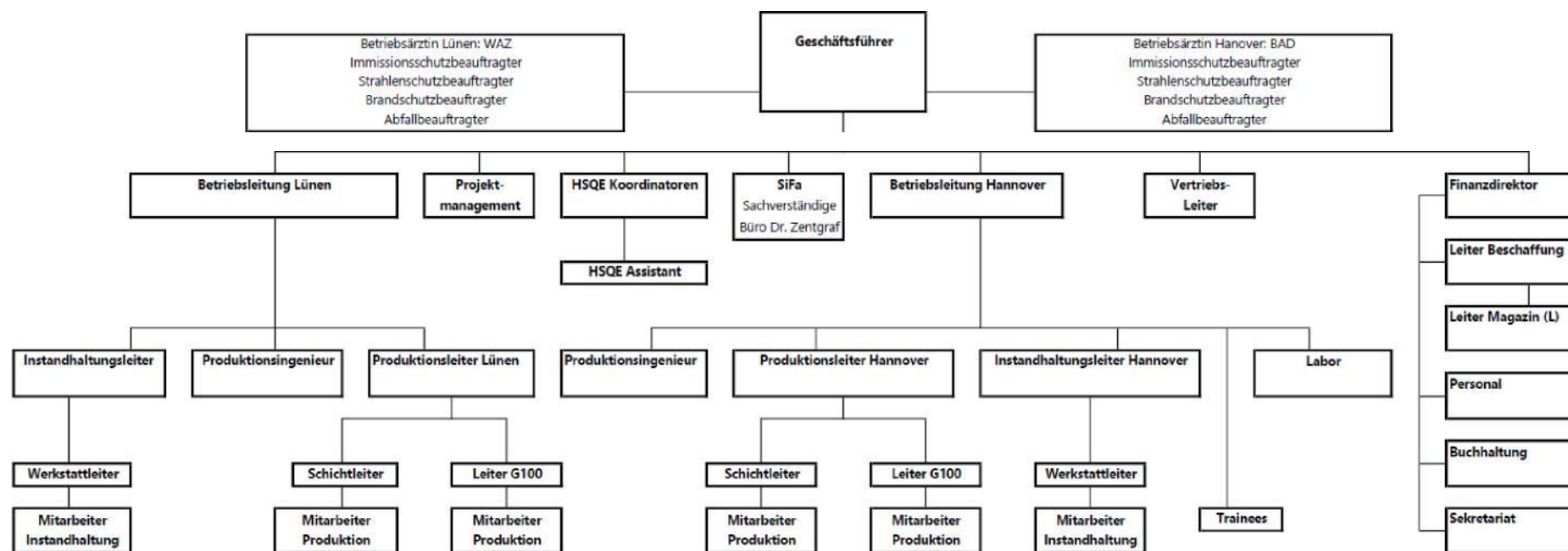
The constant implementation of the Integrated Management System ensures that environmental protection, quality and the working environment are continuously improved, that all customer requirements, laws, legal remedies, regulations, requirements, standards as well as our own requirements are fulfilled in order to protect the people in the company, to constantly minimize the impact on the environment and to ensure long-term business relationships with our customers. An essential prerequisite for achieving environmental protection goals is the organization of environmental protection within the company. The Integrated Management System covers all areas of responsibility belonging to Befesa Salzschlacke GmbH.

2.1 Responsibilities and Obligations

The following representatives assume responsibility for environmental protection in our company:

- The responsibility for the environmental and quality policy, for creating the conditions for its realization and for involving the employees in the environmental policy lies with the management.
- The HSQE managers for the Hannover and Lünen sites are responsible for and are given authority to apply and maintain the Integrated Management System on site.
- The plant managers for emission control, radiation protection, waste and fire protection fulfill their statutory responsibilities at the two sites.
- An occupational safety specialist has also been appointed for both sites.
- The emissions control from the emission officer assigned for both plants.
- Control and waste as well as the occupational safety specialist are currently performed by external experts. The radiation protection officer for the Lünen site is also filled by an external person. The other functions are filled by trained plant employees. In Hanover, the radiation protection officers are internally trained employees.
- The Head of Procurement is responsible for environmental procurement, including energy purchasing.
- Plant managers are responsible for ensuring compliance with the requirements of the environmental permit, as well as for proper operation and implementation of corrective actions in the event of deviations.

Organizational structure of Befesa Salzschlacke GmbH



2.2 Environmental management audits and internal audits

The EMAS system ("Eco-Management and Audit Scheme") requires the company to undergo regular environmental audits. These audits are part of the company's internal audit plan for the integrated management system. The internal audits are carried out by the HSQE department. The items to be audited are derived from the legal requirements, the environmental permit, the internal regulations and the requirements of the ISO standards. External certification audits are carried out once a year for the entire integrated management system. Based on the audit results, measures to improve environmental protection are included in an action plan. Deadlines and responsible persons are defined accordingly.

3. Environmental Aspects

3.1 Methodology of the Evaluation

As part of its environmental management, Befesa Salzschlacke GmbH conducts an analysis to determine its environmental aspects and their impact. It is important to determine which of these aspects have or may have a significant impact on our environment in order to set measures and targets.

Six criteria have been defined for the evaluation of our environmental aspects. The evaluation criteria for the environmental aspects are explained below. All factors are added up and all aspects with values above 20 are classified as significant environmental aspects.

Significance of environmental aspects = extent + severity on environment + severity on company + frequency + interested parties + legal requirements

Extent	More than 5% higher than in the previous year (or the last measurement) // No measurement or measures implemented	5
	+/- 5% variation compared to previous year (or last measurement) // No measurement but measures implemented	3
	more than 5% lower than in the previous year (or the last measurement)	1

Severity on the environment	Catastrophic / long-lasting impact including loss of natural habitat.	5
	Medium-term temporary or reversible impacts. E.g. impacts at local level, reduction in air quality, impact on global environmental problems.	3
	Short-term and insignificant impact, limited to plant area.	1

Severity on the Company	Long-lasting effect on production capacity (over 1 week)	5
	Medium-term impact - impact on production shorter than 1 week	3
	No effect or short-term insignificant effect on production (shorter than 1 day)	1

Frequency	Frequent (happens daily - weekly)	5
	Occasionally (happens weekly - quarterly)	3
	Rare (happens quarterly or less)	1

Interested Circles	There is an expressed interest / complaint from interested Circles at this impact	5
	There are no expressed interest / complaints from interested Circles at this impact	1

Legal requirements	Legal requirements for this impact in place. Deficiencies identified in previous year // Less than 10% below limits	5
	Legal requirements for this impact in place, deficiencies not identified in previous year and more than 10% below limits	3
	No legal requirements valid for this impact	1

3.2 Essential aspects

Key environmental aspects for 2021 were:

Hannover

Key environmental aspects	Impact on the environment	Type			Indicator
Emissions of pollutants into the air: methane	Air pollution	Direct	Negative	Normal	mg CH ₄ /m ³
Emissions of pollutants into the air: ammonia and odor	Air pollution	Direct	Negative	Normal	t/a
Energy consumption	Air pollution	Indirect	Negative	Normal	t CO _{2eq} / t

Lünen

Key environmental aspects	Impact on the environment	Type			Indicator
Emissions of pollutants into the air: methane	Air pollution	Direct	Negative	Normal	mg CH ₄ /m ³
Energy consumption	Air pollution	Indirect	Negative	Normal	t CO _{2eq} / t
Ammonia emissions	Air pollution	Direct	Negative	Normal	mg/m ³
Steam consumption	Greenhouse gas emission	Indirect	Negative	Normal	kWh/t

4. Implementation of environmental Goals

The planned and implemented targets are presented below. The degree of implementation represents the implementation at the time of preparation of the Environmental Statement at the end of 2022.

4.1 Implementation of the targets for the year 2021-2022

Hannover

1. Objective: Reduction of fugitive ammonia and odor emissions

Related indicator:
Ammonia emissions in
mg/m³

Target:
<20 mg/m³

Measures	Responsible	Course		
		2021	2022	2023
Building permit issue for the new construction of the ammonium sulfate (ASL) hall.	Managing Director	Construction work has begun. In November, construction work was interrupted because of the fire.	In agreement with the Trade Inspectorate, the reconstruction was carried out based on the technology previously used without any modifications requiring approval. It was thus notified in accordance with § 15 BImSchG. Only the reconstruction of the ASL hall required a building permit, which was issued in November 2022.	
Reconstruction of the ASL hall and installation of the gas purification system for the Serox warehouse.	Managing Director	Decontamination and cleanup operations were conducted.	The ASL hall was rebuilt. The fire damage in the Serox hall was also rebuilt and completed	ASL Hall and Serox Hall will be ready to operate at the beginning of 2023

2. Objective: Research into technical solutions to reduce methane emissions.

Related indicator:
Number of solutions identified

Target:
Identification of at least one technical solution

Measures	Responsible	Course		
		2021	2022	2023
Search for solutions available on the market and study of their applicability in the plant	Plant Manager		In consultation with the authorities, this project is to be implemented until 2026. The goal will be included in the new environmental goals and followed up.	Start of work planned for 2023 (see 2023 goals)

3.Objective: Increased energy efficiency in electricity consumption

Related indicator:
kWh / t

Annual Target:
2% reduction

Measures	Responsible	Course		
		2021	2022	2023
Install belt filter & vacuum pump	Plant Manager		Belt filter and vacuum pump were installed	The belt filter and vacuum pump are put into operation
Install LED lamps in the plant in the halls	Plant Manager		The project was canceled	-

4. Objective: Increased energy efficiency in gas consumption

Related indicator: kWh / t

Annual Target:
0.6% reduction

Measures	Responsible	Course		
		2021	2022	2023
Installation of a sieve road	Plant Manager		The washing and dewatering screening systems were installed	The washing and dewatering screening plants are put into operation
Insulation of tanks and renewal of pipelines	Plant Manager	Continuous	Continuous	Continuous

Objective 5: Improve energy efficiency by reducing specific energy consumption.

Related indicator:
kWh / t

Annual Target:
0.6% reduction

Measures	Responsible	Course		
	Plant Manager	2021	2022	2023
Preparation of an inventory of equipment to be replaced			The inventory was created	-
Purchase of new and more efficient equipment in accordance with current regulations	Plant Manager		The following equipment was purchased and installed: Belt filter, cooling tower, centrifuge, screening machines and pumps.	Commissioning of the new equipment

6. Objectives: Reduction of vibrations caused by the rod mill in the dry section to a level below the legal limits.

Associated indicator:
Maximum vibration severity, Maximum vibration velocity

Target:
Values below the reference values from DIN 4150, Part 2

Measures	Responsible	Course		
		2021	2022	2023
Reconstruction of the foundation of the rod mill	Plant Manager		The project was completed in 2022.	
Carrying out a vibration engineering investigation	Plant Manager		The investigation was carried out in 2022. Based on the measurements, new spring elements were installed, and the foundation was revised	A new examination is carried out after the commissioning of the plant
Resumption of the night operation of the rod mill with the approval of the authority.	Plant Manager			Start of work planned for 2023 (see 2023 goals)

7. Objective: Improvements in waste management

Related indicator:

Target:
-

Measures	Responsible			
		2022		
Improve waste generation control, classification, documentation and balances.	Plant Manager /HSQE	The target has been moved to 2023. (see Targets 2023)		

Lünen

1. Objective: Reduction of dust emissions		Associated indicator: mg / m ³	Target:
			<10 mg/m ³
Measures	Responsible	Course	
Implementation of the action plan for dust removal	Plant Manager	2021	2022
		The action plan was drawn up in 2021. The roller mills have already been renewed.	The VK silo and bucket elevator were replaced in 2022. In addition, a daily dust (location) plan will be prepared to further identify dust sources.
Performing dust measurements	HSQE	There has been a dust measurement in 2021.	In 2022, dust measurements (personal and stationary) have also taken place. The evaluation of the measurement showed that the limit value (10mg/m ³) was still exceeded. (39.5mg/m ³)

2. Objective: Operation of the Serox dryer full time to reduce ammonia emissions.		Related indicator: -	Annual Target:
			Reduction of fugitive ammonia emission
Measures	Responsible	Course	
		2021	2022
Installation of the appropriate safety devices including the control system	Plant Manager		The control was completed in November 2022 with acceptance of the surveyor.
Conversion and upgrade of drums and Serox material handling equipment such as screw conveyors, etc.	Plant Manager		The rebuild was completed on schedule during the 2022 shutdown. (screw, barrel, rotary valve)
Optimization of the use of band filters	Plant Manager		Training of shift supervisors and improvement of the organization of maintenance has taken place
Moisture optimization	Plant Manager		Training of shift supervisors and improvement of the organization of maintenance has taken place

3. Objective: Reduction of methane emissions		Associated indicator: t CH ₄ / t	Annual Target: 33% reduction
Measures	Responsible	Course	
Minimizing the environmental impact of burning the methane from the process in Serox drying.	Plant Manager	2021	2022
		2020 the combustion chamber had a total loss, the Q5 supported operation could not be implemented. I.e. the (pure) gas of the emission source Q5 could not be used yet. In 2021, the dryer is running except for material transport at the design point. Commissioning of methane co-combustion in quarter 4. The target has not yet been achieved.	In 2022, a reduction of 11% could be achieved. The target will be carried forward to 2023.

4. Objective: Improve the monitoring of energy consumption.		Related indicator: Number of installed to planned meters	Annual Target: Factory specific
Measures	Responsible	Course	
Implement new monitoring concept at both sites	Energy Efficiency Manager	2021	2022
		In 2020, no meetings were held due to the Corona pandemic. In 2021, there were IT-supported meetings	first offer available, project is in commercial phase. And will be carried over into the <u>2023 targets</u> .

5. Objective: Reduction of specific energy consumption		Associated indicator: kWh/t	Target: 5% reduction based on the year 2015
Measures	Responsible	Course	
Reduce steam consumption in Lünen by 10% compared with 2015 by replacing the brine tanks and optimizing the evaporation process.	Plant Manager	2021	2022
		The objective can be continued only after the evaporation plants have been repaired by enabling the necessary operation (including the rehabilitation of the collection tray).	Action plan was implemented. Counterproductive was the necessary repair of the evaporators. Since repair and removal of the solid impurities, the project has been successfully implemented.

Reduce gas consumption by Serox drying by means of methane from the process (dissolution / separation)	Project Manager	2020 the combustion chamber had a total loss, the Q5 supported operation could not be implemented. I. e. the (pure) gas of the emission source Q5 could not be used yet. In 2021, the dryer is running except for the material transport at the design point.	In 2022 was started to use Q5. Currently, the project is underway.
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6. Objective: Improvement of soil and groundwater protection		Related indicator: N/A	Target: Elimination
Measures	Responsible	Course	
		2021	2022
Two cesspools are modified	Plant Manager	Project has been planned for 2022.	Due to long supply chains, Corona and the elimination and failure of suppliers, the project was postponed to 2023

4.1 Planning of the new targets for the year 2023

Hanover

1. Objective: Reduction of fugitive ammonia and odor emissions		Related indicator: Ammonia emissions in mg/m ³	Target: Ammonia emissions <20 mg/m ³
Measures	Responsible		
Reconstruction of the ammonium sulfate hall and installation of the gas purification system for the Serox warehouse.	Managing Director	2023	
		The gas purification plant and the Serox hall will be put into operation at the beginning of 2023	

2. Objective: Development of technical solutions to reduce methane emissions.		Related indicator: Number of solutions identified	Target: 50 mg/m ³ after conversion
Measures	Responsible		
Development of a process technology for the reduction of methane emission	Managing Director	2023-2026	
		The project is scheduled to start in 2023	

**3. Objective: Improvement of energy efficiency
(energy consumption) in the
Filtration plant area**

Related indicator:
kWh / t

Target:

3.5% reduction (from
4.87 to 4.7 kWh/t)

Measures	Responsible	
Start up belt filter and vacuum pump	Plant Manager	2023
		Belt filter and vacuum pump will be commissioned in March 2023

4. Objective: Increased energy efficiency in gas consumption

Related indicator:
kWh / t

Target:

8% reduction (from
543 to 500 kWh / t)

Measures	Responsible	
Insulation of tanks and renewal of pipelines	Plant Manager	2022-2023
		Project in progress
Heat recovery from the compressor system to heat the water for the heating/hot water systems for the shower room.	Plant Manager	Project in progress

5. Objective: Reduce vibrations from the rod mill in the dry section to a level below legal limits

Related indicator:
Assessment vibration severity according to DIN 4150, part 2

Target:

Reduction of Ar to \leq 0.15

Measures	Responsible	
Carrying out a vibration engineering study after the rebuild	Plant Manager	2023
		Start of work planned for 2023
Resumption of the night operation of the rod mill with the authorization of the authority	Plant Manager	Start of work planned for 2023

6. Objective: Improvements in waste management		Related indicator:	Target:
			-
Measures	Responsible		
Improve waste generation control, classification, documentation and balances.	Plant Manager/HSQE	2023	
		Start of work planned for 2023	

Lünen

1. Objective: Reduction of dust emissions		Associated indicator: mg / m ³	Target: <10 mg/m ³
Measures	Responsible	Course	
Processing of the action plan for dust removal	Plant Manager	2023 The Milling Loop suction, the main suction has to be repaired and the entrance to the impact mill will be hydraulically optimized.	
Performing dust measurements	HSQE	Dust measurements will also take place in 2023. The value 39.5 mg/m ³ is to fall below the limit value of 10mg/m ³ in 2023.	

2. Objective: Operation of the Serox dryer full time to reduce fugitive ammonia emissions.		Related indicator:	Annual Target: Reduction of fugitive ammonia emission
Measures	Responsible	Course	
		2023	
Optimization of the use of band filters	Plant Manager	Purchase and installation of the new belt filter. This will further reduce ammonia emissions.	
Moisture optimization	Plant Manager	Purchase and installation of the new belt filter. This will further reduce the humidity.	

3. Objective: Reduction of methane emissions		Associated indicator: t CH ₄ / t	Annual Target: 25% reduction
Measures	Responsible	Course	
Minimizing the environmental impact of burning the methane from the process in Serox drying.	Plant Manager	2023 the annual target is redefined from 33% to 25%.	

4. Objective: Improve the monitoring of energy consumption.		Related indicator: Number of installed to planned meters	Annual Target: Factory specific
Measures	Responsible	Course	
Implement new monitoring concept in Lünen	Energy Efficiency Manager	2023 Project is in the commercial phase. It will continue in 2023	

5. Objective: Reduction of specific energy consumption		Associated indicator: 7 kWh/t	Target: 5% reduction based on the year 2015
Measures	Responsible	Course	
		2023	
Reduce steam consumption in Lünen by 10% compared with 2015 by replacing the brine tanks and optimizing the evaporation process.	Plant Manager	Continuation of the project in 2023	
Reduce gas consumption by Serox drying by means of methane from the process (dissolution / separation)	Project Manager	Continuation of the project 2023	

6. Objective: Improvement of soil and groundwater protection		Related indicator: N/A	Target: Elimination
Measures	Responsible	Course	
		2023	
Two cesspools are modified	Plant Manager	Project postponed until 2023.	

5. Environmental Performance: facts and figures

5.1 Input and output: Tons of treated salt slag

Lünen

The environmental impact of our plants is largely dependent on the volume of salt slag and another aluminum-bearing waste put through. This volume has remained largely constant in Lünen over the past five years.

Hanover

In Hanover, a slightly higher volume was enforced in 2017 and 2018, and then in 2019 and 2020 the volume was back at the 2016 level.

As mentioned above, the Hanover plant was in operation in 2021 until November 5, when it was shut down due to the fire. For this reason, the production data are lower than in the other years. The data presented for the calculation of the indicators are not comparable with those of previous years. However, the specific indicator was calculated for comparison purposes.

Input salt slag and SPL	2016	2017	2018	2019	2020	2021
Hanover [t]	112.353	120.084	121.281	114.962	112.436	94.937
Lünen [t]	163.375	164.950	163.026	163.110	160.648	155.368

OUTPUT 2021

Products	Hanover	Lünen	Unit
Resal	28.433	55.708	t
Serox	51.856	77.416	t
Aluminum	9.292	12.055	t
Ammonium sulfate crystalline	-	12.097	t
Ammonium sulfate solution	5.877	-	t
Condensate recirculation	-	60.914	m ³

5.2 Air pollution

Processing of the salt slag produces dusts (salt slag dusts) and gases (hydrogen, methane, ammonia, phosphine, hydrogen sulfide). Identical waste gas purification equipment is installed in both Lünen and Hannover. At both sites, dusts are separated in bag filter systems and gaseous impurities are separated in a central multi-stage waste gas purification system. The waste is disposed of in accordance with regulations.

The capacity of the bag filter systems is up to 120,000 m³ / h each. The separated dusts are returned to the process. The clean gas side (stack) is monitored at both sites with the aid of continuous dust measuring equipment. This proved that the limit value was complied with at both sites during the reporting period.

For quality assurance purposes, the measuring equipment is serviced and checked twice a year by the equipment manufacturer. In Lünen, annual functional tests and calibrations are also carried out every three years by approved experts in accordance with official regulations. There is no such order in Hanover. The gases produced are fed into an efficient central gas purification plant. The collection and mixing of the individual waste gas streams are designed in such a way that the hydrogen and methane concentrations are always below the lower explosion limit.

The emission of methane takes place in compliance with the specifications of the responsible authorities. In order to further reduce the impact on the environment and climate in the long term, the company will work on the development of technical solutions in line with the formulated environmental targets. Ammonia is washed out with sulfuric acid to produce an ammonium sulfate solution. In Lünen, this solution is further dried to form ammonium sulfate crystals. Phosphine and hydrogen sulfide are separated in activated carbon filters. Gas concentrations are continuously measured and monitored on both the raw gas and clean gas sides. The limits for phosphine and hydrogen sulfide are always undercut.

As a result of diffuse ammonia emissions inside and outside the production facilities, ammonia perceptions are possible. Repeated ammonia measurements at the Lünen plant have shown that the occupational exposure limit (OEL) of 20 ppm is safely complied with.

Lünen

The emission sources in Lünen are:

- Emission source Q 1 + 2: Dry area / dust removal
- Emission source Q 3: Dissolving silo / dust collection
- Emission source Q 5: Wet area / central exhaust gas purification
- Emission source Q 7: Emergency exhaust
- Emission source Q 8: Serox drying
- Emission source Q 9: Spate silo

For the Lünen site, the Arnsberg district government has partially redefined the emission limits in accordance with the new TALuft of August 18, 2021 by means of a subsequent order dated July 18, 2022. The dust limit value at sources 1/2 and 5 was reduced from 10 mg/m³ to 5 mg/m³ and the limit value for total carbon was increased from 20 mg/m³ to 50 mg/m³. In addition, measurements will be required at 1-year intervals in the future. There is still no obligation to measure for sources 7 and 9, and the other limit values have also not been changed.

Current measurements were carried out on 18.10.2022 (Q1+2), 19.10.2022 (Q5) and 20.10.2022 (Q3). Initial measurements on the serox dryer were initially planned for December 2021, but they did not yield any reliable results because stable operation could not yet be achieved.

The emission limit values as well as the results of the measurements can be seen in detail in the following table, whereby the concentrations shown here refer to the average value of the individual measurements from the year 2019.

Air pollution measurements

EMISSION SOURCE 1 + 2: Dry area

Measured component Unit	Concentration	Limit value
Total carbon content [mg/m ³]	6,7	20
Dust [mg/m ³]	1,125	5

EMISSION SOURCE 3: Verlösergut silo

Measured component Unit	Concentration	Limit value
Total carbon content [mg/m ³]	12,5	20
Dust [mg/m ³]	0,77	5

EMISSION SOURCE 5: Wet area

Measured component Unit	Concentration	Limit value
Total carbon content* [mg/m ³]	2,697	*50
Dust [mg/m ³]	0,3	10
Hydrogen chloride [mg/m ³]	0,1	20
Hydrogen sulfide [mg/m ³]	<0.02	0.1
Ammonia [mg/m ³]	2,5	10
Hydrogen phosphide [mg/m ³]	<0.06	0.1
Odorants [GE/m ³]	160	500

Both the new dust limit value at sources 1/2 and 3 and the other limit values were complied with, with the exception of the total carbon content. In view of the known fact that the total carbon content at source 5 cannot be complied with due to the system, a deadline of 30.06.2023 was granted for this, which can be extended by 6 months upon justified application.

The planning of an additional cleaning stage for the reduction of the total carbon content has been resumed, considering the findings to date. The aim is to meet the deadline.

Hanover

In Hanover, as a result of complaints from neighbors and in agreement with the trade supervisory authority, an investigation was initially carried out in 2016 by an approved measuring institute which, using an indirect method (calculation of odor frequency based on ammonia measurements in the vicinity of the plant), showed compliance with the limits of the German Odor Immission Directive (GIRL). In 2019, a renewed investigation was then carried out with direct odor measurements by test persons, which revealed that the GIRL limits were exceeded in some places. This resulted in the need for odor mitigation measures, which are now planned as part of the Seroxhalle closure project.

The Serox hall is completely closed and the air is continuously extracted from the hall. The hall exhaust is sectoral; for this purpose, two boxes are set up in the storage area of the wet Serox material and covered with plastic hoods. Both exhaust systems are combined in one main collector. Two fans for the Serox hall exhaust will be installed in the ammonium sulfate hall. These will be installed inside a soundproof booth. Gas scrubbing equipment will also be installed in the hall, including two scrubbers and associated metering and circulating pumps. Ammonia is scrubbed with sulfuric acid to produce an ammonium sulfate solution. Implementation of the project began in 2021 and was interrupted due to the fire. In 2022, the gas treatment system will be rebuilt and the serox hall will be closed. Commissioning is scheduled for early 2023.

The emission sources in Hanover after the last revision of the environmental permit in April 2022 are:

- Emission source E 1: Dry area / dust extraction
- Emission source E 2: Wet area / central waste gas purification
- Emission source E 3: Boiler 1
- Emission source E 4: Boiler 2
- Emission source E 5: Exhaust air Seroxhalle (new)

Emission limits are specified in the operating permits. Inspections by an approved measuring institute have so far been required every 3 years. New emission values have so far only been discussed in a hearing in accordance with § 28 of the Administrative Procedure Act; a subsequent order is expected in the short term. Measurements in Hanover were planned for 2022 but could not be carried out due to the decommissioning of the plant.

Air pollution measurements

EMISSION SOURCE 1: Dry area

Measured component		UnitConcentration	Limit value
Dust	[mg/m ³]	0,5	10

EMISSION SOURCE 2: Wet area

Measured component		UnitConcentration	Limit value
Nitrogen oxides as NO ₂	[g/m ³]	<0,01	0,35
Dust	[mg/m ³]	<0,5	10
Ammonia	[mg/m ³]	0,2	20
Total carbon content*	[mg/ m ³]	10.3** / 8.1***	20
Methane	[mg/m ³]	2179,7	—****
Hydrogen sulfide	[mg/m ³]	<0,2	3
Hydrogen phosphide	[mg/m ³]	<0,03	0,5

EMISSION SOURCE 3: Boiler 1

Measured component		UnitConcentration	Limit value
Carbon monoxide	[mg/m ³]	0,4	50
Nitrogen oxides as NO ₂	[g/m ³]	0,071	0,11

EMISSION SOURCE 4: Boiler 2

Measured component		UnitConcentration	Limit value
Carbon monoxide	[mg/m ³]	0,1	50
Nitrogen oxides as NO ₂	[g/m ³]	0,083	0,11

* In Hanover, this measured value does not include the methane content.

** VDI 3481 Bl. 4

***VDI 3481 sheet 2

****Es, no limit value for the emission of methane has been specified by the competent authority.

The concentrations given refer to the most recent measurements in each case. In 2019, the sources E1, E3 and E4 were measured. For the source E2 another measurement was made in 2020



5.3 Noise and vibrations

The machines and equipment used for processing the salt slag, as well as the exhaust fans, generate noise. To reduce noise pollution, individual machines are equipped with sound-insulating hoods and structural engineering solutions have been found for sound insulation. In addition, the plants are housed in enclosed buildings so that potential noise sources are shielded.

The noise emission values to be complied with in the surrounding area in accordance with TA noise are specified in the permits for the Hanover and Lunen sites. In Hannover, the TA noise values apply, i.e. 70 dB(A) in the neighboring industrial area and 55 dB(A) during the day and 40 dB(A) at night directly in the general residential areas to the north and south. Proof that the values are complied with was provided by expert opinions in the course of earlier approval procedures.

In the course of the notification pursuant to § 15 BImSchG for the closure of the Serox hall and the construction of an exhaust air purification system in the ASL hall, the proportional noise emission values were determined by an expert as follows:

No.	Designation	Immission guide values IRW according to TA Lärm in dB(A)		Rating level LF Serox and ASL Hall in dB(A)	
		Daytime	Night time	Daytime	Night time
IO 01	Wendehagen 27	50	35	24	21
IO 02	Heinrich-Heine-Strasse 50	55	40	26	23
IO 03	Max Müller Street 12	70	70	40	40
IO 04	Uhlandstrasse 1	50	35	24	20
IO 05	Hartung Street 45	50	35	22	19
IO 06	Friedenauer Street 51	50	35	27	24

Accordingly, the emission guide values of the TA Lärm are undercut by at least 23 dB during the day and by at least 11 dB during the night, so that the project-related additional loads are irrelevant.

In Lünen, the noise quotas of the individual plants of the Lippe Plant, i.e. also Remondis, are divided in such a way that each individual plant must fall below the values of TA Lärm by 10 dB(A).

After implementation of noise reduction measures, i.e. installation of additional silencers in the exhaust pipes of the mechanical treatment (2020) and the wet section (May 2021), proof was provided that the requirements were met. The following rating levels were determined by an expert:

No.	Designation	Immission guide values IRW according to TA Lärm in dB(A)		Rating level LF Befesa total in dB(A)	
		Daytime	Night time	Daytime	Night time
IO 01	Heinrich-Imbusch-Strasse 21	55	40	30	24
IO 02	Heinrich Imbusch Square 14	55	40	32	25
IO 03	Mountain Garden	55	40	31	25
IO 04	At the meadow slope 24	55	40	31	24
IO 05	Am Lünener Brunnen 1	60	45	34	32
IO 06	Fountain road 95	60	45	34	31
IO 07	In the spirit 64	50	35	24	18
IO 10	Wilbringen Castle	60	45	27	24
IO 11	Lünener street 490	60	45	28	25
IO 14	Ear path	55	40	28	22
IO 15	Harvest Trail	50	35	28	22
IO 16	Castle avenue 20	60	45	37	35
IO 17	Allotment garden site "Green island"	55	./.	33	./.

Accordingly, the requirements are now met at all emission locations.

Plant components that can lead to vibrations (e.g. primary crusher, rod mill) are installed on anti-vibration foundations at both locations.

Nevertheless, there were vibrations in Hannover at the end of 2018 that affected the immediate neighborhood. Vibration investigations carried out by a specialist institute at the beginning of 2019 revealed that the "reference values" in accordance with DIN 4150 T2 were exceeded for the nighttime hours. Since June 2019, the grinding plant has therefore not been operated at night.

The recommendations of the expert commissioned by Befesa could not be implemented at first because they required a shutdown of several months. Now, the downtime caused by the fire has been used to redesign the foundation and renew springs and dampers in an adapted form. After completion of the work, a new vibration survey will be carried out.

5.4 Water

Water consumption

The water requirements at both sites are mainly covered by process water. In Hanover, water is taken from the channel and treated for this purpose; in Lünen, service water is obtained from Remondis, i.e. from the Lippe Plant network.

Hanover

Water consumption	Unit	Consumption 2021	Limit
Sewer water	[m ³ / a]	122.15	200.000
Potable water	[m ³ /a]	5.067	N/A

Lünen

Water consumption	Unit	Consumption 2021	Limit
Service water	[m ³ /a]	118.720	N/A
Potable water	[m ³ /a]	14.633	N/A

Waste water

Sanitary wastewater and surface water are generated at both sites. In Hanover, they are discharged into the municipal wastewater network and in Lünen into the Remondis plant sewer system.

In addition, the Hanover plant produces blowdown water from cleaning the water softening systems and cooling towers. This wastewater is discharged into the public sewer system in accordance with the valid permit. All discharge limits are complied with and significantly undercut.

In Lünen, the cooling tower blowdown water is treated in-house and finds further use as process water.

Hanover

	Unit	Waste water quantity 2021	Limit value
Wastewater (blowdown water)	[m ³ /a]	34.989	45.000

Lünen

Wastewater is recirculated. (see chapter on water consumption in Lünen)

5.5 Waste

Hanover

	Unit	Waste quantity 2021	Limit value
Total waste	[t/a]	1.710	N/A
- Hazardous waste	[t/a]	104	N/A
- Non-hazardous waste	[t/a]	1.605	N/A

With regard to the waste from the Hanover site, it must be taken into account that the plant was taken out of operation in the course of the fire incident, so that no operational waste has been generated as of 05.11.2021.

Lunen

	UnitWaste	QuantityLimit 2021	
Total waste	[t/a]	996	N/A
- Hazardous waste	[t/a]	45	N/A
- Non-hazardous waste	[t/a]	950	N/A

For details, see KPI.

6. core indicators of environmental performance

6.1 Material efficiency

Material efficiency related to input and output	Hanover	Lunen	Unit
Input	94.937	155.368	t
Output	95.458	157.276	t
Material efficiency			
Input/ Output	0,995	0,988	t/t

When presenting the material efficiency for salt slag processing, it should be noted that the hazardous waste used is usually completely processed into products and no waste is generated. In both plants, the sum of the output is always greater than the input. This is due to the following reasons:

1. Reaction between aluminum and water to form aluminum oxide with the formation of hydrogen. Alumina is heavier than the pure aluminum, which leads to an increase in weight.
2. Higher and fluctuating moisture content of the products in the outputs compared to the very dry input. The output quantities are given as dry mass. However, due to the fluctuating moisture content, this information is subject to error.

As a result, the reported key figure for material efficiency is not very meaningful

6.2 Key performance indicators (KPI) related to input and

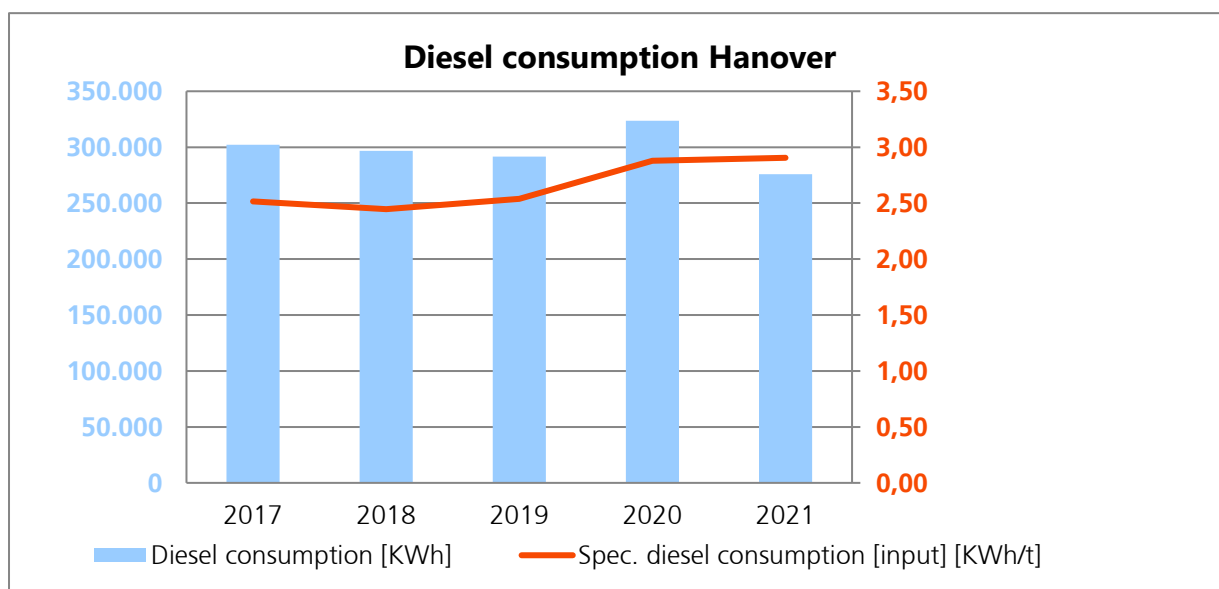
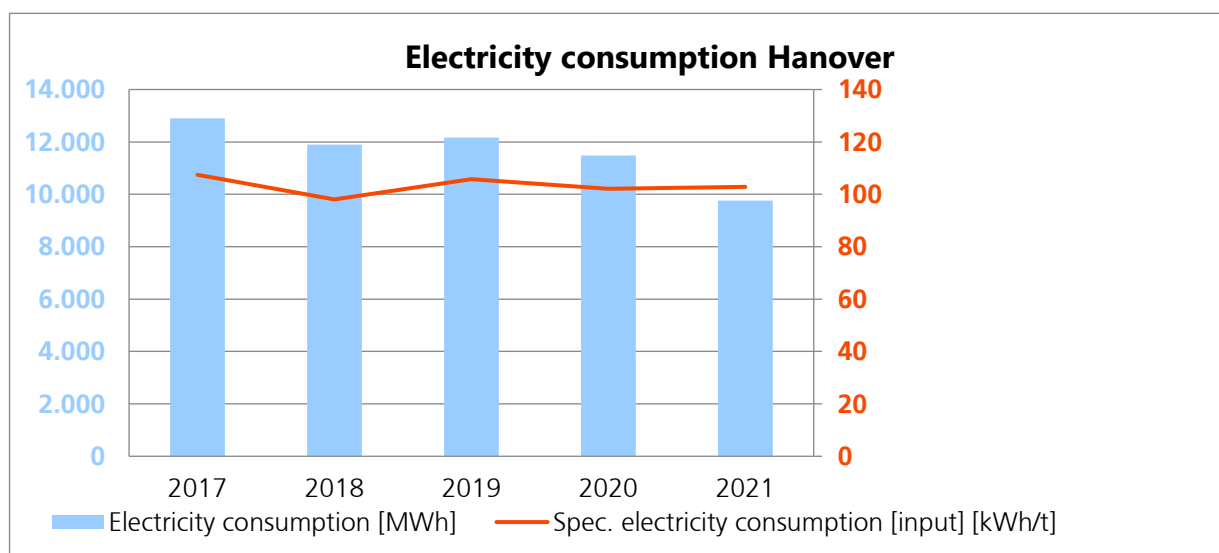
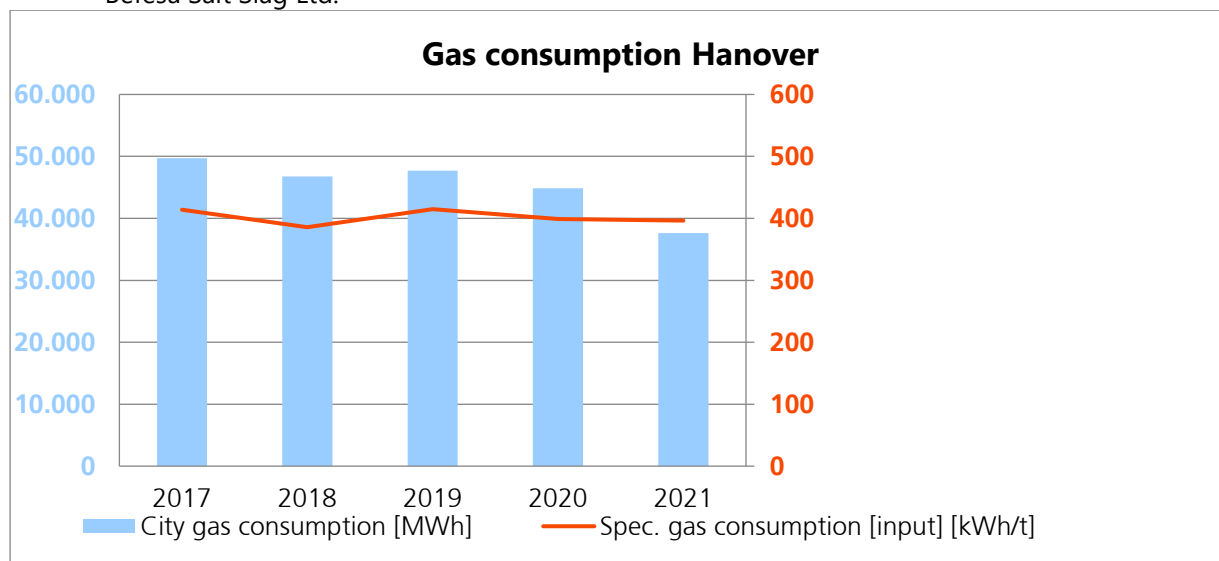
output energy

Energy consumption Hanover

The main energy consumers in Hanover are the evaporation crystallization plant, gas purification, and the grinding area. Renewable energy is not generated and is therefore not shown separately.

Higher electricity consumption is expected in 2023 due to the start-up of the Serox Hall gas extraction and processing system and ammonium sulfate production. A new baseline will be calculated.

Hanover	2017	2018	2019	2020	2021
Task/ Input [t]	120.084	121.281	114.962	112.436	94.937
Output [t]	127.756	128.578	124.379	119.260	95.458
City gas consumption [MWh]	49.731	46.777	47.691	44.833	37.634
Spec. gas consumption [input] [kWh/t]	414,14	385,69	414,84	398,75	396,41
Spec. gas consumption [output] [kWh/t]	389,27	363,80	383,43	375,93	394,25
Electricity consumption [MWh]	12.901	11.892	12.167	11.477	9.764
Spec. electricity consumption [input] [kWh/t]	107,44	98,05	105,83	102,07	102,84
Spec. power consumption [output] [kWh/t]	100,98	92,49	97,82	96,23	102,28
Diesel consumption [KWh]	302.109	296.663	291.667	323.735	275.821
Spec. diesel consumption [input] [KWh/t]	2,52	2,45	2,54	2,88	2,91
Spec. diesel consumption [Output] [KWh/t]	2,36	2,31	2,34	2,71	2,89
Total energy consumption [MWh]	62.934	58.966	60.150	56.634	47.674
Spec. total energy consumption [Input] [KWh/t]	524,084	486,190	523,212	503,697	502,161
Spec. total energy consumption [output] [KWh/t]	492,612	458,598	483,599	474,875	499,422



The graphs refer to the input values

Gas consumption has been continuously reduced since 2016. Electricity consumption changed little. Diesel consumption, on the other hand, increased in 2021.

Regenerative Energies Hanover 2021

Total electricity consumption	[MWh]	9804
Thereof renewables*	[MWh].	4608
Renewables / Output	[KWh/t]	0,05

* the share of renewable energies is 47.1% according to Enercity ** value calculated by Enercity

Energy consumption Lünen

In Lünen, gas consumption has increased significantly since 2019 due to the operation of the Serox dryer. Electricity consumption, which had increased slightly in 2019, fell back to the level of 2016 to 2018 in 2020. Electricity consumption continued to decrease in 2021. Steam consumption decreased slightly in 2021, while diesel consumption increased slightly.

Lünen	Unit	2017	2018	2019	2020	2021
Task/Input	[t]	164.950	163.026	163.110	160.648	155.368
Output	[t]	170.143	171.123	163.508	166.682	157.276
Natural gas consumption	[MWh]	2.598	2.551	6.941	11.781	11.695
Spec. natural gas consumption	[kWh / t input]	15,14	15,65	42,55	73,33	75,27
Spec. natural gas consumption	[kWh / t output]	15,27	14,91	42,45	70,67	74,36
Power consumption	[MWh]	18.921	17.857	19.372	18.426	17.844**
Spec. power consumption	[kWh / t input]	110,22	109,53	118,80	114,70	114,96
Spec. power consumption	[kWh / t output]	111,21	104,35	101,07	109,36	113,56
Steam consumption*	[MWh]	60.227	58.337	58.105	58.739	56.150
Spec. steam consumption*	[MWh / t input]	0,37	0,36	0,36	0,37	0,36
Spec. steam consumption*	[MWh / t output]	0,35	0,34	0,36	0,35	0,36
Diesel consumption*	[MWh]	494,30	477,49	467,53	474,10	480,94
Spec. diesel consumption	[KWh / t input]	2,88	2,93	2,87	2,95	3,10
Spec. diesel consumption	[kWh / t output]	2,72	2,79	2,70	2,84	3,06
Total energy consumption	[MWh]	82.240	79.222	84.890,91	89.419,94	86.170
spec. total energy consumption input	[MWh/t input]	0,499	0,486	0,52	0,557	0,555
spec. total energy consumption output	[MWh/t output]	0,483	0,463	0,519	0,536	0,48

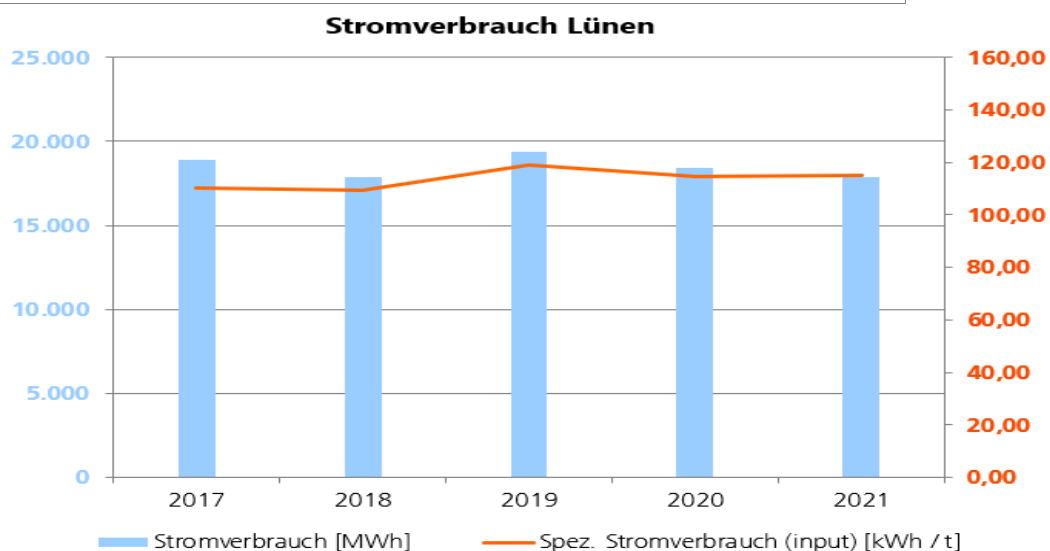
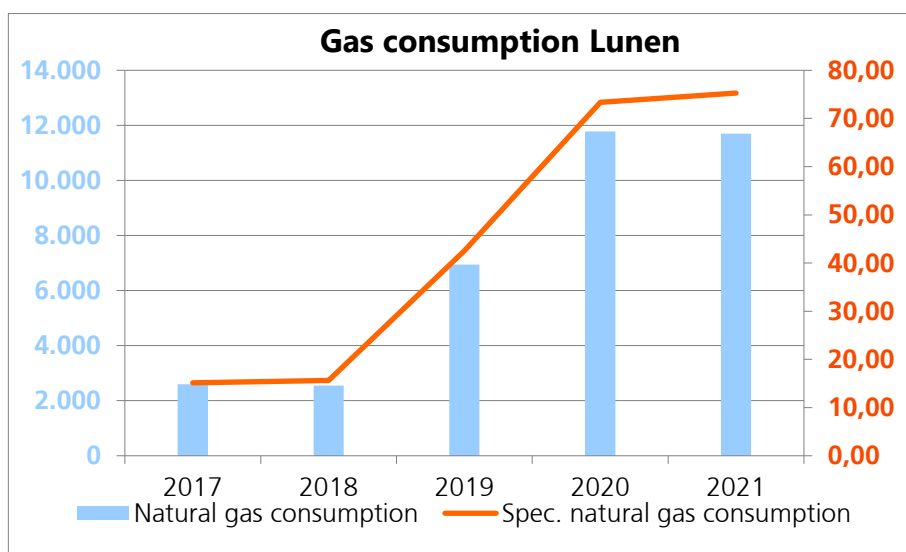
*The units were adjusted to the other units.

**External consumption of 16.382 kWh was deducted.

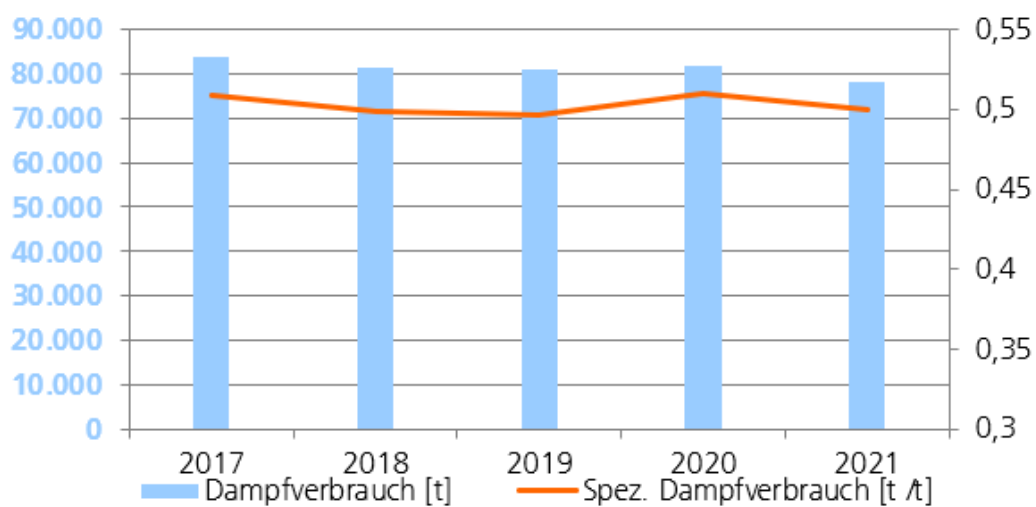
Renewable Energies Lünen

Total energy consumption (electricity) [MWh].	17.840
Thereof renewable energies* [MWh].	11.721
Of which renewables** [MWh]	2,605
Renewables / Output [MWh/t]	0,069
CO ₂ emissions specific** [g/kWh] ₂₀₄	
CO ₂ emissions [t]	4,883

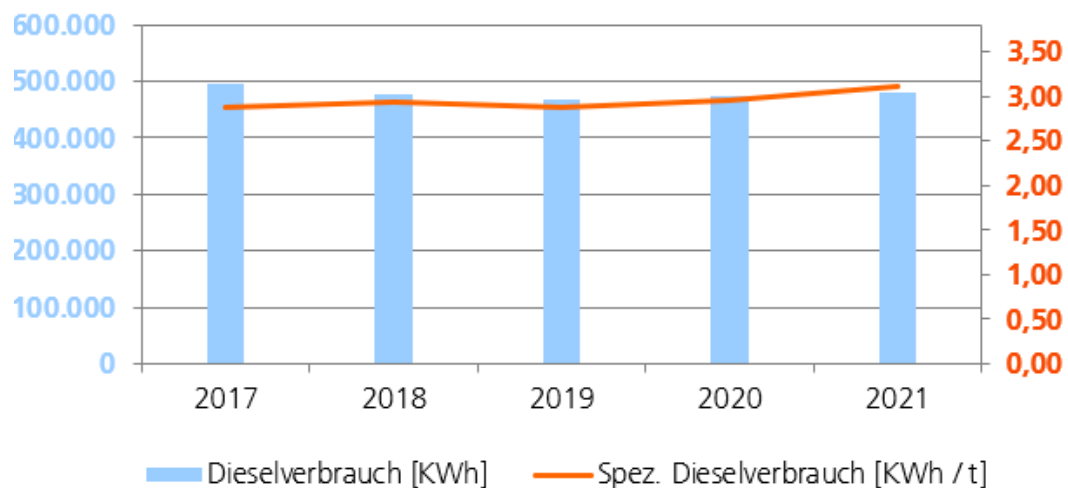
* with the calculation from 2021 (65.7% ** with the calculation from 2022 (14.6%)



Dampfverbrauch Lünen



Dieserverbrauch Lünen



The graphs refer to the input values

Auxiliary consumption

Various auxiliaries are used during the reprocessing process at both sites.

Lunen

In Lünen, the following changes have taken place over the past five years:

- The use of sulfuric acid was significantly reduced in 2020, slightly increased in 2021
- The use of fluorspar was continuously reduced until 2019, and a higher quantity was used again in 2020. The reason for this is the respective customer demand. In 2021, the amount of fluorspar used decreased slightly.
- The amount of caustic soda remained at a low level. Reason: In 2018, an excessive amount was consumed for cleaning purposes. In 2021, the quantity could be further reduced.
- The amount of flocculant remained in the variance range. In 2021, the use of flocculants was significantly reduced.
- Hydrochloric acid was not required in 2020, in contrast to previous years. Due to a technical inspection in 2019, a hydrochloric acid tank had to be completely emptied; since then, hydrochloric acid has no longer been used due to a process changeover.

Lunen	Units	2017	2018	2019	2020	2021
Sulfuric acid	[t]	7.817	8.993	9.231	8.021	8.387
Sulfuric acid spec. IN	[t/t]	0,047	0,055	0,056	0,050	0,054
Sulfuric acid spec. OUT	[t/t]	0,046	0,053	0,056	0,040	0,053
Fluorspar	[t]	330	208	183	325	292,3
Fluorspar spec. IN	[t/t]	0,002	0,001	0,001	0,002	0,002
Fluorspar spec. OUT	[t/t]	0,002	0,001	0,001	0,002	0,002
NaOH	[t]	197	405	170	170	150
NaOH spec. IN	[t/t]	0,001	0,002	0,001	0,001	0,001
NaOH spec. OUT	[t/t]	0,001	0,002	0,001	0,001	0,001
Flocculant	[t]	11,4	9,0	10,9	12,0	1,8
Flocculant spec. IN	[t/t]	0,0001	0,0001	0,0001	0,0001	0,0000
Flocculant spec. OUT	[t/t]	0,0001	0,0001	0,0001	0,0001	0,0000
HCl	[t]	10,4	24,5	61,0	0	0
HCl spec. IN	[t/t]	0,0001	0,0002	0,0004	0,0000	0,0000
HCl spec. OUT	[t/t]	0,0001	0,0001	0,0004	0,0000	0,0000

Hanover

In Hanover, auxiliary material consumption moved within the variance range until 2019. In 2021, the specific consumption of auxiliary materials was the same as the value determined for 2020. The two materials for which consumption increased are fluorspar and hydrochloric acid. The quantity of fluorspar depends on the quality requirements of the respective customer, and hydrochloric acid depends on the reactivity of the hydrochloric slag introduced into the process.

Hanover		2017	2018	2019	2020	2021
Sulfuric acid	[t]	9104	8124	8200	7192	5829
Sulfuric acid spec.	[t/t]	0,080	0,070	0,071	0,064	0,061
[Input]						
Sulfuric acid spec.	[t/t]	0,071	0,063	0,066	0,060	0,061
[Output]						
Fluorspar	[t]	569	659	559	382	399
Fluorspar spec [input].	[t/t]	0,005	0,005	0,005	0,003	0,004
Fluorspar spec.	[t/t]	0,004	0,005	0,004	0,003	0,004
[Output]						
Caustic soda	[t]	614	730	839	532	497
Caustic soda spec.	[t/t]	0,005	0,006	0,007	0,005	0,005
[Input]						
Caustic soda spec.	[t/t]	0,0048	0,0057	0,007	0,004	0,0050
[Output]						
Flocculant	[t]	7,16	7,60	6,78	6,40	5,10
Flocculant spec.	[t/t]	0,00000	0,00000	0,00006	0,00006	0,00005
[Input]						
Flocculant spec.	[t/t]	0,000056	0,000059	0,00005	0,00005	0,00005
[Output]						
Hydrochloric acid	[t]	341	462	414	283	353
Hydrochloric acid spec.	[t/t]	0,003	0,004	0,004	0,003	0,004
Hydrochloric acid spec.	[t/t]	0,0027	0,0036	0,0033	0,0024	0,003
[Output]						

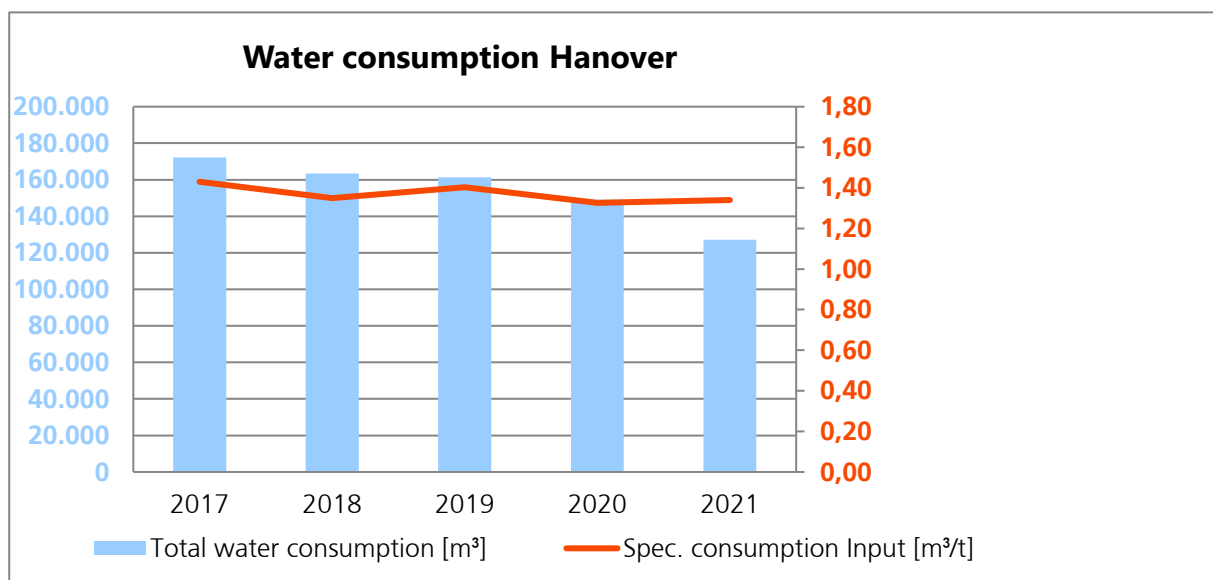
Water

Substantial quantities of water are required for production at both sites. This consumption is largely not covered by drinking water, but by process water in Lünen and canal water in Hannover.

Water consumption Hanover

In Hanover, water is primarily supplied by drawing canal water (service water), while smaller quantities were drawn from the public network (drinking water). Service water use has been continuously reduced, as has drinking water use since 2017. Specific water consumption, on the other hand, has changed only slightly.

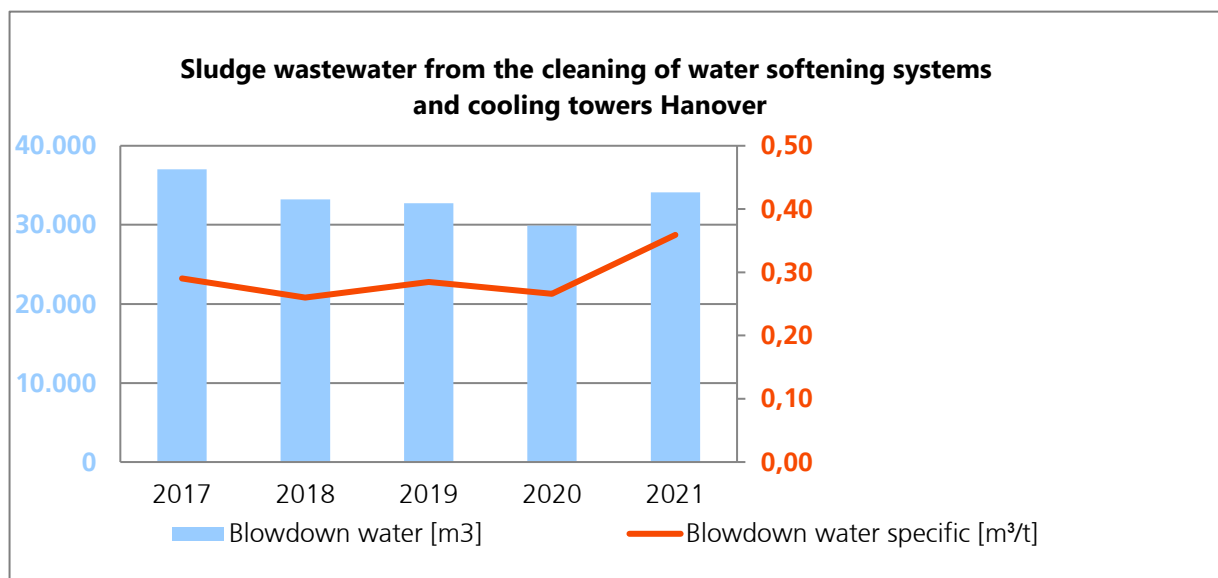
Hanover		2017	2018	2019	2020	2021
Task/ Input	[t]	120.084	121.281	114.962	112.426	94.937
Service water use	[m] ³	166.314	158.612	156.574	144.709	122.156
Drinking water use	[m] ³	5.878	5.242	4.725	4.399	5.068
Total water consumption	[m] ³	172.192	163.349	161.299	149.108	127.224
Spec. consumption [input]	[m ³ /t]	1,43	1,35	1,40	1,33	1,34
Spec. consumption [Output]	[m ³ /t]	1,35	1,27	1,30	1,25	1,33



The graph refers to the input values

Waste water Hanover

Hanover		2017	2018	2019	2020	2021
Input	[t]	120.084	121.281	114.962	112.426	94.937
Sanitary wastewater	[m] ³	1.141	1.228	1.029	1.270	897
Sanitary wastewater specific [Input]	[m ³ /t]	0,009	0,01	0,01	0,01	0,01
Sanitary wastewater specific [Output]	[m ³ /t]	0,009	0,01	0,008	0,011	0,009
Sludge wastewater	[m] ³	37.011	33.228	32.712	28.628	34.092
Sludge wastewater specific [Input]	[m ³ /t]	0,29	0,26	0,28	0,25	0,36
Sludge wastewater specific [Output]	[m ³ /t]	0,29	0,26	0,26	0,27	0,36



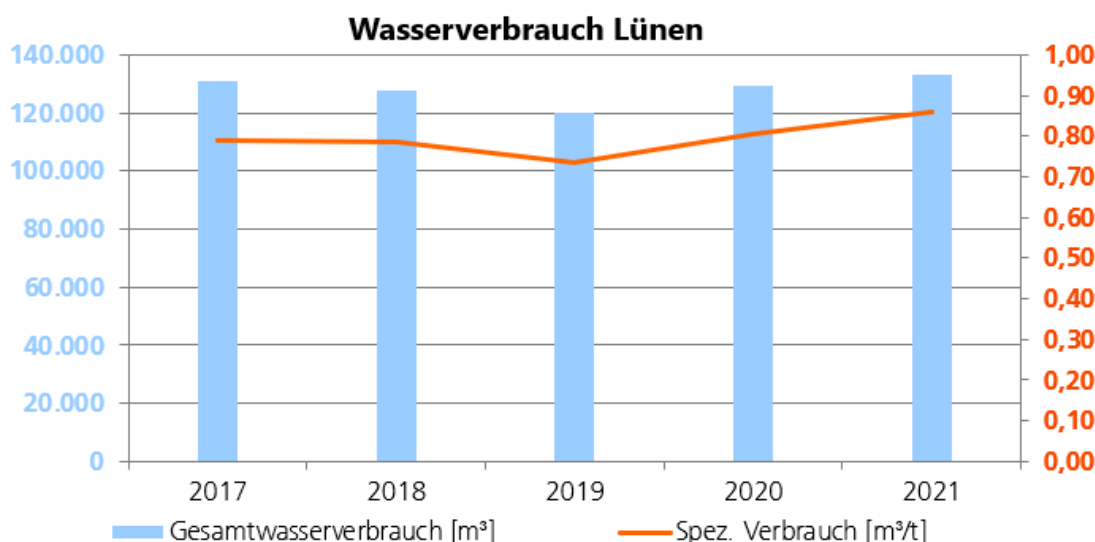
The graph refers to the input values

The amount of blowdown water in Hanover has increased compared to 2020 because the sludge production is controlled by conductivity. In 2021, the conductivity of the channel water used was increased, as a result of which more sludge was produced.

Water consumption Lünen

At the Lünen site, water is supplied from the Remondis plant network, with service water also being used primarily here. While water consumption (process water, total water and specific consumption) was significantly reduced in 2019, the volumes in 2020 have risen again to the level of previous years. Water consumption also continued to rise in 2021.

Water	Unit	2017	2018	2019	2020	2021
Input	[t]	164.950	163.026	163.110	160.648	155.368
Output	[t]	170.143	171.123	163.508	166.682	157.276
Service water use	[m ³]	115.649	114.660	103.712	115.282	118.720
Drinking water use	[m ³]	15.409	13.108	16.245	14.112	14.633
Total water consumption	[m³]	131.058	127.768	119.957	129.395	133.353
Spec. consumption input	[m ³ /t]	0,79	0,78	0,74	0,81	0,86
Spec. consumption output	[m ³ /t]	0,77	0,75	0,68	0,78	0,85



The graph refers to the input values

Water	Unit	2017	2018	2019	2020	2021
Sanitary wastewater	[m ³]	1.289	1.025	1073	845	1273
Sanitary wastewater specific IN	[m ³ /t]	0,0078	0,0063	0,0066	0,0053	0,0082
Sanitary wastewater specific OUT	[m ³ /t]	0,0076	0,0060	0,0066	0,0050	0,0081

Waste

Befesa Salzschlacke GmbH regularly produces waste in the form of:

- used activated carbon from the gas purification adsorbers
- waste oils and greases from the machines
- Packaging and pallet materials
- household and other industrial waste
- Metal scrap

Furthermore, in Lünen, depending on the market situation, i.e. when the full amount of Serox produced cannot be sold, part of the toner residue is deposited at the Remondis landfill site. For this reason, the total amount of waste generated at the Lünen site is significantly influenced by the amount of toner residue landfilled.

Another component of the total waste that is significant in terms of volume is scrap, which is classified as waste despite the proceeds from its sale. Since 2020, the waste code numbers have been differentiated in dialog with the customers, i.e. a distinction is made between construction and demolition waste and waste from mechanical treatment; in addition, the customer in Hanover classified the VA scrap differently from the customer in Lünen.

Waste is labeled and collected separately at both sites. The waste collection points are identified. Employees are regularly informed about the plant's internal waste separation. Data relating to the type, quantity and sources of waste are compiled in the waste balances and the output analyses compiled annually.

In Hanover, a smaller amount of production-specific waste was generated as a result of the fire incident, e.g. Fe scrap from mechanical treatment. Instead, fire-specific waste was disposed of, e.g. extinguishing water. The comparatively high volume of hazardous waste resulted from the disposal of sulfuric acid which was contaminated due to an oversight by the supplier.

In Lünen, serox production was fully sold in 2021, so the total volume was relatively low.

As in previous years, the significantly lower volume of metal scrap in Lünen is attributable to the supplier-related iron content of the salt slag.

Waste Hanover

(t/year)	Waste key	Hazardous waste	2017	2018	2019	2020	2021	Disposal method
Contaminated sulfuric acid	06 01 01*	yes	-	-	-	-	68,7	D13
Used activated carbon	06 13 02*	yes	58,9	24,6	26,4	41,2	23,7	R4
Paint and varnish waste	08 01 11*	yes	0,3	0,4	0,2	-	0,1	D13
Used waxes and greases	12 01 12*	yes	1,8	0,9	1,8	2,7	2,6	D13
Waste oil	13 02 05*	yes	1,9	-	1,0	2,9	2,7	R12
Solvent residues	14 06 03*	yes	-	-	-	0,2	0,2	R12
Wood packaging	15 01 03	no	15,8	7,6	-	-	1,3	R11
Construction & demolition timber	17 02 01	no	-	5,0	6,4	20,7	13,7	R11
Mixed packaging	15 01 06	no	27,6	27,0	31,4	31,1	18,6	R11
IBCs from sulfuric acid contamination	15 01 10*	yes	-	-	-	-	4,9	D10
Waste containing oil	15 02 02*	yes	2,5	0,6	1,3	0,8	0,9	D13
Filter bags	15 02 03	no	-	-	-	-	2,9	D10
Plastics	16 01 19	no	-	-	-	-	0,2	D10
E-scrap group 5	16 02 14	no	-	-	-	1,0	0,7	R4
Cu-E engine scrap	16 02 16	no	-	-	-	0,1	0,4	R4
Extinguishing water	16 10 02	no	-	-	-	-	346,3	D9
E-scrap	20 01 36	no	-	-	1,6	-	-	R4
Mixed waste	17 02 04*	yes	-	-	-	-	0,4	R13
Fe scrap / construction and demolition	17 04 05	no	-	-	-	186,0	153,2	R4
Fe scrap / mechanical treatment	19 12 02	no	2.136,6	1.289,2	1.417,8	1.212,7	919,2	R4
VA scrap / construction...	17 04 07	no	-	-	-	59,0	7,4	R4
VA scrap / mech...	19 12 03	no	-	-	-	9,5	74,4	R4
Cable scrap	17 04 11	no	-	-	-	0,8	0,7	R4
Insulation material dangerous	17 06 03*	yes	0,1	-	-	0,4	-	D1
Insulating material not dangerous	17 06 04	no	-	-	-	-	0,2	D1
Construction waste	17 09 04	no	-	-	2,5	5,6	11,0	R
Paper, cardboard	20 01 01	no	-	-	5,7	5,2	5,3	R3
Fluorescent lamps	20 01 21*	yes	0,1	-	0,1	-	0,1	R11
Green waste	20 02 01	no	-	-	-	0,3	-	R
mixed waste	20 03 01	no	52,0	52,0	52,0	52,9	50,0	D10
Total waste [t] :			2.297,5	1.407,3	1.548,2	1.633,0	1.709,8	
Total waste / t throughput [t/t]:			0,019	0,012	0,014	0,015	0,018	
Hazardous waste [t]:			65,6	26,4	30,8	48,2	104,4	
Non-hazardous waste [t]:			2.231,9	1.375,8	1.517,4	1.584,9	1.605,4	

Waste Lunen (t/year)	Waste key	Hazardous waste	2017	2018	2019	2020	2021	Disposal method
Used activated carbon	06 13 02*	yes	48,3	44,4	49,9	43,7	42,7	R4
Toner residue	10 03 99	no	11.876	0	9.650	17.261	0	D1
Used waxes and greases	12 01 12*	yes	0	0	2,3	1,9	0,9	R12
Blasting media residues	12 01 17	no	0	0	0	0	6,26	R5
Waste oil	13 02 05*	yes	0	0	3,2	0,9	0,4	R9
Paper, cardboard	15 01 01	no	9,4	9,4	6,3	6,8	6,5	R3
Wood packaging	15 01 03	no	7,7	11,7	17,6	10,2	8,6	R1
Construction & demolition timber	17 02 01	no	0	0	0	4,3	3,7	R
Plastic and rubber	17 02 03	no	0	0	0	0	0,1	R
Mixed packaging	15 01 06	no	76,4	66,4	108,4	106,2	109,4	R1
Plastic diaphragms	15 01 10*	yes	0	1,9	0,1	0	0	R12
Waste containing oil	15 02 02*	yes	1,6	0,7	0	0	1,1	D13
Filter bags	15 02 03	no	0	0	0	0	1,97	R12
Rubber waste	16 01 03	no	1,6	0	0	0	0	R3
Concrete, brick	17 01 07	no	0	0	0	0	38,8	D1
Construction waste from AWsV repairs	17 03 02	no	0	0	0	75,8	26,9	R
Aluminum scrap	17 04 02	no	0	0	0	0	0,5	R4
Fe scrap	17 04 05	no	0	0	0	72,5	248,5	R4
Fe scrap	19 12 02	no	810,6	251,6	669,0	285,3	456,7	R4
Cable scrap	17 04 11	no	0	0	0,6	0	0	R4
Insulation material	17 06 04	no	0	0	0,4	0	0	D1
GRP waste (2 brine tanks)	17 09 04	no	0	0	13,8	0	0	R1
Construction waste	17 09 04	no	0	0	4,5	11,7	21,0	R
Fluorescent lamps	20 01 21*	yes	0	0,2	0,02	0,15	0,2	R12
Batteries	20 01 33*	yes	0	0	0,1	0	0	R12
mixed waste	20 03 01	no	0	0	0	12,8	1,18	R
Fecal sludge	20 03 04	no	0	0	0	1,0	20	D
Total waste [t]:			12.832	386	10.526	17.894	996	
Total waste / t throughput [t/t]:			0,078	0,002	0,065	0,111	0,0064	
Hazardous waste [t]:			51,7	45,3	55,6	46,7	45,3	
Non-hazardous waste [t]:			12.780	341	10.470	17.848	950	

According to the Commercial Waste Ordinance, waste producers have been obliged since 01.08.2017 to collect commercial municipal waste such as paper, plastics, glass, metals, wood, etc. as well as construction waste separately, insofar as this is technically possible and economically reasonable. To prove this, documentation must be prepared, and the separate collection rate determined, whereby for 2017 the periods May to July and August to December were to be considered. From 2018 onwards, annual evaluations are to be carried out.

In Lünen, construction waste, which was previously included in the overall balance, has been collected separately since 2019, while in Hannover this has been done since 2020. In this respect, the evaluation of the quantities is currently only possible to a limited extent. The higher separate collection rate in Hannover is mainly due to higher scrap volumes.

The mixtures collected as a separate fraction in the commercial municipal waste are sorted by the respective disposal companies in both Lünen and Hannover, so that this proportion is also recycled as far as possible. Corresponding declarations by the disposal companies are available.

Waste Hannover	2017 May- Jul	2017 Aug- Dec	2018 total	2019 total	2020 total	2021 total
Total commercial municipal waste (t):	878,2	296,4	1375,8	1462,9	1281,6	1033,8
of which collected separately (t)	856,3	270,1	1296,9	1431,5	1249,5	1015,2
thereof mixtures (t)	21,94	26,37	78,98	31,38	32,1	18,62
Separate collection rate (%)	97,5	91,1	94,3	97,85	97,5	98,2
Total construction waste (t):	in above-mentioned settlement-				251,3	171,5
of which collected separately (t)	waste contained				245,7	161,4
thereof mixtures (t)					5,6	10,2
Separate collection rate (%)					97,8	94,1
Waste Lunen	2017 May- Jul	2017 Aug- Dec	2018 total	2019 total	2020 total	2021 total
Total commercial municipal waste (t):	399,3	67,5	261,2	794,5	408,4	601,22
of which collected separately (t)	381,3	34,3	194,8	686,2	302,3	491,79
thereof mixtures (t)	18	33,2	66,4	108,4	106,2	109,43
Separate collection rate (%)	95,5	50,8	74,6	86,4	74,0	81,8
Total construction waste (t): in above-mentioned settlement			25,6	177,1	340,8
of which collected separately (t)	waste contained			21,1	152,6	279,7
thereof mixtures (t)				4,5	24,5	61,02
Separate collection rate (%)				82,4	86,1	82,1

Biodiversity

Our Hannover site is not located near any areas with special nature conservation status. The nearest nature reserve is the Bissendorfer Moor at approx. 9 km. The nearest open body of water is the middle channel.

The Lünen plant is located within 500 m of the Lippe River and 1000 m of the Datteln-Hamm Canal. The Lippe River has ecological significance and is designated in sections as a nature reserve. The Lünen site is close to a flora and fauna habitat conservation area (established by Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) and hunting grounds.

Both plants were designed in the course of construction to prevent any leakage or penetration of process substances into the soil and water bodies in the operating areas. There are no open areas at either site that could be designed in a near-natural manner.

Land consumption (unchanged in recent years, insofar as no individual values from 2017, until 2021) in relation to biodiversity is as follows:

Hanover location:

Total operating area	25.380 m ²
Total operating area spec. [input]	0,27m ² / t input
Total operating area spec. [output]	0,26 m ² / t output
Of which sealed or built-over areas	22.500 m ²
Of which sealed or built-over areas spec. [input]	0,24 m ² / t input
Of which sealed or built-over areas spec. [output]	0,24 m ² / t output
Total near-natural area at the site	None
Total near-natural area off site	None

Lünen location:

Total operating area	34.800 m ²
Total operating area specific [input]	0,23 m ² / t input
Total operating area specific [output]	0,22 m ² / t output
Of which sealed surfaces	8.000 m ²

Of which sealed surfaces/tn	0,05 m ² / t input
Of which built over	26.800 m ²
Of which built-over areas/tn	0,17 m ² / t input
Total near-natural area at the site	None
Total near-natural area off site	None

Soil and groundwater protection / Handling of substances hazardous to water

The aluminum salt slag delivered for processing is stored in closed buildings at both sites. The floors are sealed with concrete and, where necessary, with special tiles. The operating surfaces of the wet area are additionally sealed with mastic asphalt, and in some cases also with special tiles. Thus, there is no danger to the groundwater.

The Lünen site is located 500 m from the Lippe River on the site of the former VAW Lippe Plant (now: Remondis GmbH). The site is protected from flooding by dike structures along the Lippe River.

The Hanover site is located at a distance of 200 m from the middle channel, whose water level is kept constant by the operator of the canal, so that flooding is also ruled out here.

Hazardous substances are stored in specially designed operating areas and protected from leakage by catch basins or double-walled tanks. Oil binding agents are available in sufficient quantities. Technical and organizational safety precautions are in place for hazardous substances.

As already explained in chapter 7 "Compliance with legal requirements", the implementation of the AwSV (German abbreviation for facilities for handling substances hazardous to water) amended in 2017 required considerable activities in subareas of Befesa in recent years. In order to process these systematically, the existing AwSV cadastre was revised to AwSV plant documentation with the scope required by § 43. Furthermore, all facilities or sub-facilities identified in this process were inspected by an expert within the meaning of § 70 in order to determine the status independently of previous inspections and to define future inspection obligations.

7. compliance with legal requirements

The plant managers of Befesa Salzschlacke Hannover and Lünen are responsible for compliance with environmental protection regulations. They ensure that the requirements for the environmental management system comply with the ISO 14001 and EMAS standards as well as with the legal requirements and the environmental permit.

As part of the environmental management system, Befesa, in cooperation with consulting companies, monitors changes in legal requirements, examines their impact on the various areas of the company and controls the legally compliant operation of the facilities.

Binding obligations are recorded and evaluated in our legal register, measures and responsibilities are defined and communicated within the company, and their effectiveness is monitored.

The main legal provisions that Befesa must consider to ensure compliance with its legal obligations in the environmental field are:

Immission control law

- **Federal Immission Control Act (BImSchG)**

The BImSchG includes the German implementation of the **Industrial Emissions Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control)**, also known as the IED Directive.

In addition to the General Provisions in the first part of the Act, Befesa has adopted the provisions on the

- Construction and operation of facilities, licensing issues,
- Determination of emissions and safety tests,
- Monitoring, including monitoring programs for facilities in accordance with the Industrial Emissions Directive,
- Notification obligations regarding the company organization, appointment of a company representative for emission control. In addition, the simplifications for audited sites are also of interest.

The regulations of the BImSchG are partly directly obligatory, but partly they are also applied in connection with the

- **First General Administrative Regulation on the Federal Emission Control Act (Technical Instructions on Air Quality Control - *TA Luft*)**
and the
- **Sixth General Administrative Regulation on the Federal Emission Control Act (Technical Instructions for Protection against Noise - *TA Lärm*)**

and various other relevant regulations were implemented in the approval notices.

The proof of compliance with the obligations resulting from the BImSchG, the *TA Luft*, *TA Lärm* and from the permit notices is carried out by continuous exchange of information with the authorities, by the IED inspections (see following chapter).

The required measurements of emissions are carried out in due time, the results of the last measurements

- in Lünen in December 2019
- in Hanover in September 2019 and July 2020 are shown in section 5.2.

The measurements have again shown that, with the exception of total carbon, the limit values are complied with in Lünen and in some cases are significantly undercut.

The total carbon consists largely of methane, which cannot be removed from the exhaust gas using existing technology. This is known to the authorities and solutions are being sought in both Lünen and Hanover.

In Lünen, there is a commitment to consistently develop and implement measures to reduce emissions of total carbon, e.g. the Serox dryer.

In Hanover, the total carbon is to be determined using a measurement method in which methane is not recorded, so that the limit value is complied with there.

IED inspections

In the past, IED inspections were carried out annually in Lünen; last year's inspection took place on May 11, 2021. The minor deficiencies identified during this inspection were remedied. In 2022, Befesa reported the main operating data of the serox dryer to the Arnsberg district government on a weekly basis; the district government did not carry out any inspection beyond this.

In Hannover, IED inspections are only carried out every 3 years. Last year's inspection took place on 24.08.2021. A results protocol with various requirements was drawn up by the GAA on 22.11.2021. The implementation of the requirements is currently being processed and will be communicated to the GAA prior to recommissioning.

Some of the HBV plants (production, treatment, use) in the wet area, which had previously been considered with lower priority, showed considerable deficiencies in the collection areas. These are currently being refurbished in Lünen, and the refurbishment has already been successfully completed in Hannover.

- **Fourth Ordinance on the Implementation of the Federal Emission Control Act (Ordinance on Installations Requiring a Permit - 4th BImSchV)**

The 4th BImSchV contains a classification of installations requiring a permit into predefined installation types, for which the type of permit procedure and the classification as an IED installation are specified.

Befesa's facilities are classified as aluminum and magnesium salt slag, dross and ball mill dust recycling facilities as follows:

Main plant (wet section)

8.10.1.1 Chemical-physical treatment of hazardous waste

Ancillary facilities

8.12.1. 1 Hazardous waste storage (slag storage)

8.11.2.1 Other treatment of hazardous waste (mechanical processing)

8.10.2.1 Chemical-physical treatment of non-hazardous waste (Serox dryer in Lünen)

In this context, No. 8.10.1.1 leads to procedure type G, i.e. approval procedure according to § 10 BImSchG (with public participation) and to classification E, i.e. IED plant. The obligations resulting from this are regularly observed.

- **Fifth Ordinance on the Implementation of the Federal Immission Control Act (Ordinance on Emission Control and Major Accidents Officers - 5th BImSchV)**

According to the 5th BImSchV, Befesa has to appoint an emission control officer and currently fulfills this obligation by commissioning a technically external officer with appropriate qualifications. The appointment of an incident officer is not necessary, since Befesa is not an incident operation.

- **Ninth Ordinance on the Implementation of the Federal Emission Control Act (Ordinance on the Approval Procedure - 9th BImSchV)**

The requirements of the 9th BImSchV were observed in earlier approval procedures, including the procedure for the plant expansion in Hanover, which has since been discontinued.

- **Eleventh Ordinance on the Implementation of the Federal Emission Control Act (Ordinance on Emission Declarations - 11th BImSchV)**

The preparation of emission declarations is not required by the competent authorities, since the plant can only emit air pollution to a small extent.

- **Forty-second Ordinance on the Implementation of the Federal Emission Control Act (Ordinance on Evaporative Cooling Systems, Cooling Towers and Wet Separators - 42. BImSchV)**

The notification of existing facilities in accordance with Section 13 in the KaVKA-42BV portal took place on 20.07.2018 for the Hanover site and on 08.08.2018 for the Lünen site.

Monthly sampling and analyses of legionella are carried out by accredited laboratories at both sites. Verifications according to § 14 by an accredited assessor took place on 22.11.2019 in Lünen. In Hanover, the accredited assessor was informed of the monthly results during 2021 and he recommended the implementation of optimizations in the drinking water system. The Hannover region was also informed about the implementation of the improvement measures and results in October 2021.

- **Forty-fourth Ordinance on the Implementation of the Federal Emission Control Act Emission Control Act (Ordinance on Medium-Sized Combustion, Gas Turbine and Internal Combustion Engine Plants - 44th BImSchV)**

The 44th BImSchV applies to the construction and operation of combustion plants in the range from 1 MW to 50 MW, i.e. at the Hannover site for steam boilers. The resulting changes, taking into account the transitional regulations for existing plants, are currently being discussed with the Hanover Trade Inspectorate. Firing systems at the Lünen site do not fall under the 44th BImSchV as indirect firing systems.

- **Law on the Implementation of the Protocol on Pollutant Release and Transfer Registers of May 21, 2003, and on the Implementation of Regulation (EC) No. 166/2006**

According to the above-mentioned regulation, certain companies have to register their emissions (or releases to air, water or soil and off-site waste transfers) in a Europe-wide PRTR **register PRTR register (Pollutant Release and Transfer Register) if** certain threshold values are exceeded.

Thresholds relevant for Befesa are:

Release to air, water and soil:

- Methane 100 ,000 kg/a
- Ammonia 10 ,000 kg/a

and off-site shipments of hazardous waste > 2 t/a and non-hazardous waste > 2,000 t/a.

A release into the soil (i.e. deposition on an on-site landfill) does not take place and the release into water falls below the threshold values of the Ordinance. The annual notification for Hanover was made on 01.06.2022, for Lünen on 31.05.2022, with the following information:

	Unit	Lunen	Hanover
Methane	kg/a	934.000	259.000
Ammonia	kg/a	not applicable	44.500
Hazardous waste			
• for recovery	t/a		27,12
• for disposal of non-hazardous waste:	t/a	0	77,27
• total	t/a	< 2.000	< 2.000

Waste law

- **Act to Promote Closed Substance Cycle Waste Management and to Ensure Environmentally Sound Waste Management (Closed Substance Cycle Waste Management Act - KrWG)**

describes the basic requirements for waste management, defines the concept of waste, hazardous, non-hazardous waste, by-products, end of waste, waste hierarchy, etc. In the KrWG.

- **Directive 2008/98/EC of the European Parliament and of the Council of November 19, 2008 (Waste Framework Directive)**

anchored in German law.

Key aspects that Befesa observes are waste separation, preparation of annual waste balances (see chap. 5.2), etc.

- **Regulation on the European Waste List (Waste List Regulation - AVV).**
The AVV contains waste designations, waste codes and criteria for the demarcation of hazardous and non-hazardous waste, which are naturally observed by Befesa.
- **Ordinance on Waste Disposal Records (Ordinance on Waste Disposal Records - NachwV)**

The NachwV requires the preparation of disposal certificates and the handling of consignment bills for hazardous waste. Befesa is exempted at both sites with regard to the input materials salt slag, aluminum dross, etc. in accordance with § 7 NachwV, i.e. in addition to the exemption, no separate official confirmation of the electronically kept records is required.

The accompanying documents for hazardous waste and the disposal documents for non-hazardous waste are stored in a register that is kept in accordance with §§ 24 and 25 NachwV.

- **Ordinance on Waste Management Officers (Waste Management Officer Ordinance)**

According to the Waste Management Officer Ordinance, Befesa has to appoint a company waste management officer and fulfills this obligation in the same way as for the 5th BImSchV by commissioning a professional external officer with appropriate qualifications.

- **Regulation (EC) No 1013/2006 of the European Parliament and of the Council on the Shipment of waste (AbfVerbrV)**
and
- **Law on the Implementation of the above-mentioned Regulation and the Basel Convention of 22 March 1989 on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Waste Shipment Act - AbfVerbrG)**

form the basis for Befesa to import salt slag from abroad. Essential points are the notification to the competent authorities and the requirements for the accompanying documents. Both are competently handled by Befesa, which is regularly confirmed during official inspections.

Ordinance on requirements for the recovery and disposal of waste wood (Waste Wood Ordinance - AltholzV)

and

- **Waste Oil Ordinance (AltöIV)**

require the separation of different qualities in order to improve disposal. Both regulations are implemented in dialog with the contracted disposal companies.

- **Ordinance on the Management of Commercial Municipal Waste and Certain Construction and Demolition Waste (Commercial Waste Ordinance - GewAbfV)**

The aim of the GewAbfV is to achieve the highest possible recycling rate through separate collection or transfer of mixtures to suitable sorting facilities. For this purpose, Befesa prepares the documentation required by NachwV for both sites, see Chap. 5.2.

- **NRW State Waste Act (LAbfG NRW)**

The LAbfG NRW contains, among other things, requirements for the operation of waste disposal facilities, which are fulfilled by Befesa.

- **Lower Saxony Waste Act (NAbfG)**

In addition to the aforementioned requirements for the operation of waste disposal facilities, the NAbfG requires that the Niedersächsische Gesellschaft für Sonderabfälle be involved in the disposal of hazardous waste.

Water and sewage law

- **Water Resources Act (WHG)**

Based on the WHG, Befesa has for the Hanover site

- the permit dated 31.01.2018 in accordance with § 10 WHG for the withdrawal of sewer water in a volume of up to 200,000 m³ /a as well as
- the approval of 25.11.2016 in accordance with § 58 para. 1 for the discharge of wastewater from cooling systems into the public central wastewater system of the state capital Hannover in a quantity of 15,000 m³ /a rinsing water from softening and 30,000 m³/a from cooling tower desalination.

In 2021, 122,156 m³ /a of sewer water was withdrawn and a total of 34,092 m³ /a of wastewater was discharged from the source areas.

In Lünen, Remondis supplies the process water and operates the sewer network, so Befesa does not need any such permits there.

- **Ordinance on the quality of water intended for human consumption (Drinking Water Ordinance - TrinkwV)**

According to § 14 b of the German Drinking Water Ordinance (TrinkwV), companies in which employees are provided with showers, for example, must test the drinking water used in these showers for legionella. Befesa has complied with this testing obligation. Exceeding of action values (so far only one event in Hanover) are documented including the measures taken. The public health department has been informed about the action plan.

- **Waste Water Ordinance [AbwV]**

The aforementioned discharge permit is based on Annex 31 (water treatment, cooling systems, steam generation) of the Wastewater Ordinance with regard to the limit values. Annual sampling and analyses prove compliance with these limits.

- **Lower Saxony Water Act (NWG)**

In addition to the WHG, the permit to withdraw sewer water is also based on the NWG. -

Ordinance on Installations for Handling Substances Hazardous to Water [AwSV].

For existing plants, the AwSV, which was amended in 2017, contains various obligations that Befesa has since been working through in coordination with the responsible authorities

- Revision of the plant documentation according to § 43
- Determination of the hazard levels according to § 39
- Determination of the inspection intervals according to § 46
- Inspections by experts according to § 47

The inspections carried out by an expert revealed deficiencies, particularly in the systems and catch basins of the wet section in both Lünen and Hannover, which are being eliminated in Lünen in accordance with a coordinated step-by-step plan and have already been eliminated in Hannover (for details, see "Soil and groundwater protection / Handling substances hazardous to water").

Safety

- **Ordinance on Safety and Health Protection in the Use of Work Equipment (Betriebssicherheitsverordnung - BetrSichV)**

The Operational Safety Ordinance primarily requires Befesa to carry out expert inspections of the steam boilers in Hanover. These took place on 27.10.2022 and did not reveal any defects.

In addition, the BetrSichV requires annual inspections of crane systems and personal protection equipment for work at heights, which are also carried out by approved surveyors.

Transport law

- **Dangerous Goods Ordinance for Road, Rail and Inland Navigation (GGVSEB) and**
- **ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road)**

For Befesa relevant obligations from GGVSEB and ADR are

- the obligations of the consignee of dangerous goods (including inspection after unloading)
- the obligations of the unloader of dangerous goods (including control of the unloading with transport document, checking of packages)

Relevant dangerous goods are in particular sulfuric acid, hydrochloric acid and caustic soda as well as, depending on the classification of the supplier, a part of the salt slag deliveries.

Occupational safety and hazardous substances law

- **Law on the implementation of occupational health and safety measures to improve the safety and health of employees at work (Occupational Health and Safety Act - ArbSchG).**

The Occupational Health and Safety Act regulates the basic occupational health and safety obligations of the employer, the obligations and rights of employees, and the monitoring of occupational health and safety for all areas of activity. In this respect, it is the most important basis for occupational health and safety at Befesa.

- **Ordinance on Workplaces (Arbeitsstättenverordnung - ArbStättV)**

The ArbStättV serves the safety and health protection of employees when setting up and operating workplaces. In this context, it is observed by Befesa.

- **Ordinance on Hazardous Substances (GefStoffV)**

Hazardous substances include in particular sulfuric acid, hydrochloric acid and caustic soda, as well as the gases ammonia, hydrogen sulfide and phosphine produced during dissolution. The various regulations of the Hazardous Substances Ordinance, e.g. the determination of exposure, are therefore observed when handling these substances.

Hazardous substances registers and operating instructions are available at both Befesa sites. Employees are instructed annually on the handling of hazardous substances.

Several toxicological consultations on the part of the company physician did not take place until 2021 in Hanover. The focus was on the handling of dusts, ammonia and phosphine.

- **TRGS 400 - Risk assessment for activities with hazardous substances**

Based on TRGS 400, Befesa has prepared risk assessments for the handling of the above-mentioned substances.

- **TRGS 402 - Determining and assessing the hazards of activities involving hazardous substances: Inhalation exposure**

The regulations of TRGS 402 refer to the procedure for determining inhalation exposure, planning, performance and evaluation of exposure measurements, determination and assurance of findings as well as documentation.

- **TRGS 500 - Protective measures**

Required protective measures are taken in accordance with TRGS 500 according to the STOP principle, i.e. the priorities are substitution, technical, organizational and personal protective measures. Since substitution of the hazardous substances is ruled out in the case of Befesa, personal protective equipment is provided here after technical and organizational measures have been exhausted. The risk assessment is currently being updated according to the STOP principle.

- **TRGS 509 - Storage of liquid and solid hazardous substances in stationary containers and filling and emptying points for portable containers**

TRGS 509 applies at Befesa in particular to hazards to employees and other persons when filling and emptying the tanks for sulfuric acid, hydrochloric acid and caustic soda.

- **TRGS 526 - Technical Rules for Hazardous Substances Laboratories**

The obligations of TRGS 526 are largely fulfilled via the operating instructions for the Hanover laboratory, although the risk assessments and substitution tests, technical protective measures and operating instructions are currently being revised in part.

- **TRGS 555 - Operating instructions and information of the employees**

Various operating instructions exist for the implementation of TRGS 555, which are made known to the employees and deepened in annual training courses.

- **TRGS 900 - Occupational exposure limits**

Relevant hazardous substances at Befesa's workplaces are dust, ammonia, hydrogen sulfide and phosphine. Their occupational exposure limits (OEL) are according to TRGS 900:

General dust limit

- alveolar fraction	1,25 mg/m ³
- Inhalable fraction	10 mg/m ³
- Ammonia	20 ppm / 14 mg/m ³
- Phosphine	0,1 ppm / 0,14 mg/m ³
- Hydrogen sulfide	5 ppm / 7,1 mg/m ³

The values for dust and ammonia are not always complied with. Dust measurements were carried out by the Dekra company. Ammonia is measured daily at various points in the wet section. Therefore, various protective measures were carried out and included in the hazard assessment.

- **Regulation (EC) No. 1272/2008 on classification, labeling and packaging of substances and mixtures (CLP Regulation)**

The CLP Regulation describes the criteria according to which substances and mixtures of substances are considered hazardous substances. Befesa has tested the products aluminum granulate, Serox, Resal and ammonium sulfate on the basis of these criteria and proven that they are not hazardous substances.

- **Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH Regulation)**

The REACH Regulation requires, among other things, the identification and provision of information for manufactured hazardous substances and substance mixtures, i.e., among other things, the preparation of safety data sheets including a chemical safety report. Furthermore, according to Article 32, there is also an obligation to provide information on the substance composition, properties, etc. to the downstream actors in the supply chain for non-hazardous substances.

Accordingly, Befesa has safety data sheets for the products aluminum granules, Ammonium sulfate, Resal and Serox are created and made available to customers as needed.

Energy Law

- **Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency**

An external energy audit was conducted in November 2021.

- **Energy Tax Act (EnergieStG)**
and
- **Energy Tax Implementation Ordinance (EnergieStV)**

Pursuant to Section 51 EnergieStG, Befesa receives annual energy tax refunds from the use of natural gas for metallurgical purposes. Further details on how to apply are regulated by the EnergieStV.

Building law

- **BauO NRW Building Regulations for the State of North Rhine-Westphalia**
and
- **NBauO Lower Saxony Building Code**

The BauO NRW and NBauO are observed during construction measures. An important aspect is the structural and operational fire protection.

Fire protection regulations in accordance with DIN 14 096 are available, as are escape and rescue plans in accordance with DIN 4844-3. Doors and gates are designed in accordance with DIN 4102-18, 4102-5 and 18 095. Fire extinguishers are installed in accordance with DIN EN 3 and BGR 133 and are checked every two years.

Hanover, April 2022 fire protection equipment and fire extinguishers were tested. In December 2022 the hydrants will be tested

Fire department plans, escape and rescue plans are also regularly checked and updated if necessary.

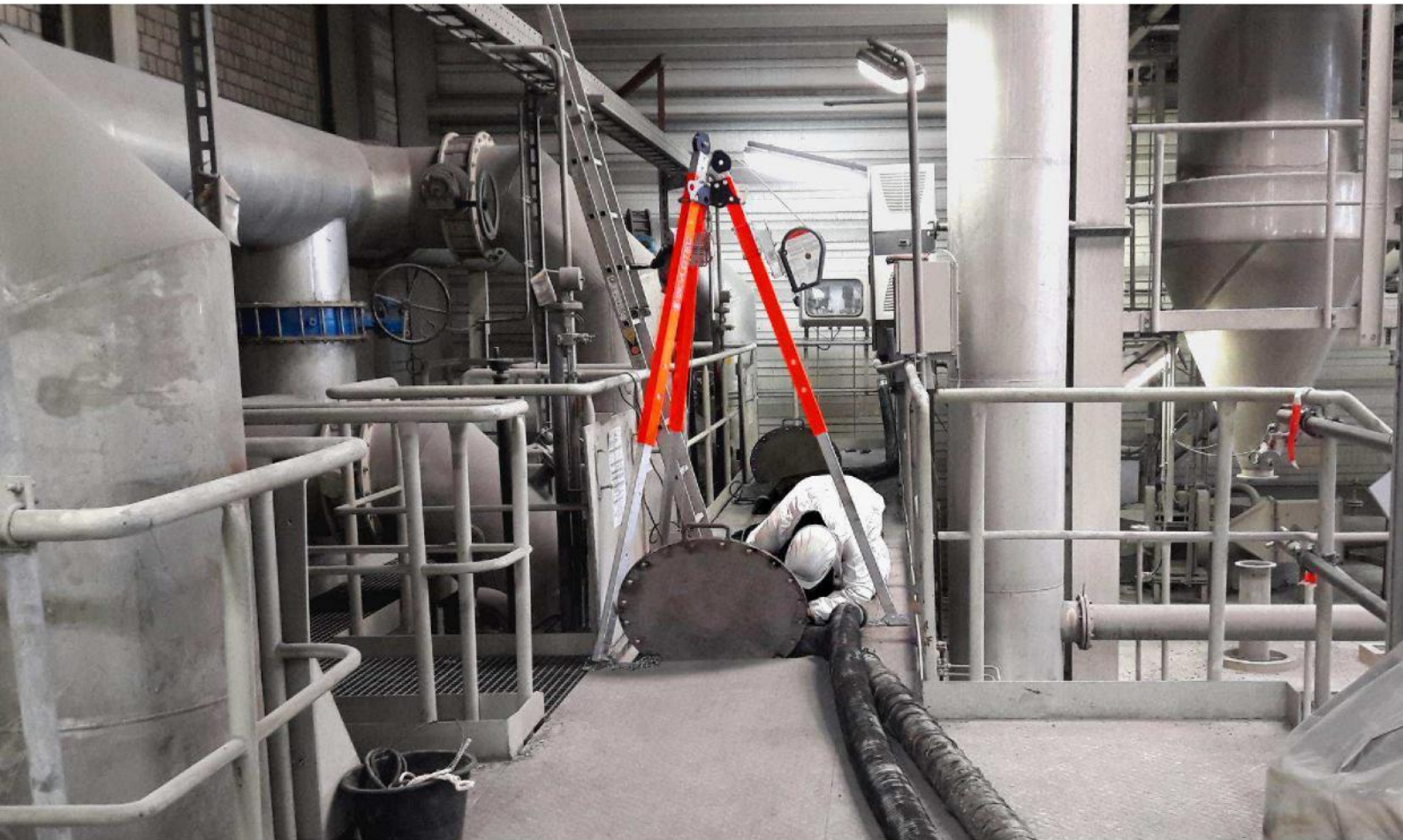
In Lünen, the requirements arising from the approval of the Serox dryer were on the agenda in the reporting period. The implementation of the fire protection concept required an expansion and technical upgrade of the fire alarm system. This has now been installed and is in operation. The final inspection took place on 12.02.2022, no defects were identified, and the report was submitted to the Building Regulation Office of the City of Lünen.

Other activities related to the environment

Befesa is an active member of the energy efficiency network. Befesa Hannover is a member of Embh and Befesa Lünen is a member of the energy efficiency network gr-EEN Westfalen-Ruhr. The aim is to discuss new topics on energy efficiency in business practice, to enable the exchange of experience and to discuss and implement measures to improve energy efficiency.

In our compromise for continuous environmental improvement, both sites have been certified according to DIN EN ISO 50001: 2018 "Energy Management System" since 2017 (certificate registration no. 44 764 161604 at TÜV NORD CERT GmbH). Befesa Salzschlacke has also been certified according to ISO 14064-1:2006 "Principles and requirements for quantification, monitoring and reporting of greenhouse gas emissions and sinks at the enterprise level" since 2013. In 2022, changes were made to the methodology and greenhouse gas emissions calculations to certify to the new ISO 14064-1:2018 standard.

8. Safety



For Befesa Salzschlacke GmbH, occupational safety is synonymous with environmental protection. The company is certified according to ISO 45001. The frequency of accidents at Befesa Salzschlacke GmbH is very low. We constantly sensitize and motivate our employees with the aim of avoiding any accidents.

Occupational safety topics are constantly addressed in procedural and work instructions of the Integrated Management System.

Occupational safety measures are not limited to our own employees. Employees of external companies who work for us are also protected in the same way and are subject to our safety requirements.

The structural, safety, legal and environmental requirements for the handling and storage of the substances are strictly adhered to at the sites of Befesa Salzschlacke GmbH.

Befesa Salzschlacke GmbH has created an effective organization for danger prevention (alarm and emergency plan), so that the necessary safety measures can be taken quickly for the threatening or occurring dangers from the substances to be processed, although such dangers are not to be expected.

9. Emergency management

On November 5, 2021, the Hanover site was damaged by fire. Thanks to the correct implementation of an emergency plan and an alarm system, all personnel were able to evacuate the facility in time, and fortunately no persons were injured. The Hanover Fire Department was able to limit the spread of the fire. The fire inevitably took the entire plant out of service. After assessing the damage caused, the affected parts of the plant and building were decontaminated and disposed of if necessary.

To prevent environmentally relevant events, Befesa Salzschlacke GmbH's plants have preventive measures in place for fire protection, water and soil protection, and rigorous waste management. Responsible persons for emission control, fire protection, radiation protection and waste management have been appointed for these protective systems at both sites.

10. Transportation and traffic

The delivery traffic as well as the removal of the products are mainly carried out by trucks on the road.

Only Serox and rarely Resal are additionally delivered by ship.

The company strives to reduce the environmental impact caused by its own vehicle fleet as far as possible by selecting suitable vehicles comprising 4 forklifts, 4-wheel loaders and 1 company car (low-emission diesel vehicles). The emissions caused by internal traffic are only minor.

11. Input /output representation

The data for the input/output presentation were compiled in cooperation with the environmental management officer, the environmental officers at the sites and the company's plant managers. For this purpose, corresponding measurement records, notices and statements of accounts were evaluated. Where no other option was available, the data were assessed using statistical methods. The output values refer to dry products. This means that the residual moisture on the material and the aqueous components of the ammonium sulfate solution are not included in the values.

The following input/output tables represent the Results of our investigations and analyses:

INPUT 2021

Use of raw materials	Hanover	Lünen	Unit
Salt slag and SPL	94.937	155.368	t
Auxiliary material use			
Sulfuric acid	5.829	8.387	t
Fluorspar	399	292	t
Caustic soda	497	150	t
Flocculant	5	1,8	t
Hydrochloric acid	353	-	t
Diesel fuel	32.338	47.695	L
Hydraulic and lubricating oils and greases	5,4275	3,6029	t
Water			
Service water use	122.15	118.720	m ³
Potable water use	5.068	14.633	m ³
Energy			
Power	9.764	17.860	MWh
Gas/Heating oil			
Natural gas use	37.634	11.681	MWh

OUTPUT 2021

Products	Hanover	Lune	Unit
Resal	28.433	55.708	t
Serox	51.856	77.416	t
Aluminum	9.292	12.055	t
Ammonium sulfate crystalline	-	12.097	t
Ammonium sulfate solution	5.877	-	t
Condensate recirculation	-	60.914	m ³
Waste			
Activated carbon	23,70	42,7	t
Sulfuric acid, contaminated	68,72	-	t
Paint and varnish waste	0,08	-	t
Terma old goods	0,21	-	t
Used waxes and greases	2,59	0,93	t
Waste oil	2,65	0,4	t
Gem. packagings	18,62	109,43	t
IBCs from sulfuric acid	4,94	-	t
Waste containing oil	0,94	-	t
Wood	13,66	8,57	t
Waste wood A I	1,27	-	t
Extinguishing water	346,26	-	t
Mixed Scrap & Shredder	153,21	-	t
Paper, cardboard	5,28	6,5	t
Insulation material	0,2	0	t
Construction waste	0,88	-	t
Filter bags	2,86	-	t
V2a scrap	7,38	-	t
Scrap	919,19	-	t
VA platelets & scrap	74,43	-	t
Mixed construction and demolition waste	5,6	21	t
Cable scrap	0,65	-	t
Metal scrap	1.467,2	357,8	t
Fluorescent lamps	0,12	0,17	t
Batteries	-	-	t
Cu-E engine scrap	0,42	-	t
Mixed waste	0,44	--	
E-scrap / cable scrap	0,73	0,6	t
Hackette packing	0,24	-	t
Mixed waste	10,16	-	t
Household waste incl. green waste	50	13,8	t

**Cooling tower sludge
wastewater**

Total	34.092	m ³
Chlorine dioxide calculated as	<0,2	mg/l
AOX	0,32	mg/l

Sanitary waste water

Total	897	m ³
Chlorine dioxide calculated as	<0,2	mg/l
AOX	0,10	mg/l

12. Next environmental statement

The aim of our environmental statement is to open up a communication channel to inform all stakeholders, the authorities, our suppliers, customers, interested parties, the media and neighbors about our management policy and environmental protection performance. The statement is published on our corporate website at <http://www.befesa.com>. The statement will also be communicated to all our employees within the organization.

Our current EMAS verified environmental management certificate (register no.: DE-133-00078) is valid until December 10, 2024. The next validated environmental statement of Befesa Salzschlacke GmbH is planned for November 2023.

13. declaration of the environmental verifiers/

Validation

GÜLTIGKEITSERKLÄRUNG

gemäß den Vorgaben der

Verordnung (EG) Nr. 1221/2009 i.d.F. vom 25.11.2009

über die freiwillige Teilnahme von Organisationen an einem Gemeinschaftssystem für Umweltmanagement und Umweltbetriebsprüfung (EMAS)



Der unterzeichnende Umweltgutachter, Thomas Bunge, zugelassen für den Bereich "NACE-Code 20.13 - Herstellung von sonstigen anorganischen Grundstoffen und Chemikalien", bestätigt, begutachtet zu haben, dass der Standort bzw. die gesamte Organisation, wie in der Umwelterklärung der Standorte

BEFESA Salzschlacke GmbH
Brunnenstraße 138
44536 Lünen
Deutschland

BEFESA Salzschlacke GmbH
Am Brinker Hafen 6
30179 Hannover
Deutschland

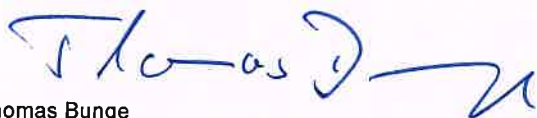
mit der Registrierungsnummer DE-133-00078 angegeben, alle Anforderungen der Verordnung (EG) Nr. 1221/2009 des Europäischen Parlaments und des Rates vom 25. November 2009 über die freiwillige Teilnahme von Organisationen an einem Gemeinschaftssystem für Umweltmanagement und Umweltbetriebsprüfung (EMAS) in der durch die Verordnung (EU) 2017/1505 der Kommission und der Verordnung (EU) 2018/2026 der Kommission geänderten Fassung erfüllt.

Mit der Unterzeichnung dieser Erklärung wird bestätigt, dass

- die Begutachtung und Validierung in voller Übereinstimmung mit den Anforderungen der Verordnung (EG) Nr. 1221/2009 durchgeführt wurden,
- das Ergebnis der Begutachtung und Validierung bestätigt, dass keine Belege für die Nichteinhaltung der geltenden Umweltvorschriften vorliegen,
- die Daten und Angaben der Umwelterklärung der Standorte ein verlässliches, glaubhaftes und wahrheitsgetreues Bild sämtlicher Tätigkeiten der Standorte innerhalb des in der Umwelterklärung angegebenen Bereichs geben.

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

Lünen, 08.02.2023

A handwritten signature in blue ink, appearing to read 'Thomas Bunge', followed by a horizontal line.

Thomas Bunge
Umweltgutachter
DE-V-0122