
# ENVIRONMENTAL STATEMENT
## 2021

LEOBENDORF PLANT

Kwizda
Agro

# **COMMITTED TO HEALTH,** CONNECTED TO NATURE

*Assured growth.*

The EU Commission's Green Deal presented strategies for growth based on modern, sustainable and competitive economies. Climate and environmental challenges are deemed opportunities towards achieving a cyclical economy, consistent with innovation and energy efficiency. Kwizda Agro subscribes to these Green Deal objectives and our contribution towards these goals will be a constant investment in climate and environmentally friendly production. Our expertise in formulations and our international partnerships allow us to offer our customers in industrial manufacturing, agriculture, forestry and private consumers products that are both eco-friendly and efficient. From reliable and eco-friendly applications, to vibrant gardens as a family haven through to a climate supportive of agriculture and forestry our innovations will help us face these challenges in the coming years. Our consultants will always be at your disposal as your competent partners.

Kwizda Agro will contribute to sustainably productive agriculture, deploying all available tools and solutions in terms of high productivity and eco-friendly farming. Our commitment includes the founding of our New Technologies business unit, where we and our partners will develop products based on microorganisms, natural extracts and mineral elements for application in biological and conventional spray programmes. Our objective is to ensure "green plant protection": the maximum share of biological solutions in all types of farming, optimal interaction of diverse plant protection regimes and constant optimisation of spraying programmes to ensure plant health and environmental protection.

Nature serves as our example and inspiration. Nature shows us how protective mechanisms, active substances and defensive tactics can be used for plant protection. We seek to promote the health of plants, soils and the environment that is in harmony with social demands and is synonymous with modern agriculture. At Kwizda Agro, our actions are oriented towards "green solutions", not only in terms of research and development but to obtain energy from renewable resources and for carbon-neutral plant production wherever possible. We constantly seek optimisation in product packaging by increasing the proportion of reusable and recycled packaging, reduce the use of plastics and focus on the general reduction of packaging overall.

We follow the EU Commission's objectives, striving towards a more ecological, digitised and increasingly automated production for plant protection manufacturing and products of the chemical industry.

As a family-run company, we consider it our responsibility to operate our business in such a way that future generations will inherit a healthy and enjoyable environment and a sound and prosperous economy.

# ENVIRONMENTAL STATEMENT 2021

in accordance with Regulation (EC) No 2009/1221 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS III).

**Kwizda Agro GmbH**
Werk Leobendorf
Kwizda Allee/Laaer Straße1 2100 Leobendorf

NACE Code: 20.20
Reporting period: 2020

**Statement by Kwizda Agro GmbH on the entry of the Leobendorf plant into the EMAS Register in accordance with Article 15 of the Austrian Environmental Management Act (Umweltmanagementgesetz (UMG)):**

The initial assessment of the environmental statement (2015) of the Leobendorf plant by the environmental assessment organisation ETA Umweltmanagement GmbH took place in April 2015. A declaration of validity was issued.
Kwizda Agro subsequently applied to the Environment Agency Austria for the Leobendorf site to be entered in the EMAS Register. However, the plant could not be entered because the environmental proceedings against Kwizda Agro GmbH (see Chapter 1 - Pollution of the groundwater body "Korneuburger Bucht" by the Leobendorf plant) have not yet been concluded and hence the formal prerequisites for registration in accordance with Article 15 of the Environmental Management Act are not currently met.
As it appears today, it is likely that the proceedings will be concluded once the remedial measures have been completed. The environmental statement was updated in March 2021 and reassessed and approved by the environmental assessment organisation ETA in April 2021.
In the interest of transparency, we believe it is important to publish the 2021 revised environmental statement of Kwizda Agro GmbH.

Executive Board of Kwizda Agro GmbH



# **WORDS OF** THE MANAGEMENT

**SHAPED BY OUR HOLISTIC ENVIRONMENTAL UNDERSTANDING**

Environmentally friendly, and hence sustainable, production methods at our site in Leobendorf and all associated processes; responsible management of the resources available to us; and the application of efficient, environmentally friendly technologies – these are not only part of the corporate philosophy of Kwizda Agro, but also constitute the standard that we strive to meet every day in our operations.

Based on our holistic understanding of environmental protection, we have been working for several years on the development and registration of alternatives to synthetic plant protection chemicals and pesticides. Thanks to our international partnerships and access to research networks in industry we were able to acquire a series of biological products and active substances in 2018 and 2019. We have developed these in our own technology centres both biologically and in terms of formulation and will market them via internal and external commercial organisations once they have been registered.

When integrated into regionally coordinated spraying sequences, this means we can make a substantial contribution – both to ensuring the regional supply of foodstuffs and to supporting society's call for eco-friendly production methods in agriculture.

At the same time, we are able to minimise the risk to users and to society as a whole through the use of these products and also through innovative packaging systems.

We use tried-and-tested management tools to evaluate and improve our environmental impact in the certification of our plant in accordance with ISO 14001 and EMAS. A detailed description of our efforts to preserve the environment and future environmental measures and activities can be found in our environmental statement. With the publication of these figures we continue to follow an open and transparent communication process with our neighbours and all other stakeholders and support dialogue on a peer-to-peer basis.

At Kwizda Agro, we believe that quality, environmental sustainability and solidarity with the people around us are absolutely essential for our work to be successful. Because as a responsible company, regional employer and reliable partner of agriculture, trade and consumers we want us all to enjoy safe growth.

**Dipl.-Ing. Ronald HAMEDL**
Managing Director

**Dkfm. Dr. Johann F. KWIZDA**
Managing Director

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# **CORPORATE POLICY** OF KWIZDA AGRO GMBH

The management of Kwizda Agro GmbH and the heads of the Tolling division manage the area of operations in accordance with the principles of an integrated management system.

**The Leobendorf plant is certified in accordance with the following systems:**

§ ISO 9001:2015 (Quality Management)
§ ISO 14001:2015 (Environmental management)
§ ISO 45001:2018 (Occupational Health & Safety)
§ EMAS (Sustainable Environmental Management)

## THEREFORE WE SUBSCRIBE TO THE FOLLOWING PRINCIPLES FOR OUR CORPORATE POLICY:

Long-term, responsible corporate action represents a major part of our corporate philosophy, which is why we have set the following principles for our corporate policy:

We satisfy the needs of our customers

We produce high-quality products

We guarantee environmentally friendly production

We are in constant communication with our external stakeholders

We ensure we are compliant with legal requirements

We create long-term jobs

We offer opportunities for training and development and excellent conditions for our employees

We use our integrated management systems as an opportunity for further development

We aim for long-term partnerships

Our dealings are transparent

We act in a responsible manner and see ourselves as a reliable partner

# THE COMPANY

AS A RESPONSIBLE PARTNER
OF AGRICULTURE IN EUROPE,
KWIZDA AGRO SUPPORTS
INTEGRATED PLANT PROTECTION.


Kwizda

# THE COMPANY
## SUSTAINABLE INNOVATION FOR THE ECONOMY AND THE ENVIRONMENT

Research, industry, agriculture and the private sector value Kwizda Agro as their professional partner in the fields of plant protection and plant nutrition. To ensure successful growth, we rely on close cooperation with our customers and the expertise of our distribution and production departments. We continue to invest in the development of biological insecticides, fungicides and repellents as demanded by agriculture, forestry and the consumer. As a family-run business, our emphasis is providing solutions fit for the future. Our focus will be on the value of the company to our customers, a value based on reliability, diversity, innovation and resolve.

Kwizda Agro is part of the Kwizda Group of companies comprising of Agro, Pharmaceutics, Pharmaceutical trade and distribution and Sealing systems. The Kwizda group of companies employs over 1,400 people and occupies a leading position in its Austrian home market. The Group generated a turnover in excess of 1,000 million Euro over the 2020 financial year.

After its founding in 1926 in Austria, Kwizda Agro has now extended its commercial activities across the globe. Our products and solutions are proven to be highly efficient and reliable. However, irrespective of conventional or biological plant protection, of biocides or production for specific customers, environmental considerations are our priority. We operate to the highest of standards taking the utmost care and are continuously expanding our core competencies within formulation development, registration and sales. To complement all of this we operate one of the safest and most modern production plants in Central Europe, the Kwizda Agro plant in Leobendorf, Austria.

At Kwizda Agro we cooperate closely with international research institutes and with start-up companies to share innovative ideas and gain access to the latest active substances. By collaborating in this way our goal is to improve and further develop our products and solutions. All of our new product developments are based on biologically active substances or mechanisms making them suitable for application in both biological and conventional agriculture and forestry. Our core competencies allow us to fully align our products with the EU Commission's Green Deal principles.

> *Harnessing the power of nature*

Harnessing the power of nature is not a new concept at Kwizda Agro. TRICO®, a deer repellent for forestry, is based on the natural ingredient of 'sheep fat'. As the basis for sustainable crop cultivation, Kwizda Agro continues to develop natural active substances. Our latest innovation Xilon®, first approved in the Czech Republic and now across Europe, constitutes the first of a range of in-house biological developments where we follow the example given by nature. Xilon® is based on a microorganism and is the first broad-spectrum biological soil fungicide with multiple crop applications. Xilon® was awarded 'Best Biological Fungicide' of the year in 2020.

Kwizda Agro does not see itself just as a partner of agriculture and forestry. We pride ourselves on the breadth of our portfolio, offering pest control experts and hobby gardeners an extensive and innovative range of products from our home and garden range.

## DESCRIPTION OF THE LEOBENDORF SITE

The environmental management system covers Kwizda Agro GmbH's Leobendorf plant and all its employees. Our 135 employees produced and supplied around 10.877 tonnes of plant protection products in our 2020 business year, representing a turnover of some 25 million euros.

## GEOGRAPHICAL LOCATION

The operational facilities are on the industrial estate at Laaer Strasse/Kwizda Allee1 in Leobendorf, a market town to the north of Vienna. They can be reached from the west via the A22 motorway, exit Korneuburg West, and the S1 dual carriageway, exit Korneuburg Nord; from the south take the B6. Access is from the Kwizda Allee.

## HISTORY OF THE LEOBENDORF SITE

**1979**

The installation is expanded with the addition of a packaging unit, tank farm and a factory for the manufacture of solvent-based plant protection products and pesticides, hence laying the foundations for production.

**1980**

A building with an annexe for office and laboratory space is erected for the manufacture of plant protection products in powder and liquid form.

**1982**

Production starts.

**1989**

The factory for the manufacture of solvent-based plant protection products and pesticides sees the addition of an annexe and a tank farm is installed to the north-west of the factory.

**08/2010**

After an incident in the factory, pesticide pollution is detected in the groundwater body on the site and subsequently in the groundwater body "Korneuburger Bucht". The clean-up operations are still ongoing (see also page 22).

**08/2014**

To reduce odour nuisance for neighbouring properties, the exhaust air system in the latest fluidised bed granulator is fitted with a photoionisation installation, which significantly reduces the odour emissions in the exhaust air.

**10/2014**

The access and exit point from the site is adapted by installing a rising arm barrier and video surveillance systems.

**12/2014**

The sealing wall to separate the groundwater body on the site from the surrounding groundwater body "Korneuburger Bucht" is put into operation.

**1994**

Additional office space is added in the west of the site. 1994 sees the start-up of the first fluidised bed granulator to manufacture water-dispersible, granular plant protection products and pesticides.

**1997**

A new factory with a further two fluidised bed granulators and a power station are commissioned.

**1999**

The site is expanded to include two fluidised bed granulators, the last to be integrated for the time being.

**2000-2008**

In this period adaptations are made to individual installations, in addition to small extensions and conversions.

**2008**

Another storey is added to the office building in the west, a new raw materials warehouse is built and the outdoor installations are restructured.

**06/2015**

A new building is erected to the south of the factory, comprising a production unit for the production and filling of liquid herbicides, a store house for herbicides, a storage facility for flammable liquids and oxidising substances as well as a central waste collection station starting operations.

**09/2015**

The first production line in the granulator WG2 is fitted with an explosion suppression system and the filter systems are retrofitted to state of the art. Completion of construction phase 1 to renovate the firewater retention barriers and wastewater system for industrial water.

**03/2016**

Modernisation of Production Unit 6 and retrofitting the exhaust air scrubbers to state of the art.

**08/2016**

Steam generation is converted from heating oil to natural gas.

**09/2016**

The second production line in the granulator WG2 is fitted with an explosion suppression system and the filter systems retrofitted to state of the art. Completion of construction phase 2 to renovate the firewater retention barriers and wastewater system for industrial water.

**09/2016**

Completion of construction phase 3 to renovate the firewater retention barriers and wastewater system for industrial water.

**11/2018**

Drainage of roof, warehouse and traffic areas is redesigned

**08/2019**

Total conversion of the outdoor lighting on the site to LED systems

**09/2019**

Construction of a steam generation installation (new power station)

**2020**

Renovation of the wastewater system for the unit WG3 (phase 4)

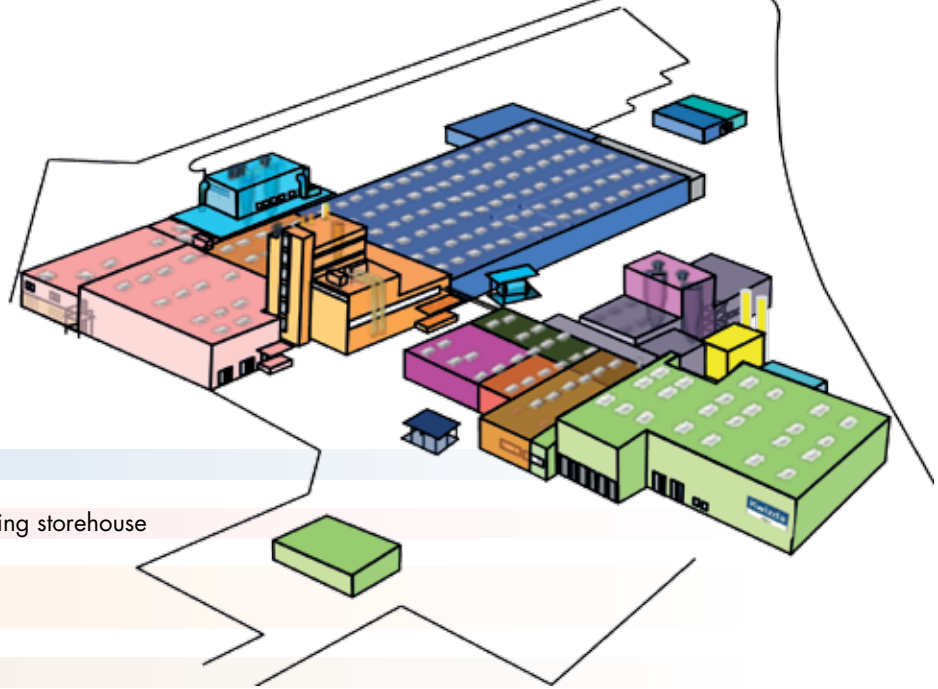
**2020**

Renovation of the wastewater system for the unit WG3 (phase 4)

**bis 2022**

- Construction of the new finished goods warehouse
- Modernisation of the water heating system (condensing technology, with natural gas)
- Safety retrofitting of unit WG3 line 300

## CONSTRUCTION PHASES



| | |
|---|---|
| **1978** I Phase 1 | Finished goods warehouse (formerly "central warehouse"), East Offices |
| **1979** I Phase 2 | Liquid herbicide factory (production, filling and packaging), tank farm and packaging storehouse |
| **1980** I Phase 3 | "Production tower" factory building – liquid and powder insecticides, fungicides (production, filling and packaging); office and laboratory space |
| **1989** I Phase 4 | Annexe to liquid herbicide factory (production, filling and packaging); tank farm |
| **1992** I Phase 5 | Expansion of warehouse "E" |
| **1994** I Phase 6 | Annexe to West Offices, adaptation of the production tower, installation of the first fluidised bed granulator (WG1 – insecticides/fungicides; production, filling and packaging) |
| **1997** I Phase 7 | Factory insecticides/fungicides or (separate) herbicides with 2 fluidised bed granulators, one each for insecticides/fungicides or herbicides (WG2; production, filling and packaging – only herbicides); power house |
| **1999** I Phase 8 | Annexe to factory insecticides/fungicides with 2 fluidised bed granulators (WG3; production, filling and packaging) |
| **2008** I Phase 9 | Storey added to "West Office Building"; annexe added to raw materials warehouse |
| **2012** I Phase 10 | Various modifications (construction of workshop in Unit 7, adaptation of the preparation unit for liquid herbicides and production of liquid herbicides) |
| **2014** I Phase 11 | Factory enclosure – construction of thin diaphragm wall and water treatment installation |
| **2015** I Phase 12 | Expansion of the herbicide installation with a factory for production/bottling of liquid herbicides; annexe to storehouse for herbicides, flammable liquids and oxidising substances; creation of the "waste island" |
| **2015** I Phase 13 | Adaptation of wastewater disposal installations ("tank farm"), expansion of the firewater retention barriers and start of work to renovate wastewater pipes |
| **2016-17** I Phase 14 | Modernisation of production unit 6, conversion of WG2 |
| **2019** I Phase 15 | Construction of a power station |

## KEY DATA ON THE PLANT

Floor area
**92.000 m²**

## AREAL DATA

| | | | |
|---|---|---|---|
| **13.425 m²** | Gross floor area buildings | **5.400 m²** | Raw materials and finished goods warehouses |
| **880 m²** | Supply of utilities | **350 m²** | Laboratory, technical centre |
| **6.165 m²** | Production | **1.600 m²** | Office space |

Total
**135**

## EMPLOYEES

| | | | |
|---|---|---|---|
| **20** | Sales and administration | **10** | Store |
| **48** | Production / Packaging | **8** | Maintenance, Engineering |
| **17** | Quality Assurance/Product Development | **32** | Leased employees (temporary) |

Output
**2020**

## OUTPUT

| | | | |
|---|---|---|---|
| **3.822 t/a** | Granulates | **2.634 t/a** | Suspensions, suspension granulates |
| **2.902 t/a** | Emulsions, emulsion concentrates | **1.126 t/a** | Other formulations |

ANNEXES
**2020**

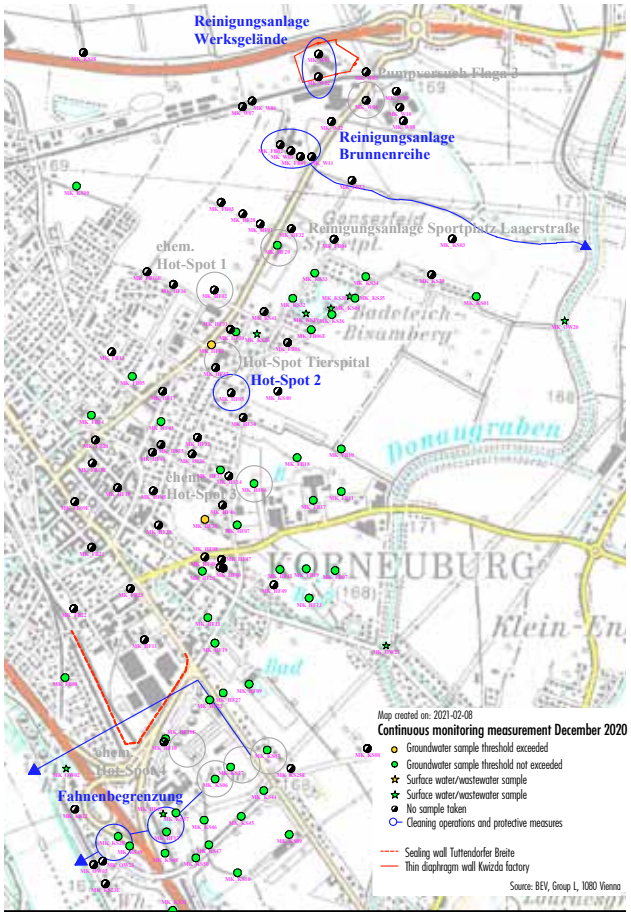
# ANNEXES

| | |
|---|---|
| **5** | Fluidised bed granulators |
| **60** | Stirrer and disperser as well as filling and storage containers |
| **7** | Ball mills |
| **11** | Bottling and filling installations (for powders, granulates and liquids) |
| **2** | Dry product blenders |
| **5** | Micro capsule machines |
| **19** | Dry filter installations to clean exhaust air of volatile organic components and dust particles |

| | |
|---|---|
| **2** | Boiler to generate saturated steam (total output 6,400 kg saturated steam/hour), fired by natural gas |
| **2** | Hot water boilers (output 620 kW each), fired by light heating oil |
| **3** | Water quenches to generate process cooling |
| **4** | Compressors to supply compressed air |
| **1** | Water treatment plant for treating process water |
| **3** | Transformer substations |
| **6** | Heat chambers for melting active ingredients |

# POLLUTION OF THE GROUNDWATER BODY "KORNEUBURGER BUCHT" BY THE LEOBENDORF PLANT AND REMEDIAL MEASURES TAKEN

After an incident concerning a wastewater collection pit in August 2010, pollution (traces of Thiamethoxam) of the groundwater body on the factory site was found. As an emergency measure the wastewater collection system and the wastewater collection pits were taken out of operation and subsequently thoroughly cleaned.




A series of remediation wells with activated carbon filters were installed on the site and in the downstream region of the site to prevent further spreading of the pollution or to eliminate pollutants. With these 14 wells, part of the polluted groundwater was removed from the groundwater body, cleaned using activated carbon and allowed to drain away in the downstream area of the installations or channelled into the Danube via an outfall ditch ("Donaugraben"). In the course of 2011 additional pollution caused by decomposition products (metabolites) from Thiamethoxam was detected in the groundwater of the residential area of Korneuburg in addition to the previously identified insecticide Thiamethoxam.

Consequently, in spring 2012, in addition to the two rows of remediation wells – at selected points in the contamination plume – several purification installations were erected (socalled hotspots) and brought into operation. The polluted groundwater around these hotspots was cleaned to drinking water quality using activated carbon and allowed to drain away in the downstream area of the installations.
In autumn 2012 further pesticides (Clopyralid, Florasulam and Flumetsulam) were detected in the groundwater of the Korneuburg residential area; the regional administrative authority of Korneuburg then ordered a comprehensive remedial design by external experts. The remedial measure proposed by the experts to prevent further spreading of pollution (limitation of the plume) was to erect an additional row of remediation wells, to feed the groundwater into the Danube and, as long-term protection for groundwater use by removing the contaminated groundwater, to adapt the existing activated carbon filter installations.

The proposals of the team of experts were implemented in the first half of 2013 with great success: By December 2020 clean-up operations on around 12,2 million $m^3$ groundwater removed 66.8 kg active ingredients in pesticides (almost 100% of the total pollutant load) from the groundwater (see diagram on page 24).

In criminal proceedings heard before the regional criminal court in Korneuburg in November 2014 Kwizda Agro accepted responsibility for polluting the groundwater. The proceedings ended with diversion ordered for all the accused. Employees of the company were fined between 3,000 and 38,000 euros. Kwizda Agro GmbH itself had to pay a fine of 250,000 euros and in addition to continue cleaning up the groundwater.

Between December 2015 and January 2017 the Agency for Health and Food Safety (Agentur für Gesundheit und Ernährungssicherheit – AGES) undertook irrigation water tests on tomato, lettuce, carrot and bush bean crops using contaminated groundwater (concentration 0.5 and 1µg/l) taken from the groundwater body "Korneuburger Bucht". The results of the tests proved that no residues of the active ingredients in pesticides (Clopyralid, Thiamethoxam, their metabolites CGA 355190 and CGA 353968 as well as Florasulam and Flumetsulam) could be detected in the produce harvested from the above crops – with the exception of the tomatoes – irrigated with a pesticide load of up to 0.5 µg/l. The residues detected in the tomatoes of 0.014 mg/kg were significantly below the legally prescribed maximum level of 0.5 mg/kg active ingredient/kg of produce harvested.

## CONTAMINATION OF THE GROUNDWATER BODY "KORNEUBURGER BUCHT"

There is no risk with regard to the ecotoxicological effects on pollinating insects, and any risk to arthropods, vertebrates, aquatic organisms and soil organisms is very unlikely. Correspondingly it is assumed that the irrigation water with a pesticide load of up to 0.5 µg/l can be used without reservations for market gardening, according to the current state of knowledge.

In 2020 groundwater monitoring underwent a further adaptation in view of the advanced state of the clean-up operations

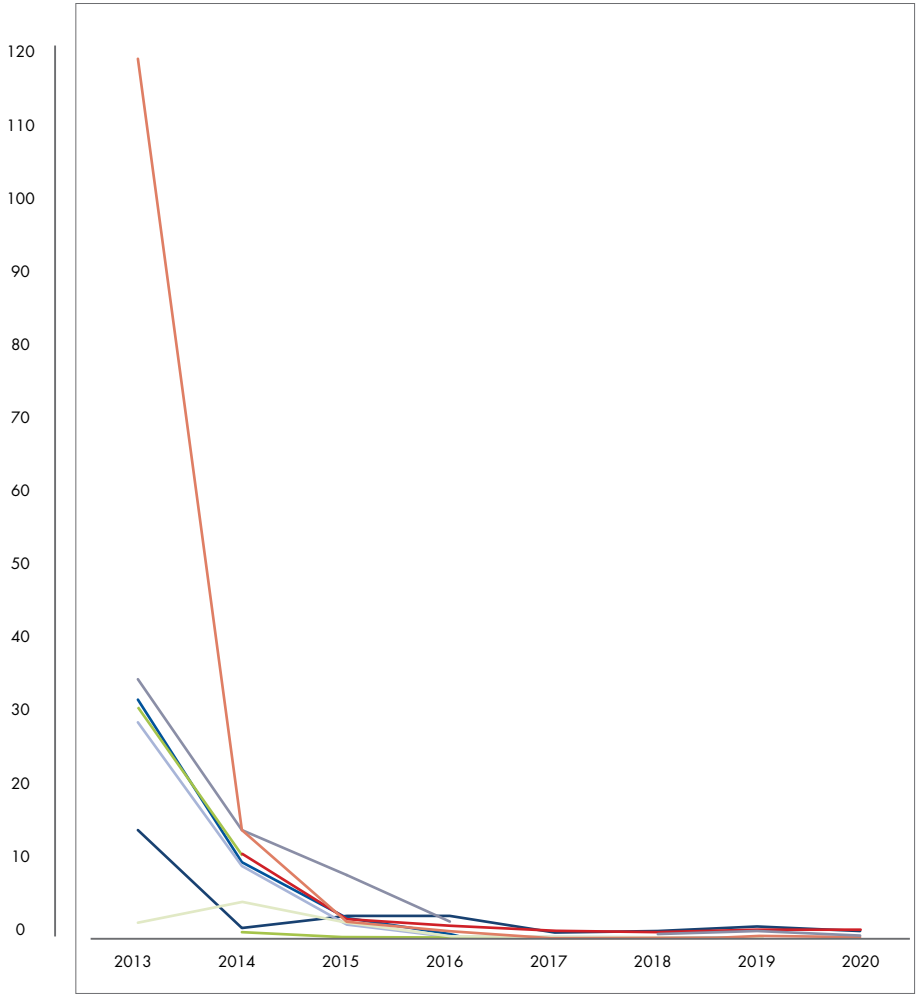
- Increasing the Hotspot 2 pumping capacity to maximum
- Switching off of the remediation well row South

Both installation monitoring and (large) areal monitoring remained unchanged.
From today's perspective we can assume that purification of the groundwater must be continued until the threshold for drinking water (0.1 µg/l) is reached. The proceedings against Kwizda Agro GmbH will continue until further notice.

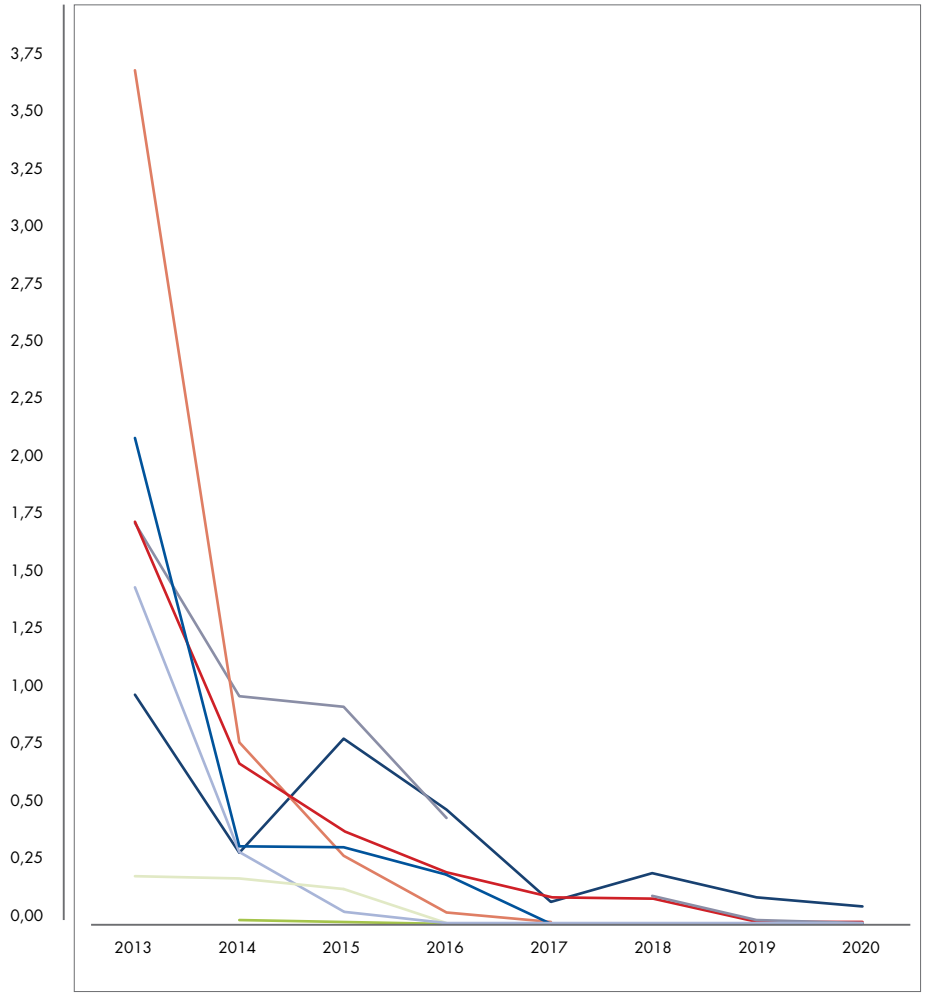
## CONTAMINATION OF THE GROUNDWATER BODY "KORNEUBURGER BUCHT"

Due to the groundwater clean-up operations the concentration of Clopyralid and Thiamethoxam dropped markedly in the period 2013-2020. Evaluations of the individual measuring points show a decline in both substances in the groundwater. No values available since no data was obtained in 2017 and 2018 for measuring points GW12 and GW25 respectively. Measurements at measuring point GW26 started only in 2014.

CLOPYRALID [µg/l]




THIAMETHOXAM [µg/l]




GW 11 GW 12 GW 13 GW 24 GW 25 GW 26 SU 18 MI 02

## ADDITIONAL PROTECTION OF THE GROUNDWATER BODY "KORNEUBURGER BUCHT" BY ENCLOSING THE FACTORY SITE WITH A VIB-WALL

Between June and December 2014 the factory was enclosed with a VIB-wall approximately 815m long as a measure to ensure the long-term protection of the groundwater body "Korneuburger Bucht".
This construction reaches down to the groundwater aquifuge at a depth of around 15 m and separates the groundwater body around the factory from the surrounding groundwater body. It is, therefore, an effective way of preventing potential pollutants from leaching from the site into the groundwater body "Korneuburger Bucht".

Constant pumping keeps the water level on the factory site about 50 cm below the level of the surrounding waterbody. The groundwater that is pumped off is removed on the factory site, purified using activated carbon and allowed to drain away in the downstream area of the surrounding groundwater body.


Enclosure of the whole factory site with a VIB-wall

## ORGANISATION

The Tolling business unit (Leobendorf plant and staff functions) was restructured in 2019 as part of a strategic project: firstly, a new position was created (business and site development), focusing on sales activities and the strategic ongoing development of the production site Leobendorf; secondly, the Quality Assurance department was assigned to the Quality Management department. Since the Tolling BU is experiencing continuous growth, new staff were recruited to support the specialist positions. Furthermore, due to numerous key projects which are scheduled for the coming years at the production site, engineering capacity was increased.

**Ludwig Karl Heinz** (L-BU)
BU Tolling

**Salzl Thomas** (BL)
Leobendorf Plant Operations Manager

**Winter Manfred** (BD)
Business Unit and Site Development

**Rauch Andreas** (L-FPE)
Formulations and Process Development

**Fenzel Jochen** (L-CSE))
Customer Service & Procurement

**Maringer Hermann** (L-MM)
Material Management

**Muri Chris** (L-QMC)Quality Management & Compliance

**Klein Walter** (L-PPSL)
Production Planning, Control & Logistics

**Rauter Florian** (L-Prod)
Production & Packaging

**Schmidt Erwin** (L-T&I)
Engineering & Maintenance

**Slechta Franz** (L-QS)
Quality Assurance

## TOLLING BU SPECIALIST POSITIONS

QUALITY SUPERVISOR
MURI Chris

ENVIRONMENTAL OFFICER
MURI Chris

SAFETY OFFICER/SAFETY SPECIALIST
KACETL Regine

OCCUPATIONAL HEALTH PRACTITIONER
ASZ LINZ, DR. GRÜNER Sylvia

MANAGING DIRECTOR ACC.
TO TRADE LAW
SALZL Thomas

WASTE MANAGEMENT OFFICER
MURI Chris

WASTE MANAGEMENT OFFICER
(DEPUTY)
TROLLMANN Robert

FIRE PREVENTION OFFICER
TROLLMANN Robert

DANGEROUS GOODS OFFICER
KREUZER Gerhard

DANGEROUS GOODS OFFICER
(DEPUTY)
SCHWARZENBRUNNER Peter

TOXICOLOGY OFFICER
RAUCH Andreas

The Environmental Officer reports to Quality Management & Compliance. The company employs around 135 people. Production is based on a 3-shift operation and runs continuously.

(Dated March 2021)

## INVESTMENT PROGRAMME

*Kwizda Agro is continuing the investment programme for the Leobendorf plant and in the coming years will maintain its focus on the key aspects of safety and sustainable growth.*

This also includes a new dangerous goods warehouse and an office building on the western part of the site. Construction is expected to begin mid-2021 once all permits have been granted.

In close collaboration with specialists and experts, this project will see the best possible safety technology implemented to ensure modern, efficient warehouse management. This includes fully automatic fire extinguisher systems and retention systems for liquids; the whole building will be constructed using fireproof, self-supporting reinforced concrete and the sealing wall (impermeable separation of groundwater) that was installed in 2014 will be extended around the site.

Modernisation of the granulation facility will be continued. Following completion of the WG1 and WG2 installations, the WG3 will be retrofitted progressively from 2021 with modern explosion suppression systems. At the same time the control system will be renewed and all process technology maximised in terms of energy efficiency.

As a result of the numerous projects in the period 2014 to 2019, relative energy consumption (compared to production volumes) could be reduced significantly at the Leobendorf site. This approach was continued in 2020 with the complete renewal of the compressed air supply. The new warehouse will also help to reduce our carbon footprint significantly with the removal of several external warehouses and its high-quality construction.

Compared to conventional plant protection products, the percentage of products approved for biological agriculture and for plant strengtheners is gaining in importance. Kwizda Agro is keeping pace with this trend by adapting and repurposing existing installations. Creating additional production capacity through flexible utilisation of production facilities is not possible at present despite significant volume growth.

The requirements for packaging for plant protection products have been tightened up considerably, involving new, recyclable packaging and digialisation (end-to-end track & trace of products). We are recognising this trend by investing in two new, state-of-the-art filling and bottling plants.

*It is estimated that a total of 31.5 million euros will be invested in the Leobendorf site for the period 2020 to 2024.*

# ENVIRONMENTAL MANAGEMENT

## HOW DO YOU CONTRIBUTE TO THE ENVIRONMENT AND SAFETY THROUGH YOUR WORK?

# ENVIRONMENTAL MANAGEMENT

## ORGANISATION OF OUR ENVIRONMENTAL MANAGEMENT SYSTEM

Overall responsibility for environmental management lies with the management of Kwizda Agro GmbH and the heads of the Tolling business unit. Responsibility for and implementation of individual environment-related tasks lies with the operational area, i.e. with the plant manager or department heads.

Operations executives are given expert support by the Environmental Officer and his team in the discharge of their duties. In addition, the Environmental Officer is responsible for ensuring compliance with all relevant environmental regulations and requirements.
(See page 26, organisational chart of the Leobendorf plant)

## DOCUMENTATION OF THE SYSTEM

Documentation of the system is carried out as part of the integrated management system using a software system (ConSense) which can be accessed by all employees via the intranet (PCs or terminals in the production areas).
The environmental requirements are an integral part of the system documentation, which is divided according to processes, and in the individual process and work instructions as well as any further applicable documents, such as technical descriptions of processes, operating instructions, forms, checklists, etc.

Environmental data are not collected in the system documentation but in a clearly legible form in a digital storage system; they are evaluated annually when the environmental statement is updated.

**The environmental statement can be accessed by all employees via the intranet, and by interested parties via the website of Kwizda Agro GmbH/Leobendorf plant. (www.werk-leobendorf.at)**

*For me, efficient operation of the plant is important in order to keep energy costs low (for example, when operating the steam generator).*

**Markus Bernhaus** – Shift supervisor, Production

*Personally I focus a lot on hygiene at work. I never go into contamination-free rooms wearing dirty work clothes and without washing my hands.*

**Marcus Schäfer** – Production staff

*I personally suggested a project where not every goods-in label would be printed separately, but a collective list would be printed in order to reduce the amount of waste paper.*

**Thomas Schwarz** – Warehouse operative

## GUARANTEEING COMPLIANCE WITH THE RELEVANT ENVIRONMENTAL REGULATIONS AND LEGAL STANDARDS

In order to handle the volume of relevant legal regulations and their amendments, an internet-based legal management system has been introduced for the Leobendorf site. The system makes it possible to use a database to track legislative amendments that apply to the company and assess their relevance and compliance with them. Furthermore, it offers a direct link to the underlying legal regulations. This means the amendment to the legal regulation can be read and assessed, together with the (derived) modified legal obligation. The register is updated monthly by the software owner. The evaluation of legal regulations is updated at least once a year by the Quality Management & Compliance department, with the involvement of the relevant operational departments.

All individual, specific legal acts (administrative acts, decisions, documents for submission and plans) as well as other documents relevant for the authorities are clearly arranged and filed (according to project or plant as well as chronologically) in a central database (Saperion) and can be accessed at any time by all employees involved. All original documents are also stored as hard copies in the works archive.

Tasks such as special mandatory, recurring inspections or notifications are assigned to the person responsible by the Quality Management & Compliance department in the action database of the software-based ConSense system and are implemented by the person responsible. General mandatory, recurring inspections are documented in SAP and completed by the Engineering & Maintenance department.

The facility was inspected in 2016 in accordance with Art. 82b of the Trade Regulations Act (Gewerbeordnung) by an accredited inspection company (TÜV AUSTRIA CERT GMBH).

We received the inspection document in October 2016 and sent it to the authorities. This means that the next inspection will be in 2021 and Quality Management & Compliance will prepare for it well in advance.

Since 2018 the Tolling BU (Leobendorf plant and staff functions) carry out a Corporate Social Responsibility (CSR) evaluation each year.

CSR stands for a responsible, voluntary contribution to sustainable development which goes beyond legal requirements. The concept is used as a basis for the integration of social and environmental concerns in our corporate activities and in our relations with the relevant stakeholders.

Aspects such as the environment, sustainable procurement, honest business practices and fair working conditions are examined in detail during the evaluation.

Very good results were achieved in the environment section with regard to transparent reporting of $CO_2$ emissions, NOx and SOx values and water and energy consumption.

With regard to working conditions, the ongoing training programmes and strong accident prevention scheme were highlighted as positive aspects. Room for improvement was identified in the area of sustainable procurement. The open issues will be dealt with successively by 2023.

Kwizda supports the United Nations' Sustainable Development Goals (SDGs). At the economic, social and ecological level, we are sure that these goals will help to implement the necessary actions and innovations for a better and sustainable future. We are coordinating with our customers to work on new, eco-friendly technologies and products. We understand that we can only achieve this goal if we work together.

*As Safety Officer I think it is important to help all employees in questions of Health & Safety.*

**Gert Hauptmann** – T&I member of staff and Safety Officer

*Every day at the end of the shift I turn off the Kardex (labelling storage system) properly so as to save electricity.*

**Milodija Biresic** – Packaging preparation

| SDGs | Our contribution |
|---|---|
|  **END HUNGER**<br>End hunger, achieve food security and improved nutrition and promote sustainable agriculture | We see improving sustainability in agriculture as one of our main aims. This is why we are investing in agricultural research, agricultural advisory services and technological development. |
|  **GOOD HEALTH AND WELL-BEING**<br>Ensure healthy lives and promote well-being for all at all ages | The production and application of plant protection products harbours numerous risks caused by contact with dangerous substances. We protect our employees through technical, organisational and personal measures against the negative effects of these substances.<br>We share our findings from handling dangerous substances with our customers with the aim of generally improving safety at work in the agricultural sector. |
|  **CLEAN WATER AND SANITATION**<br>Ensure availability and sustainable management of water and sanitation for all | Clean drinking and groundwater are a basic concern for us: in order to exclude any potential further contamination of the groundwater body Korneuburger Bucht, we have separated our production facilities hermetically via a sealing wall from the surrounding groundwater current (see page 25) and updated our whole wastewater system to state of the art. Cleaning the groundwater body of residues from plant protection products is progressing rapidly – at the end of 2020, almost 100% had been removed from the groundwater. |
|  **DECENT WORK AND ECONOMIC GROWTH**<br>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all | As a company committed to sustainability, the creation of secure and long-term jobs is a key concern. We protect jobs, respect human rights and create a working environment that ensures the highest productivity of our employees in the long term. We have enshrined our principles in our Corporate Social Responsibility Company Policy. |

| SDGs | Our contribution |
| --- | --- |
|  **RESPONSIBLE CONSUMPTION AND PRODUCTION** Ensure sustainable consumption and production patterns | Our strategy to avoid negative environmental effects consists of determining specific measures for improvement in those areas where our greatest potential for improvement lies: First of all, this applies to the use of raw materials and energy for the production of goods; and secondly to the generation of waste and wastewater as an undesirable side effect of our production processes. When working with our suppliers and logistics service providers we take care to ensure they share our standards. |
|  **CLIMATE ACTION** Take urgent action to combat climate change and its impacts | The effects of climate change are already clearly noticeable, particularly in the field of agriculture. We support our customers in adapting to changing environmental conditions through product innovations in the area of plant protection.<br>In our production facilities we strive to minimise our climate-related emissions and so help to combat climate change through careful use of raw materials and energy sources and efficient machinery. As from 2022 we will obtain 5.2% of our energy consumption climate-friendly, based on new photovoltaic systems. |
|  **PARTNERSHIPS FOR THE GOALS** Strengthen the means for implementation and revitalise the global partnership for sustainable development | We place great importance on collaboration: We work with universities, technical colleges, non-university research facilities, authorities and municipalities in order to apply the broadest spectrum of knowledge and resources to tackle our future challenges with the aim of increasing resource efficiency. |

## TRAINING, AWARENESS AND EXPERTISE

Our complex production and logistics processes require skilled staff. The key to this expertise is our comprehensive qualification and training programme which all employees follow – from familiarisation through periodic relevant training sessions (e.g. formulation technology, hazardous substance management, waste, wastewater and emergency management, training sessions on the use of PPE, etc.) to more advanced training courses to become a certified factory trainer (see also qualification of employees through the "train the trainer" programme).

## EFFECTIVENESS OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

Internal audits, safety and environmental inspections, comprehensive key data monitoring and the obligatory reporting of safety and environmental incidents ensure that our environmental management system remains permanently effective.

If deficits (deviations, potential for improvement, etc.) are recognised, a detailed analysis of the causes is carried out and corrective measures are introduced.

These are assigned to the people responsible for implementation by the Quality Management & Compliance department in a special action database (in the software-based ConSense system). The status of actions taken can be retrieved at any time in the system and also dealt with four times a year at the meetings of the Quality Management & Compliance department.

Following the annual management review, which takes place at the beginning of the year, the effectiveness of the environmental management system and progress of action taken on the environmental programme is assessed.

## INVOLVEMENT OF ALL EMPLOYEES

In our company, protecting the environment is the responsibility of every single one of us, which is why works managers give their staff an opportunity to be actively involved in the continuous improvement of our green credentials by presenting their own ideas and suggestions for improvement.

A suggestion scheme has been implemented in the factory to this end. Furthermore, suggestions for improvements are presented in shop floor meetings as part of our shop floor management (a concept on "leadership where added value is created" – in the production and bottling and filling facilities).

## EXTERNAL COMMUNICATIONS

External communication of environmental concerns is done via the plant's own website www.werkleobendorf.at as well as via diverse social media such as LinkedIn, Facebook and others.

Kwizda Agro promotes transparent dealings with interested parties and is listed in the register for factory tours for school classes (NFB Land NÖ Forschung & Bildung http://www.nfb.at).

*As part of my work I am involved in compliance with all legal requirements for the factory. In addition I directly help to reduce the environmental impact through the optimisation of processes.*

**Gerold Hörmann** – QMC member of staff

## INTERVIEW WITH THE EMPLOYEES OF THE QUALITY MANAGEMENT AND COMPLIANCE DEPARTMENT ON THE ISSUES OF HEALTH, SAFETY AND ENVIRONMENTAL PROTECTION

*Chris Muri interviews Regine Kacetl and Gerold Hörmann*

**Ms Kacetl, you joined the QMC department at the beginning of 2020 to strengthen the team. How do you contribute to better health, safety and environmental protection at Kwizda Agro?**

As a trained safety officer, the health and safety of employees is a major concern for me. On the one hand it is the responsibility of the employer; however, on the other hand, every single employee has the obligation to make their own contribution. Because at the end of the day we all want to go home to our families safe and sound.

I see my job in the QMC department as a mediator between company management and the workforce in order to find a solution to all questions of health & safety at work that satisfies everyone.

**And how can you improve environmental protection at Kwizda Agro?**

For example, I take a good look at the costs of waste and volume of waste and try to identify where waste can perhaps be sorted better or be avoided.

**Mr Hörmann, how do you ensure legal compliance at the Leobendorf site?**

Firstly we use an internet-based legal amendment service at the site, which provides us with an overview of the amended legal regulations on a monthly basis. Secondly, I have taken out a personal subscription to the newsletter of the Federal Chancellery which provides prompt information on publications in the Federal Gazette. With a little practice it is easy to identify the issues that need a closer look and you can keep track of things.

I immediately pass on information about changing requirements due to administrative decisions to the relevant department head and I check compliance via the action management system.

**Mr Hörmann, your duties include the management of measurements relating to the environment such as emission measurements. What are the challenges you face?**

The work relating to environmental measurements is very broad and includes identifying the constraints contained in the relevant official notices, coordinating the measurements to be carried out and making analytical and technical checks of measurement reports.

Since delays can always occur due to planning and production issues, direct coordination with external measurement partners is essential. However, this works excellently due to our long years of cooperation.

In order to ensure that no measurements are forgotten, I use our action management system. A reminder is scheduled for every measuring point in the system. I personally enter any changes to requirements in the system. Consistent use of the systems allows me to contribute to the environmentally friendly production of our products.

# THE ENVIRONMENT: EFFECTS, ACHIEVEMENTS, OBJECTIVES

WE HAVE LEARNT FROM THE PAST AND ARE NOW INVESTING CONSISTENTLY IN PREVENTIVE ENVIRONMENTAL PROTECTION.

# OUR ENVIRONMENTAL IMPACT

## DIRECT ENVIRONMENTAL ASPECTS

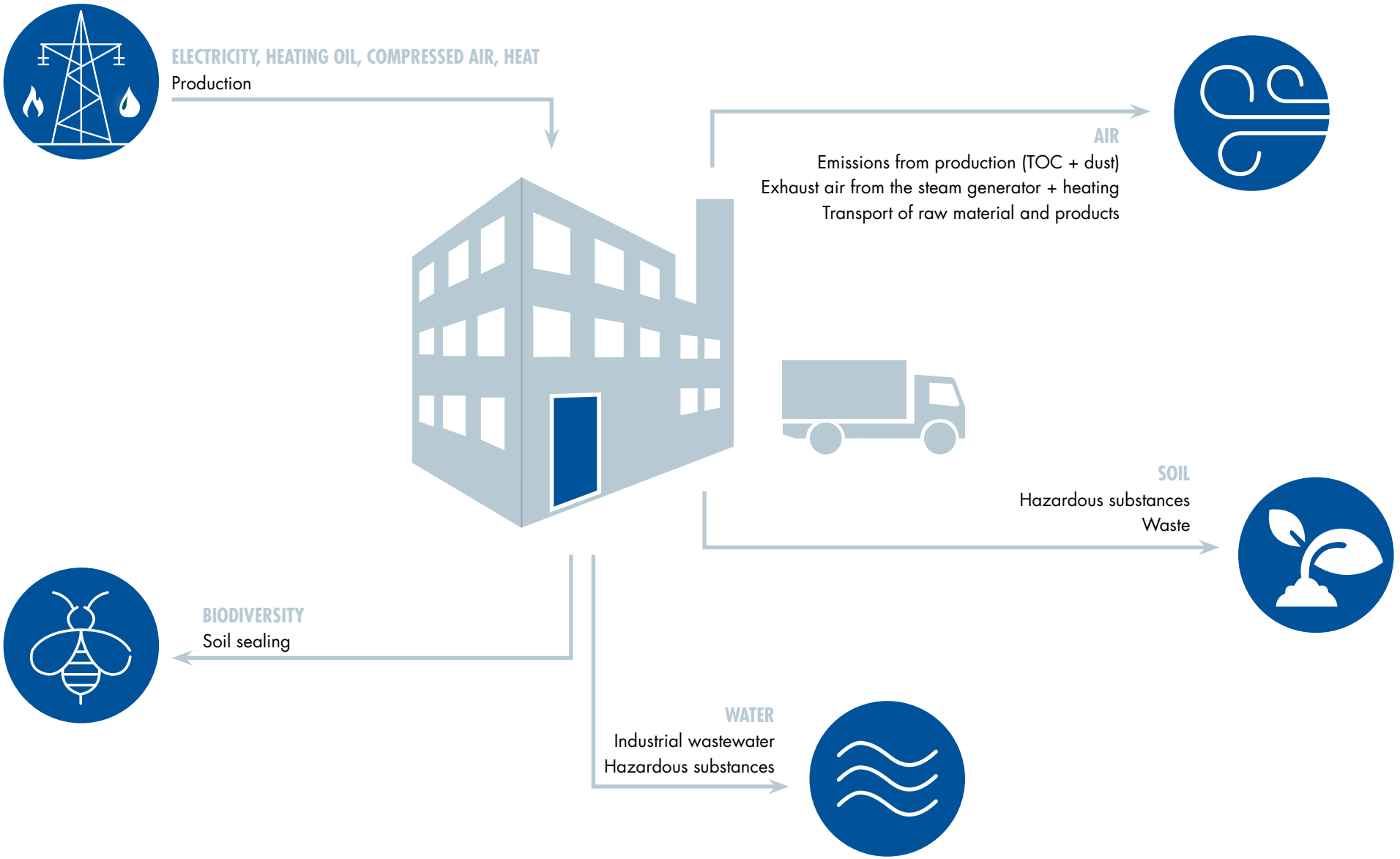
The environmental impact of the factory was investigated with regard to the following aspects: resources, air, soil, water and biodiversity. The findings are used as the foundation for in-plant environmental protection.

- The emissions of organic carbon (TOC) and dust produced by the production facilities as well as the exhaust air emissions from the steam generator and heating installations and – generally speaking – the $CO_2$ emissions caused by activities on the site are of importance for the "air" aspect. Air scrubbers using various types of technology (wet scrubbing, dry scrubbing) are implemented to reduce these emissions. The intention is to reduce the relative $CO_2$ emissions (adjusted for production output) by increasing the efficiency of energy conversion (steam and heat generation) and production processes.
- The consumption of utilities such as electricity, heating oil, compressed air, heat and water are evaluated for the "resources" aspect.
- Both the volume and type of industrial wastewater (hazardous waste) generated on site as well as handling dangerous substances in the plant are relevant for the "water" aspect (groundwater, process water). In addition to the legally compliant recording and disposal of industrial wastewater, careful handling of dangerous substances in accordance with regulations is essential.
- Handling hazardous substances as well as the volume and type of hazardous and non-hazardous waste generated on-site are relevant criteria for the "soil" aspect. The correct segregation and collection (mixing is prohibited) and the proper disposal of waste as well as careful handling of hazardous substances in accordance with regulations are essential.

Detailed information on the individual environmental aspects can be found in the chapter on "Figures, Data, Facts". Every (relevant) company process has been evaluated with regard to its environmental impact.

A quantitative assessment of environmental aspects is carried out in the plant-related risk analyses, which are compiled as part of the safety report in accordance with the Industrial Accident Act (Industrieunfallverordnung) and are updated annually.
For all aspects with a high impact on the environment or safety the corresponding measures or instructions on how to behave are set out in operative work instructions in order to control the potential risks inherent in these aspects.

## ENVIRONMENT-RELATED INPUTS AND OUTPUTS



## EVALUATION OF INDIRECT ENVIRONMENTAL ASPECTS

**ECO-FRIENDLY PROCUREMENT:** Many of the raw materials used in the factory (in particular active substances) are provided by our customers. Regarding the raw materials we procure ourselves, we are committed to ensuring the procurement process and the raw materials we procure have the lowest possible environmental impact by preferring local suppliers (wherever possible, allowing for customers' requirements). We also try to generate as little packaging as possible (through a circular economy, e.g. returning pallets and cardboard interlayers). We are using outer boxes made of recycled material for in-house Kwizda products.
As far as we can justify it in technical and economic terms, we prefer to use eco-friendly materials and construction materials, e.g. biodegradable cleaning materials, PVC-free cables, non-synthetic insulation materials, etc.
The procurement of environmentally relevant products and services follows exact criteria, insofar as these are not products provided by customers. We also regularly review our environmentally relevant suppliers and waste disposal companies and carry out an evaluation in accordance with clearly defined, specific and environmentally relevant criteria during supplier audits and an annual supplier assessment.

**ECO-FRIENDLY BEHAVIOUR OF CONTRACTORS:** At the Leobendorf plant in recent years a comprehensive investment programme has been implemented to modernise and secure the plant economically and sustainably. Further extensive investments are planned for the coming years in the expansion of our production and logistics capabilities. This investment programme comprises several individual projects which will be tendered out to various contractors (builders, plant manufacturers, HVAC companies).
The eco-friendly approach of these contractors is a special challenge for us in terms of comprehensive environmental responsibility.
That is why we endeavour to specify our exact requirements regarding an eco-friendly approach in the tender documentation (conditions of contract, schedule of services). Contracts are awarded on the principle of the best, not the cheapest, bidder. Contractors are monitored to ensure they comply with our environmental requirements when they provide their services.

## ENVIRONMENTAL ACHIEVEMENTS 2020

| NO. | ENVIRONMENTAL OBJECTIVE | AREA | MEASURES TAKEN | SAVINGS IN MWH/YEAR OR TONS $CO_2$/YEAR |
|---|---|---|---|---|
| 1 | Increasing energy efficiency | Object 3, PVB [production supply area]/Cell 9 + Cell 8 | Replacing the two manually operated gates with automatic gates | n.a. |
| 2 | Increasing energy efficiency | WG3 [fluidised bed granulator 3] | Changed location of compressors from WG3 upper storey to central compressed air power house | 147/41 |
| 3 | Increasing energy efficiency | Compressor room | Automatic inlet air flap/circulating air flap | n.a. |
| 4 | Decarbonising | Leobendorf site | Compilation of a photovoltaic system concept (general concept) Installation of a photovoltaic system with 530 kWPeak with variants “green meadow” and roofed car parking (implementation 2022+) | n.a. |

## ENVIRONMENTAL PROGRAMME 2021

| NO. | ENVIRONMENTAL OBJECTIVE | AREA | MEASURES TAKEN | SAVINGS IN MWH/YEAR OR TONS $CO_2$/YEAR |
|---|---|---|---|---|
| 1 | Decarbonising | Car park | Installation of 3 x 2 E charging points in a roofed area, with min. 11 kW charging capacity each; scheduled for 2021/2022 with photovoltaic system | n.a. |
| 2 | Increasing energy efficiency | Boiler house/central heating | Retirement of the remaining oil-fired boilers and conversion to natural gas. Modernisation of the water heating system (condensing technology) in Q3/2021. | 404/245 |
| 3 | Increasing energy efficiency | Compressed air power house | Controller upgrade of compressed air system | 64/34 |
| 4 | Increasing energy efficiency | WG3 [fluidised bed granulator 3] | Refrigerating plant WG3 upgrade (conversion to new refrigerant – propane and free cooling option) in granulation plant WG3 | n.a. |

## ENVIRONMENTAL PROGRAMME 2021

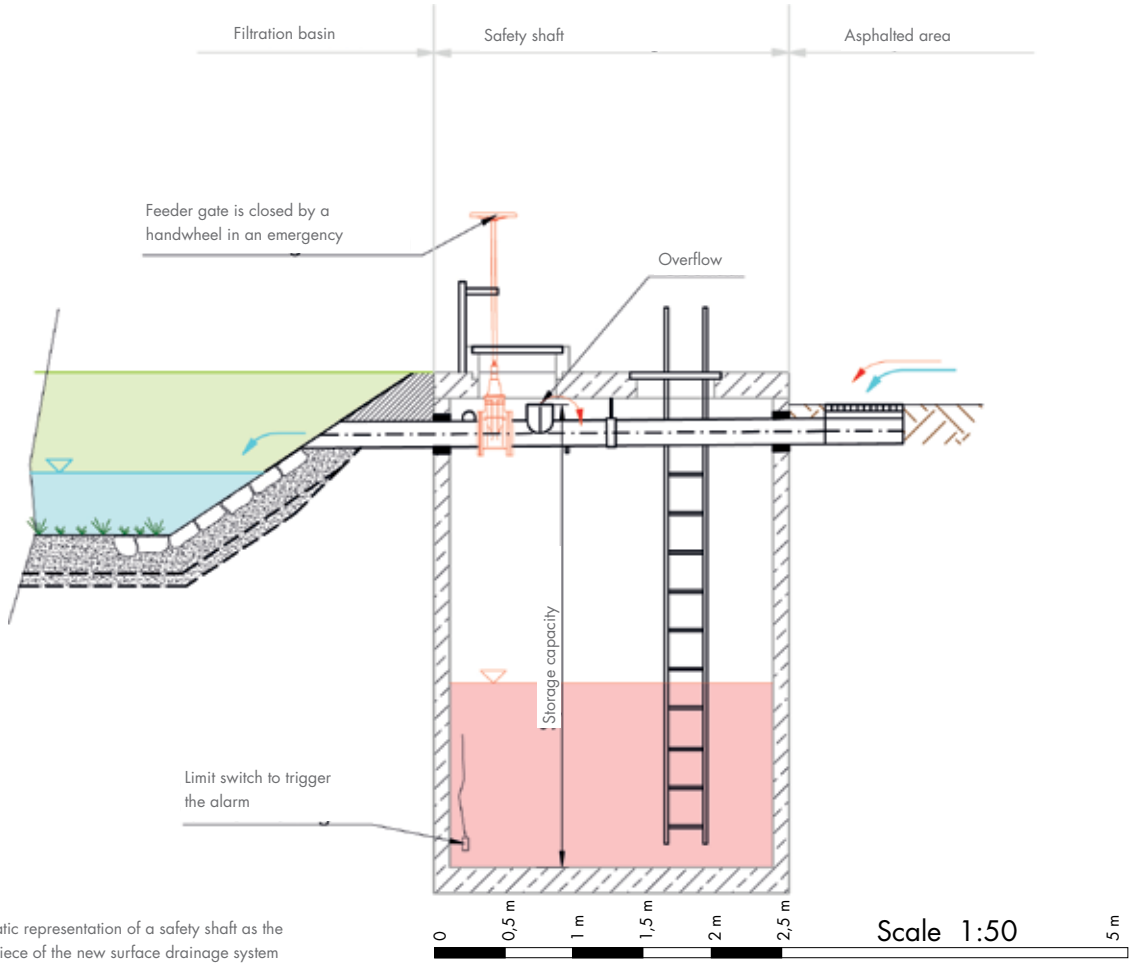
| NO. | ENVIRONMENTAL OBJECTIVE | AREA | MEASURES TAKEN | SAVINGS IN MWH/YEAR OR TONS $CO_2$/YEAR |
|---|---|---|---|---|
| 5 | Decarbonising | Production | Conversion of various (primary/secondary) packaging and labels for in-house Kwizda products to recycled or bio-HDPE materials: Reducing the $CO_2$ footprint of in-house Kwizda products<br>150 000 labels and 14 000 outer boxes<br>Change-over 2021/2022 | n.a. |
| 6 | Decarbonising | Leobendorf site | Planning / submission / approval of photovoltaic system 530 kW Peak on "green meadow" – implementation 2022 (positive feasibility study in 2020) | 500/161 |
| 7 | Increasing energy efficiency and decarbonisation | Leobendorf site | Start of the energy efficiency initiative of the Kwizda Group "KWIGGE" (responsible: Holding and Division Agro) | n.a. |

# SECURITY SYSTEMS

WE SPARE NO COSTS OR EFFORTS TO SECURE OUR PLANT USING STATE-OF-THE-ART TECHNOLOGY.


Dampfkessel
betriebsbereit
BOSCH
ENGIE

# DESCRIPTION OF THE SAFETY ARRANGEMENTS




Schematic representation of a safety shaft as the centrepiece of the new surface drainage system

## SURFACE DRAINAGE, ADJUSTMENT TO STATE OFTHE ART

The whole surface drainage at the Leobendorf site was reviewed and adjusted to state of the art. The precipitation falling on traffic areas passes through a humus filter layer into filtration basins on site for infiltration into the ground. Based on a risk assessment, five new safety shafts were installed in the areas with the most-used loading ramps. As shown in the diagram, precipitation normally passes through the shaft and infiltrates the ground. If contamination occurs on the asphalted area, the feeder gate in the safety shaft is closed manually and the contamination stored in the safety shaft. A water-level control triggers an automatic alarm. Rain falling at the same time is taken into consideration when calculating the storage volume.

## NEW INDUSTRIAL WASTEWATER SYSTEM

Three new underground wastewater collection tanks with 30m³ each capacity

The new industrial wastewater system is intended to ensure the environmentally sound collection and disposal of the industrial wastewater generated. In order to exclude contaminants from leaching out of the wastewater system, the wastewater system was constructed with a double wall and permanent leak monitoring. The diagram shows the three new central wastewater collection tanks.

## SLURRY WALL AND GROUNDWATER PURIFICATION – ACTIVATED CARBON FILTERS

In order to prevent contaminants from the site leaching into the groundwater body "Korneuburger Bucht", a sealing wall was erected around the site; this reaches down to the aquifuge and separates the groundwater body below the factory site from the surrounding groundwater body. The groundwater body within the sealing wall is lowered artificially by approximately 50 cm through constant pumping. The used pump water is purified via activated carbon filters.
The following diagrams illustrate the principle for building the sealing wall and construction work in the south-west of the construction area:

Rammer with suspension silos

## FIREWATER RETENTION BARRIERS

In case of fire, foam dispensers have been fitted in the relevant sections to douse the flames. In order to prevent quench water and foam and contaminants from escaping in the case of accidents, all gate openings in the new herbicide warehouse and herbicide production construction areas have been fitted with stationary firewater retention barriers which close automatically, or can be closed manually, when a fire breaks out. The figure here shows a firewater retention barrier in the production area:

Firewater retention barriers at all exits

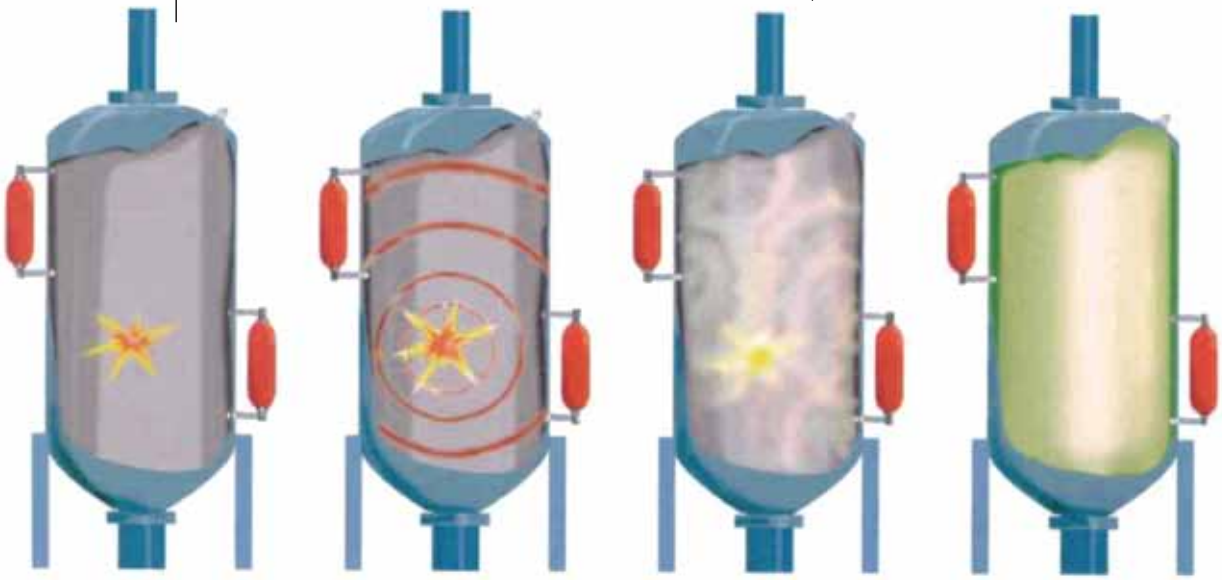
## EXPLOSION SUPPRESSION SYSTEMS

Under certain conditions the substances processed in the fluidised bed granulators can generate explosive dust/air mixtures. In order to exclude dust explosions, the granulators were fitted with explosion suppression systems; if a dust explosion should occur, the increase in pressure is reduced by extinguishing agents to the point that no blow-out discs are needed to lower the pressure in the containers and thus prevent contaminants from escaping. The following figures illustrate the principle of an explosion suppression system.

**Theoretical sequence of an explosion suppression** (Container protected by an HRD explosion suppression system)

Time: 0 ms
Pressure: 0 bar
The explosive mixture in the container ignites.

Time: 40 ms
Pressure: 0.1 - 0.25 bar
Dispersal of extinguishing agents



Time: 5 - 35 ms; Pressure: 0.03 - 0.15 bar The explosion detector is triggered; the extinguishing agent containers are opened.

Time: 60 ms; Pressure: 0.2 - 0.4 bar The explosion pressure stops rising; the explosion has been suppressed.

Source: http://de.sicherheit.wikia.com/wiki/explosionsunterdr%c3%bcckungsanlagen; 28.04.2016

# MEASURES TO PREVENT ACCIDENTS AND INCIDENTS

WE ARE COMMITTED TO PROVIDING REGULAR TRAINING.
BECAUSE WE CAN ONLY AVOID INCIDENTS WHEN WE KNOW THE DANGERS.

# MEASURES TO PREVENT ACCIDENTS AND INCIDENTS

## ORGANISATIONAL PRECAUTIONS

In order to avoid accidents and incidents a safety management system in accordance with ISO 45001 was implemented, amongst other measures, and integrated into the on-site management system. Existing organisational structures, processes and documents are used to manage and operate the safety management system and are supplemented where necessary with the corresponding specific processes.

The organisation and responsibilities of operating personnel are documented at each site in an up-to-date organisational chart which is supplemented with the corresponding job descriptions. Detailed responsibilities and tasks within processes are defined in the relevant process descriptions.

Training courses and sessions are carried out and documented in accordance with legal regulations and operational needs. Maintaining a high level of knowledge and awareness of safety though training on health, safety and the environment (HSE) are in any case an integral part of our safety objectives.

All production facilities are documented in up-to-date descriptions. They contain the technical installations, the processes used and the safety precautions applied. A risk analysis is compiled based on these descriptions of facilities and an on-site inspection; possible sources of risk are identified and their impact assessed.

If changes occur within the facilities or new processes are introduced, the production area as a whole is subject to a new risk analysis. New facilities are evaluated before normal commissioning.

Safe operation is ensured firstly by regular maintenance and careful handling of installations and equipment and, secondly, the corresponding training courses enable employees to work with the installations according to their proper use and in a responsible manner. This applies both to production and to storage in the plants or for outgoing shipments.

An internal emergency planning for each site aims to limit damage to people, environment and facilities should an incident occur. To this end emergency scenarios were devised and emergency plans developed for typical incidents which are intended to enable the site to deal with the incident efficiently and limit its impact for operations and surroundings as far as possible. Regular safety audits are carried out by the Safety Office or Safety Supervisors as part of the audit process; they monitor the validity of the risk analyses and search for possible deviations from the current safety regulations or potential to improve safety.

**INDUSTRIAL SAFETY COMMITTEE**

The mandatory industrial safety committee (ISC) meets three times a year.

The task of the ISC is to ensure a two-way information flow, exchange of views and ideas and coordination of operational safety installations and work towards improving health & safety and working conditions. The ISC discusses in particular the reports and suggestions of safety supervisors, the safety officer and the works doctor. The ISC plays an extremely important role in promoting in-house cooperation in all questions of health & safety.

The person responsible for the safety report, the production manager, the production manager, the head of formulation and process development, the fire officers and the safety supervisors are responsible for issuing safety instructions and determining training needs of individual employees as well as carrying out the training courses and sessions. Where necessary they are supported by specialists at Kwizda Holding GmbH or by external experts. Everyone entrusted with special safety-related tasks (safety supervisors, boiler and elevator maintenance personnel, etc.) receives appropriate training.

**CONTINUOUS IMPROVEMENT**

At the start of 2020 a new skin protection concept was implemented at the factory. Coordinated skin cleaning, skin protection and skincare products are available in wall dispensers and employees are trained in how to use them properly. The aim is also to raise awareness among employees to take more care of their largest organ during their daily work.

Regarding first aid in the event of accidents with hazardous substances, the PREVIN system was introduced step-by-step at the plant. PREVIN solutions can be used for all types of corrosive and irritant chemicals and if used quickly on the skin or eye, can stop the effect of the chemicals and minimise subsequent damage.

In 2020 we implemented wearing protective goggles as mandatory throughout the plant. Employees who require prescription lenses or eyeglasses will be fitted with optical protective goggles by an optician. This is intended to increase acceptance of this important preventive measure.

## QUALIFICATION OF EMPLOYEES THROUGH THE"TRAIN THE TRAINER" PROGRAMME

One of the aims of our corporate policy is to ensure our staff are well trained and act responsibly. Targeted training courses on the machines during live production are intended to give employees confidence to carry out their work safely. Both the appropriate behaviour in emergencies and an awareness of eco-friendly behaviour at work are promoted explicitly by training. Independent trainers receive extensive training on certain installations by senior management as part of their own training programme.

After a written and oral test the trainers receive the "Train the Trainer" certificate and are qualified to train employees in consultation with the relevant plant. The programme started in 2016 with the first trainer receiving training. By 2019 three additional employees had been trained and another two trainer courses are planned for 2021.

## SHOPFLOOR MANAGEMENT (SFM)

Shopfloor management is a key management instrument in implementing a LEAN organisation at Kwizda Agro. It is used to transfer process objectives at the place of action, informs everyone of the current process state, current issues and safety measures and makes it possible to identify deviations at an early stage. Employees are very involved in tracking the achievement of objectives at regular, short intervals. The high level of transparency achieved by displaying the process figures ensures clarity for employees, creates a common understanding across business units and prompts the need for action.

Leadership, decision-making, guiding and communication are the key elements of shopfloor management.

It tracks compliance with standards (comparison of target/ actual state) at short intervals and at different levels, involving both management and employees. If the SFM detects deviations, a decision is taken on which measures to implement immediately. Repeated errors or chronic deviations are documented, evaluated and a decision taken on how to address them (e.g. focus project, structured troubleshooting). The SFM board communicates and tracks progress.

Furthermore, the SFM communicates targeted improvements to processes and monitors their progress at regular intervals.

## STORAGE OF RAW MATERIALS, HALF-FINISHED AND FINISHED GOODS

Plant-specific risk analyses, according to the HAZAN system, prove that the sources or risk in the area under review can be managed securely by the type of technical installation and organisation of operations. Potential risks are evaluated according to their probability and possible extent of damage regarding injury to persons, environmental damage and economic parameters. This applies in particular to the storage of raw materials in the raw materials warehouse as well as the storage of half-finished and finished goods in the finished goods warehouse.

The **raw materials warehouse** is used to store raw materials, half-finished goods, auxiliary products and operating supplies as well as packaging after delivery.

The following groups of risks or individual risks have been identified as relevant for the raw materials warehouse:

- Risks related to leaching of liquids hazardous to water due to mechanical damage to containers
- Risks related to the risk of fire
- Risks related to firefighting with foam

All risks or the effects of risks that occur can be reduced to an acceptable level, i.e. within the risk acceptance range, by appropriate measures (e.g. provision of emergency sets, maintenance and inspection of warning installations in accordance with generally accepted codes of practice or legal/administrative requirements, employee training).

| **PERMITTED VOLUMES OF RAW MATERIALS IN STORE:** | |
|---|---|
| Storage class – SC 4.1/ 6.1/ 9 or storage classes with a low potential risk | 600 t |
| of which max. SC 4.1/6.1 | 200 t |
| In addition to 600t SC 4.1/ 6.1 / 9: SC 3.3 (Flammable Liquids Ordinance III) | 50 t |
| **Total raw materials warehouse** | **700 t** |



The **finished goods warehouse** is used to store raw, auxiliary and operating materials, half-finished and finished products and hazardous production waste. In addition, the area of WG2 (fluidised bed granulator 2) has a further warehouse which is also used to store raw, auxiliary and operating materials, half-finished and finished products.

Compressed gas packs are stored in Warehouse C (storeroom for compressed gas packs and retained samples). Warehouse D is used to store raw, auxiliary and operating materials, half-finished and finished products. Warehouse E is currently not in use.

**PERMITTED VOLUMES OF FINISHED GOODS IN STORE:**

| | |
|---|---|
| Storage class – SC 4.1/ 6.1/ 9 or storage classes with a low potential risk | 2.000 t |
| **Total for finished goods warehouse** | **2.000 t** |

The **herbicide warehouse** is used to store raw, auxiliary and operating materials, half-finished goods, packaging and finished goods.

**PERMITTED VOLUMES OF HERBICIDE IN STORE:**

| | |
|---|---|
| Storage class – SC 4.1/ 6.1/ 9 or storage classes with a low potential risk | 700 t |
| In addition to 700 t SC 4.1 / 6.1 / 9: (Flammable Liquids Ordinance) SC 3.2 / 3.3 | 120 t |
| In addition to 700 t SC 4.1 / 6.1 / 9: Oxidisable substances SC 5.1 | 20 t |
| **Total for herbicide warehouse** | **840 t** |

# PRODUCTS, PRODUCTION METHODS AND INSTALLATIONS

OUR INNOVATIVE PRODUCTS ENSURE ENVIRONMENTALLY FRIENDLY AGRICULTURE

# PRODUCTS, PRODUCTION METHODS AND INSTALLATIONS

The Leobendorf plant of Kwizda Agro GmbH produces and stores plant protection products, such as insecticides (plant protection products to control pests at all stages of development), fungicides (plant protection products to control fungal infections), herbicides (plant protection products to control weeds in agricultural crops) and biocides (insecticidal pest control products and wood protection agents), primarily for use in agriculture at the behest of the customers of Kwizda Agro. Plant protection products do not contain chemical or biological active substances. Production should be understood as the formulation of products through the dilution, mixing, dispersion, wet milling and fluid bed spray granulation processes of active substances and adjuvants in accordance with precisely defined production processes, or their bottling, filling and packaging. The substances required for formulation are provided by the customer (purchaser) or are bought in.

## PRODUCTS

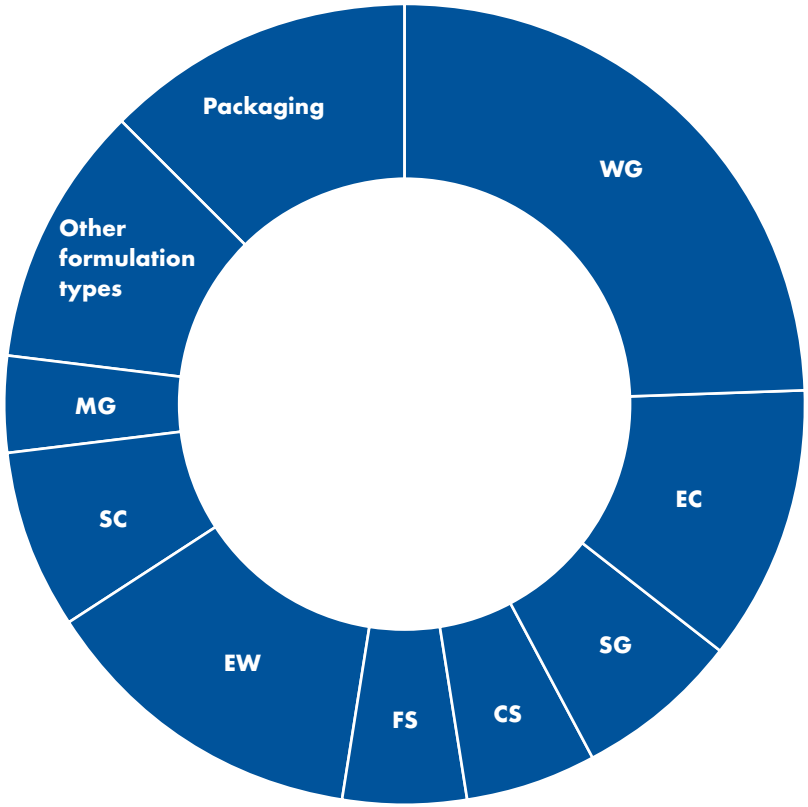
Products are divided into 4 (main) products types according to application, namely:

- **Water dispersible granules:** "WG formulation" type: granular products composed of active substances and adjuvant(s); the granulate material is dispersed in water to create a suspension that is then applied.
- **Suspension concentrates:** "SC formulation" type: water-based liquid products – the active substance is suspended in water; the suspension is thinned with water before application.
- **Emulsion concentrates:** "EC formulation" type: solvent-based liquid products – the active substance is dissolved in an organic solvent; the product is mixed with water for application – the emulsifiers contained as additives create a sprayable emulsion.
- **Micro capsule suspensions:** "CS formulation" type: water-based liquid products – the active substance is encased in a thin, water-soluble polymer layer or "micro capsule"; the suspension is diltued with water before application.

## PRODUCTION METHODS

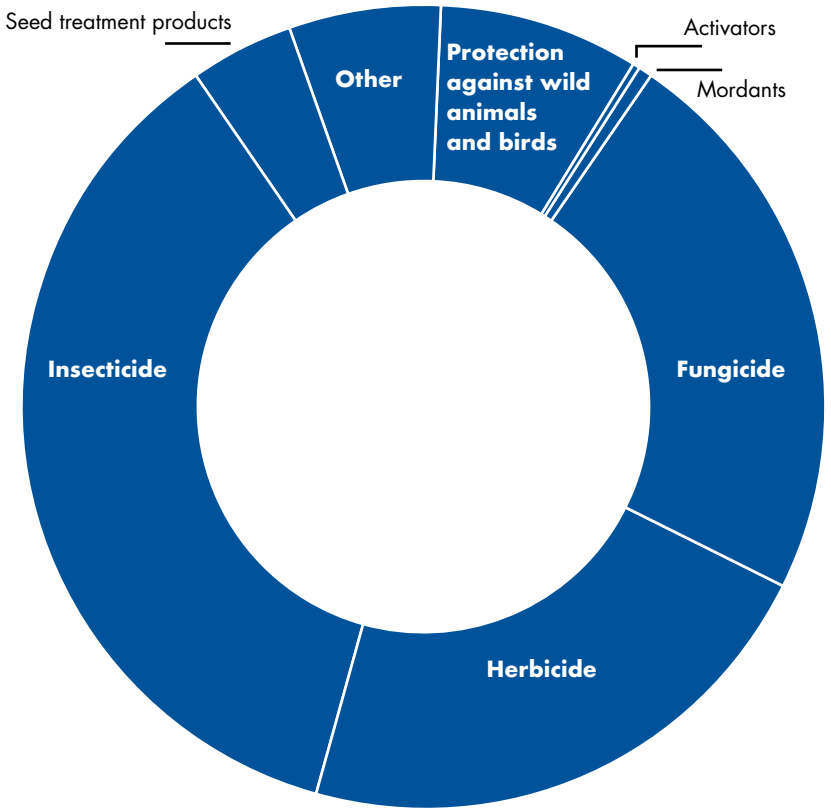
- Production of liquid formulations through dilution, dissolving and mixing processes or through micro encapsulation.
- Production of granules: through initial dispersing, dissolving and mixing processes or through micro encapsulation a spray feed is created which is then fluid bed spray granulated.

**Products made according to formulation type (2020)**



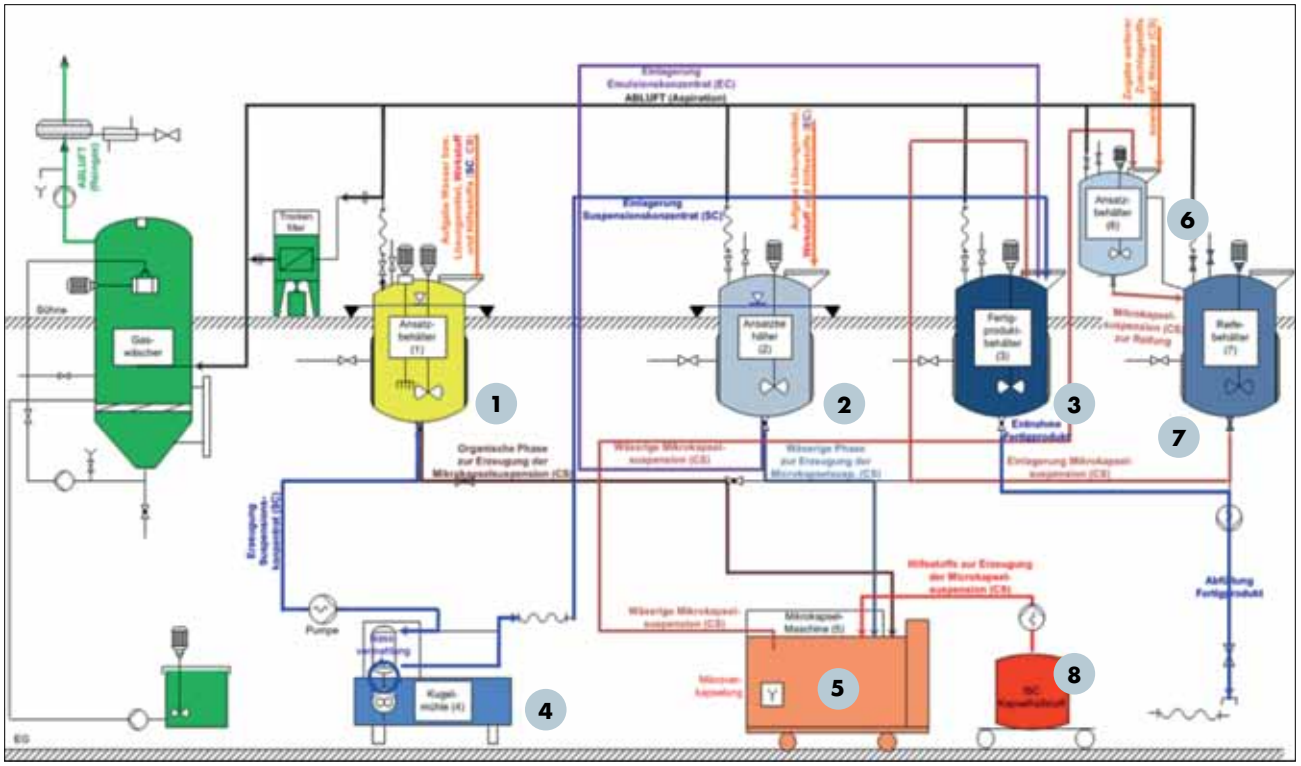

| | | |
|---|---|---|
| 25 % | **WG** | Water dispersible granules |
| 11 % | **EC** | Emulsion concentrates |
| 7 % | **SG** | Water-soluble granules |
| 5 % | **CS** | Micro capsule suspensions |
| 5 % | **FS** | Suspension concentrates for seed treatment |
| 13 % | **EW** | Emulsion in water |
| 7 % | **SC** | Suspension concentrates |
| 4 % | **MG** | Microgranules |
| 10 % | Other formulation types | |
| 13 % | Packaging | |

**Products made according to application type(2020)**




| | |
|---|---|
| 22,6 % | Fungicide |
| 22,0 % | Herbicide |
| 36 % | Insecticide |
| 4,4 % | Seed treatment products |
| 5,9 % | Other |
| 8 % | Protection against wild animals |
| 0,3 % | Activators |
| 0,8 % | Mordants |

# PRODUCTION OF LIQUID FORMULATIONS




## PRODUCTION OF SUSPENSION CONCENTRATES (SC)

To create the primary dispersion in the dispersion vessel container (1), water or a solvent is used. The active substance is supplied in drums, tank containers, bags or supersacks. It is metered into the dispersing vessel by pumping or manually. The adjuvants are added and dispersed or dissolved by the integrated high shear mixer. Small ingredients are added by hand dosing. The primary dispesion is pumped through the bead mill (4) using an eccentric screw pump. The ground suspension is fed into second tank (3) or (7) where the product is finalized by adding those ingrediens that should not be wet milled.

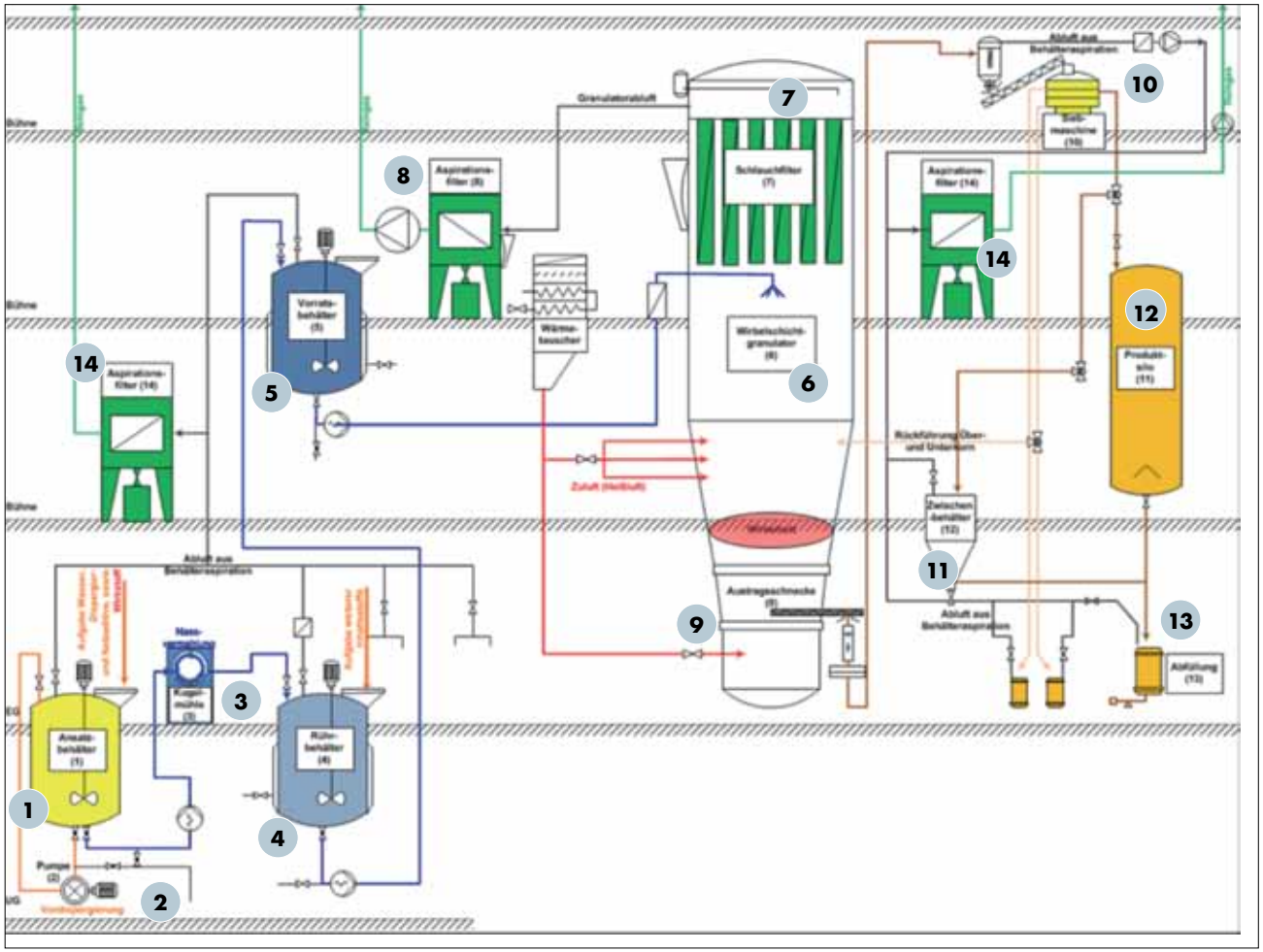
## PRODUCTION OF MICRO CAPSULE SUSPENSIONS (CS)

The organic phase with the molecular dissolved active substance (1) is emulsified in a continuous mixer (micro capsule machine) (5) together with the aquous phase (2) and the capsule forming polymer (8). The active substance is enclosed in a capsule shell wall by interfacial polymerization and is thus turned into an aqous suspension of microcapsules. In the next step the preparation is allowed to cure (6), (7) and finally transferred into the finished product container (3).

## PRODUCTION OF EMULSION CONCENTRATES (EC)

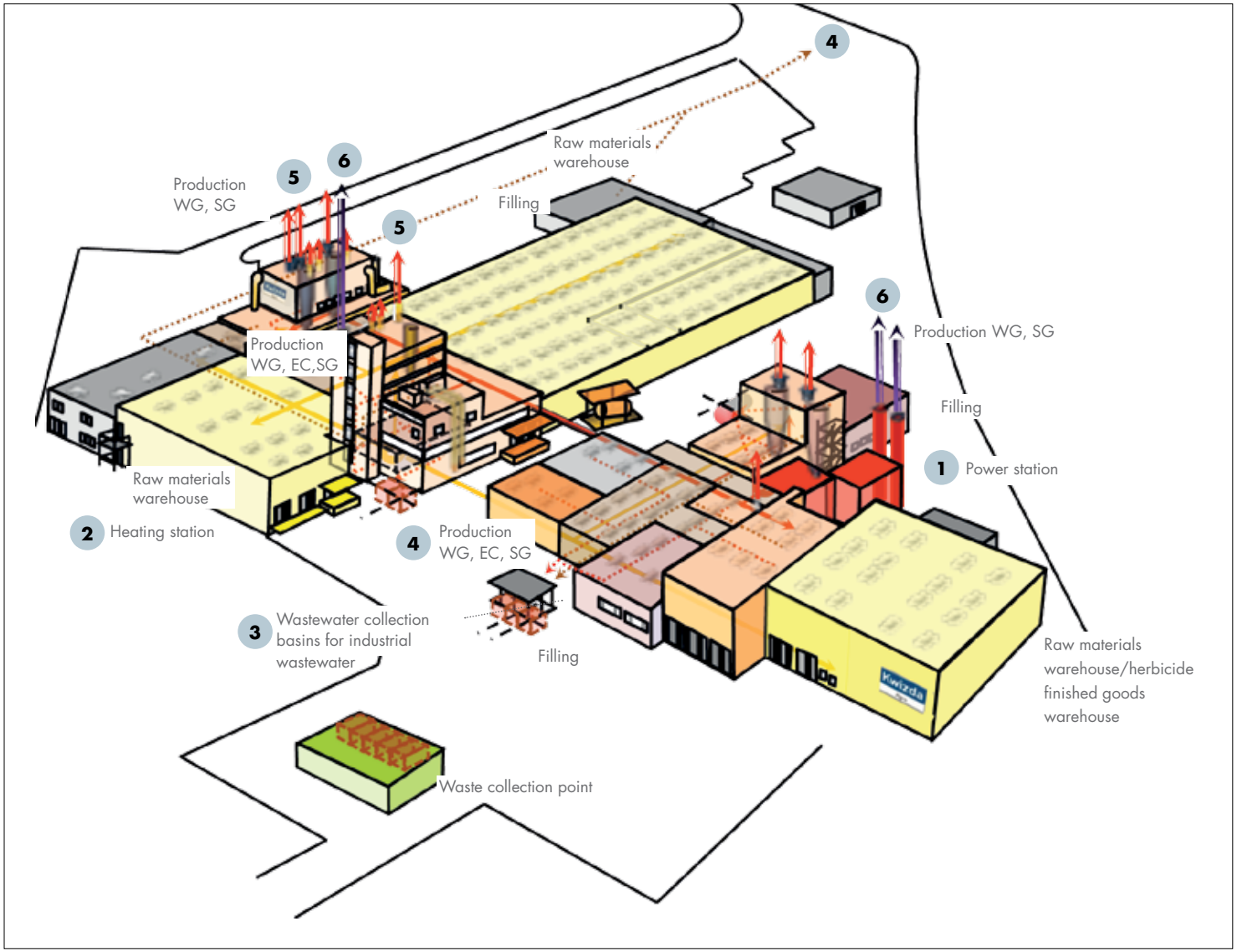
Solvent, active substance and adjuvants are mixed in the preparation container (2) to form a concentrate and the finished product is pumped into the finished product container (3).

# PRODUCTION OF WATER DISPERSIBLE GRANULES




In the first step, dispersing and wetting additives are mixed with water in a mixer and the active substance is added (1). The ingredients are pre-dispersed using an inline homogenizer and a high shear mixer (2).
The mixture then further dispersed in a bead mill (3). The spray feed suspension is prepared in another tank by adding further ingredients (4). In order to maintain a continuous process the spray feed is transferred poriton wise to a buffer tank (5). The spray feed suspension is sprayed continuously on top of the fluidised bed and agglomerates to solid granules with a berry-like structure (6). The exhaust air (including steam) is purified in 2 steps, first by a bag filter (7) and an then throug an aspiration filter (8). The ready made granules are removed from the lower end of the granulator via a discharge screw (9) and separated in a 2-stage vibrating sieve (10) into finished product, oversized and undersized granules. The undersized granules are recycled directly into the granulator, the oversize material is dispersed within the next sprayfeed batch. The finished product is stored temporarily in interim product silo (11) and then packed or in product silos (12) and in big bags or drums (13). The exhaust air from all tanks and silos is purified through a 2 stage aspiration filter (14).

# MEDIA SUPPLY AND EMISSIONS



## DESCRIPTION OF MEDIA SUPPLY AND EMISSIONS

**1** A power station with 2 steam generators supplies the factory (in particular the production facilities) with saturated steam and process heat.

**2** A heating station with 2 boilers supplies the factory with space heating.

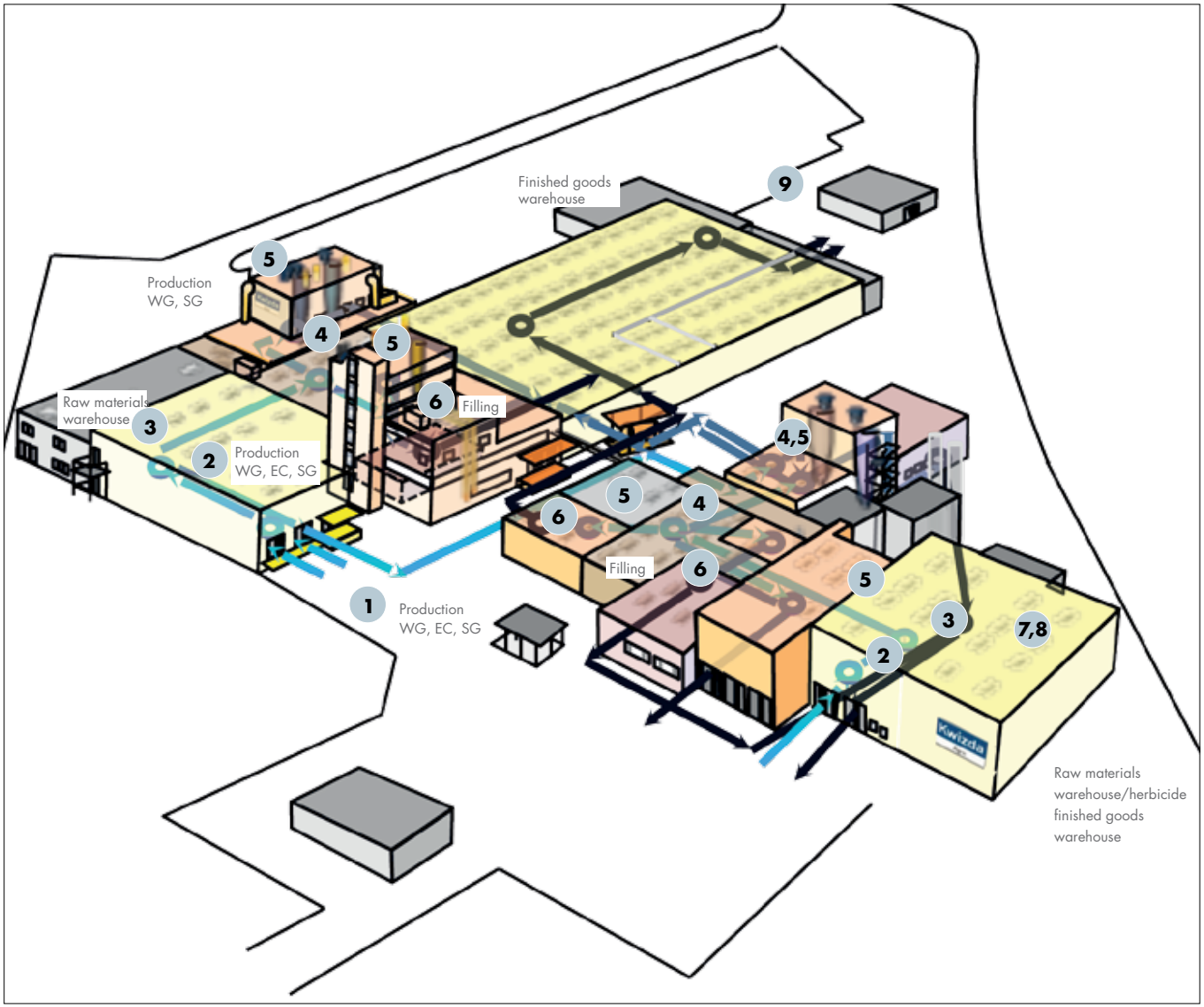
**3** The production wastewater collection system comprises run-in points (floor drains, sinks) in production and laboratory areas, the piping within the building, the piping outside the building and the wastewater collection basins or tanks. It is used to collect wastewater contaminated with chemicals which normally occurs in water-based cleaning processes in the production units.

**4** The collection system for domestic wastewater (toilet waste collection system) is fed into a collection basin for domestic wastewater or into the public sewerage network.

**5** Exhaust air is generated in the production facilities, firstly during the granulation processes in the fluidised bed granulators, and secondly when pumping out the various preparation, mixing, storage and finished product containers. The exhaust air is contaminated with organic carbon components and dust and is purified to comply with the prescribed thresholds using various purification methods (baghouse filters, scrubbing towers, aspiration filters).

**6** The steam and heating installations run on light heating oil or gas; all limit values of the relevant legal regulations are checked regularly to ensure compliance.

# MATERIAL FLOWS




**Production stages:**

1. Delivery
2. Incoming goods (inspection)
3. Storage
4. Production preparation
5. Production
6. Filling and packaging
7. Storage
8. Order picking
9. Delivery

- Raw materials (active substances, adjuvants)
- Half-finished products (big bag, IBC)
- Packaged finished goods

- Store
- Production preparation
- Production
- Filling

## DESCRIPTION OF MATERIAL FLOWS

**1** **2** Raw materials are delivered directly to the two raw material warehouses (separated according to herbicides and insecticides or fungicides). After the trucks are unloaded, the goods are inspected before being stored. During the incoming goods inspection the raw materials are inspected to ensure the delivery is complete and correct and to identify any damage. Any claims are reported to the supervisor, and to the Customer Service, Procurement and Quality Management & Compliance departments.

**3** The supplied materials are stored in the raw materials warehouses in accordance with the storage strategy recorded in SAP. The warehouse management system is used for end-to-end documentation of the flow of raw and other materials and can be traced at any time. Handheld scanners are used to scan the materials every time they are moved so they can always be located in the system.

**4** Once the production order is created by the planning department, the staff in the warehouse receive a transport order. They remove the required raw materials and adjuvants from the raw materials warehouse and send them to the production supply areas of the relevant production line so that the raw materials only have to be transported short distances during production. The production supply areas are located immediately before the relevant production facilities.

**5** **6** During production, employees remove the necessary raw materials from the production supply areas. The amount used is documented precisely. If raw materials are not used, a campaign inventory is carried out after production, which involves booking the returned raw materials back into the warehouse for further storage. If finished goods are produced that do not have to be filled into small containers or packaged, these products are stored directly in the relevant finished goods warehouse. Half-finished goods are normally stored temporarily in the finished goods warehouse before filling and packaging.

**7** Storage or temporary storage of finished or half-finished goods follows the storage strategy recorded in SAP and supported by the warehouse management system in the finished goods warehouse, separated according to insecticides, fungicides and herbicides.

**8** **9** For delivery to the customer, the finished goods are placed in the delivery area of the finished goods warehouse in accordance with the internal transport order for picking by warehouse staff and made ready for shipping/ loading. The trucks can be loaded directly from the ramps.

# **FIGURES, DATA, FACTS**

WE CONTINUE TO PURSUE AN OPEN AND TRANSPARENT COMMUNICATIONS STRATEGY

# FIGURES, DATA, FACTS

## INPUT-OUTPUT ANALYSIS (2020)

| RAW MATERIALS | |
|---|---|
| Active substances | 2.650 t |
| Other raw materials | 4.863 t |
| Finished products | 710 t |
| Packaging | 1.363 t |

| PRODUCTS | |
|---|---|
| Granulate material | 3.822 t |
| Emulsions, emulsion concentrates | 2.902 t |
| Suspensions, suspension concentrates | 2.634 t |
| Other formulations | 1.126 t |

| ADJUVANTS AND OPERATING SUPPLIES | |
|---|---|
| Lubricants, cleaning materials | 121 kg |
| Liquefied gas | 1.200 kg |
| Laboratory chemicals | 1.343 kg |

| EXHAUST AIR | |
|---|---|
| Dust (production facilities) | 16 kg |
| Dust (utilities) | 94 kg |
| CO | 643 kg |
| NOx | 4.982 kg |
| $CO_2$ | 3.882 t |

| CONSUMPTION OF UTILITIES | |
|---|---|
| Electricity | 4.627 MWh |
| Light heating oil | 4.212 MWh |
| Natural gas | 7.850 MWh |
| Fresh water | 14.115 $m^3$ |

| WASTE, WASTEWATER | |
|---|---|
| Hazardous waste | 3.320 t |
| Non-hazardous waste | 174 t |
| Industrial wastewater | 3.128 $m^3$ |

## INPUT – RAW MATERIALS **(Material efficiency)**

A large percentage of raw materials (up to 60%) is provided by customers. The raw materials are delivered to the two raw materials warehouses by trucks.

| **INPUT - RAW MATERIALS AND ADJUVANTS** | **2018 amount (kg)** | **2019 amount (kg)** | **2020 amount (kg)** |
|---|---|---|---|
| Active substances* | 1.634.955 | 1.759.541 | 2.650.428 |
| Other raw materials | 3.432.577 | 4.147.777 | 4.862.754 |
| Finished products (for filling or repackaging) | 463.005 | 754.988 | 710.180 |
| Packaging (drum, box, labels) | 1.007.694 | 1.087.557 | 1.363.305 |
| **Total amount** | **6.538.231** | **7.749.863** | **9.586.668** |
| of which raw materials supplied | 2.605.100 | 2.767.543 | 4.079.953 |

## INPUT – OPERATING MATERIALS **(Material efficiency)**

The bulk of operating materials comprise materials used in plant operation and maintenance of the production and utility supply systems as well as in the laboratory or technical centre.

| **INPUT - OPERATING MATERIALS** | **2018 amount (l)** | **2019 amount (l)** | **2020 amount (l)** |
|---|---|---|---|
| Lubricants | 23 | 32 | 26 |
| Cleaning agents | 1.301 | 1.058 | 83 |
| Laboratory chemicals | 943 | 920 | 1.302 |
| **Total amount** | **2.267** | **2.010** | **1.411** |

| **INPUT - OPERATING MATERIALS** | **2018 amount (kg)** | **2019 amount (kg)** | **2020 amount (kg)** |
|---|---|---|---|
| Lubricants | 7 | 31 | 13 |
| Industrial salt | 6.000 | 6.000 | 0 |
| Binding agents | 3.820 | 840 | 0 |
| Liquefied gas | 1.200 | 960 | 1.200 |
| Laboratory chemicals | 43 | 18 | 41 |
| **Total amount** | **11.070** | **7.850** | **1.254** |

*Approximately 50 active substances with properties harmful to the environment and health are processed; of these, 20 pose an elevated risk (suspicion of carcinogenicity or reproductive toxicity). Particularly strict exhaust air thresholds apply to the latter materials.

## INPUT – CONSUMPTION OF UTILITIES AND ENERGY SOURCES **(Energy efficiency)**

100% of energy sources (electricity, light heating oil, natural gas) are supplied by external suppliers. The factors that determine consumption of utilities are production output, product mix (ratio of granules to other types of formulation) and the number of employees. In order to ensure a transparent representation of the energy consumption per production unit, the detailed production-related structure of meters (sub-meters) is being expanded continuously. Production output increased by 24% year on year. The total energy consumption increased to the same extent. Energy consumption per kg production output compared to the previous year thus remained constant.

| TYPE OF UTILITY | 2018 absolute | 2019 absolute | 2020 absolute | 2018 per kg product output | 2019 per kg product output | 2020 per kg product output |
|---|---|---|---|---|---|---|
| Electricity consumption (kWh) | 4.126.856 | 3.969.670 | 4.626.660 | 0,62 | 0,52 | 0,49 |
| Consumption of heating oil kWh) | 3.840.877 | 3.561.329 | 4.212.490 | 0,57 | 0,46 | 0,44 |
| Consumption of natural gas (kWh) | 5.757.237 | 5.930.750 | 7.849.991 | 0,86 | 0,77 | 0,83 |
| **Total energy consumption (kWh)** | **13.724.970** | **13.461.749** | **16.689.141** | **2,05** | **1,76** | **1,75** |

## INPUT - TOTAL CONSUMPTION OF RENEWABLE ENERGY **(Energy efficiency)**

The input of renewable energy is largely determined by electricity consumption. According to the information provided by the electricity company, approximately 19% of electricity supplied comes from renewable sources.

## INPUT - CONSUMPTION OF FRESH WATER

Fresh water is supplied by the Leobendorf authorities. The factors that determine consumption of fresh water are production output, product mix (ratio of granules to other types of formulation), the number of product changes (cleaning production equipment following a change of product), the number of employees and the space used. Fresh water consumption dropped significantly in 2020, compared to previous years. This is attributable to a leak at a water hydrant which was discovered during construction work at the end of September 2020 and repaired. The water lost in 2020 was estimated at 3.500 $m^3$. It was not possible to ascertain when the leakage started.

| TYPE OF UTILITY | 2018 absolute | 2019 absolute | 2020 absolute | 2018 per kg product output | 2019 per kg product output | 2020 per kg product output |
|---|---|---|---|---|---|---|
| Fresh water consumption ($m^3$) | 17.327 | 16.784 | 14.115 | 2,59 | 2,19 | 1,48 |

## INDICATOR: "BIOLOGICAL DIVERSITY"

| SURFACE AREA USED | 2018 | 2019 | 2020 |
|---|---|---|---|
| Area of the factory site ($m^2$) | 92.000 | 92.000 | 92.000 |
| Built-up area ($m^2$) | 13.425 | 13.425 | 13.425 |
| **Percentage of built-up area (%)** | **14,59** | **14,59** | **14,59** |

## OUTPUT – PRODUCTS

| PRODUCTION OUTPUT ACCORDING TO FORMULATION TYPE | 2018 amount (kg) | 2019 amount (kg) | 2020 amount (kg) |
|---|---|---|---|
| WG - Water dispersible granules | 2.415.655 | 2.171.684 | 2.686.721 |
| EC - Emulsion concentrates | 624.000 | 1.368.843 | 1.143.046 |
| SG - Water-soluble granules | 442.198 | 399.834 | 724.301 |
| CS - Micro capsule suspensions | 670.603 | 572.423 | 668.479 |
| FS - Suspension concentrates for seed treatment | 113.571 | 402.532 | 638.477 |
| EW - Emulsion in water | 1.109.585 | 1.335.483 | 1.464.665 |
| SC - Suspension concentrates | 191.180 | 279.616 | 826.862 |
| MG - Microgranules | 287.651 | 368.190 | 410.848 |
| Other formulation types | 941.090 | 947.407 | 1.177.446 |
| Packaging | 1.007.694 | 1.087.557 | 1.363.305 |
| **Total output** | **7.803.227** | **8.933.569** | **11.104.152** |

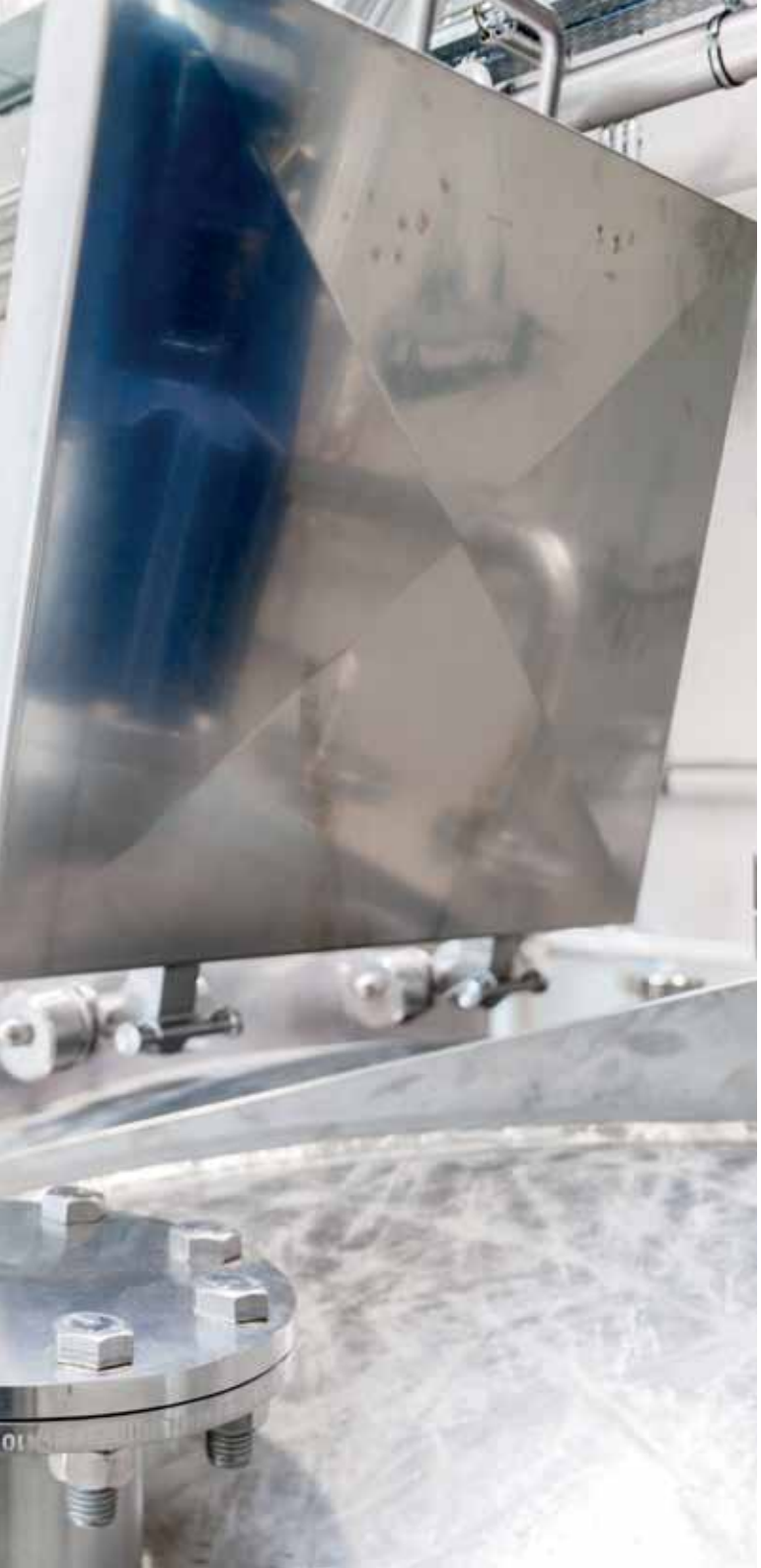
## (LICENSED) PACKAGES PUT ON THE DOMESTIC MARKET

| PACKAGING TYPE | 2018 amount (kg) | 2019 amount (kg) | 2020 amount (kg) |
|---|---|---|---|
| Paper/cardboard (Sales and transport packaging) | 34.493 | 41.034 | 53.645 |
| Metal packaging (ferrous metals, aluminium) | 8.472 | 11.554 | 11.061 |
| Hollow containers made of PE and PP | 73.438 | 67.097 | 63.120 |
| EPS | 43 | 45 | 835 |
| Composite materials | 1.508 | 2.007 | 1.545 |
| Secondary packaging (films) | 21.791 | 23.981 | 24.059 |
| Glass packaging | 63 | 64 | 51 |
| **Total** | **139.808** | **145.782** | **154.315** |

## EMISSIONS

A significant proportion of air pollutants are emitted as exhaust air from the production facilities in the form of dust and solvent emissions (organic carbon compounds) and as exhaust gases from the stream generators in the form of carbon dioxide, carbon monoxide, nitrogen oxide and dust. With the use of modern exhaust gas purification methods, the official thresholds (based on the Clean Air Guidelines (TA Luft1) or the relevant legal regulations) can be complied with or even operate below those thresholds. Solvents are separated via absorption in wet or inverse wet scrubbers, dust particles are removed by surface filters (dry air filters, aspiration filters). Emissions are measured in accordance with the Combustion Plant Ordinance (Feuerungsanlagen-Verordnung) at the intervals prescribed officially (1 to 3 years).

1) Technical Instructions on Air Quality Control (Technische Anleitung zur Reinhaltung der Luft (Administrative Directive to the Federal Immission Control Act (Bundesimmissionsschutzgesetz); since no equivalent administrative directive exists in Austria, the Technical Instructions on Air Quality Control are generally used to aid interpretation by experts, administrative authorities and the law courts





**PRODUCTION FACILITIES** - Officially prescribed emission thresholds and measurements 2020

| TYPE OF PLANT | PARAMETERS | UNIT | THRESHOLD | MEASURED VALUES [2] |
|---|---|---|---|---|
| Wet scrubbers of the fluidised bed granulators and production units for liquid products | Staub | mg/m³ | 1,00 | 0,25 – 0,64 |
| | TOC [3] | mg/m³ | 20,00 | 1,30 – 3,90 |
| Dry air filters in the fluidised bed granulators | Staub | mg/m³ | 1,00 (0,05) [4] | <0,001 – 0,004 |
| | TOC | mg/m³ | 20,00 | 2,90 – 12,10 |
| Aspiration filters in the preparation containers and the sieve shakers and filling facilities | Staub | mg/m³ | 1,00 (0,05) [4] | <0,001 – 0,64 |
| | TOC | mg/m³ | 20,00 | <1,00 – 5,90 |

**BOILER PLANTS** - Officially prescribed emission thresholds and measurements 2019

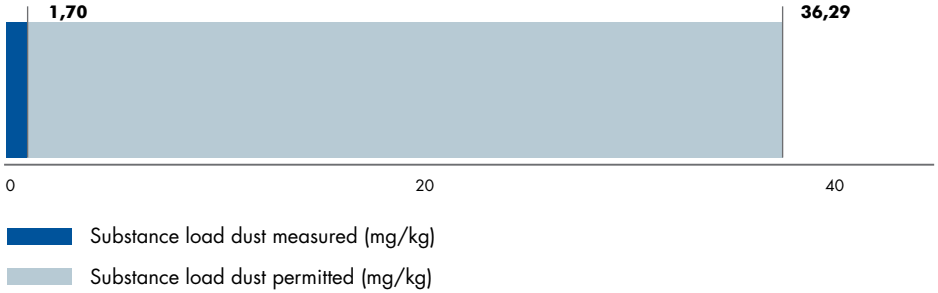
| TYPE OF PLANT | PARAMETERS | UNIT | THRESHOLD | MEASURED VALUES |
|---|---|---|---|---|
| Steam generators [5] (Natural gas) | CO | mg/m³ | 80 | 22,5 |
| | $NO_x$ | mg/m³ | 100 | 89 |
| | Staub | mg/m³ | 5 | <3 |
| Boiler plants for heat generation [6] (Light heating oil) | CO | mg/m³ | 100 | 2 |
| | $NO_x$ | mg/m³ | 450 | 359 |
| | Staub | mg/m³ | 20 | not measured |

2) The range of values varies due to the variability of the substances processed and also due to the varying efficiency of the filters 3) Total carbon 4) Substances with reprotoxic effects 5) Emission thresholds based on the Emission Control Act for Boiler Plants (Emissionsschutzgesetz für Kesselanlagen) 6) Emission thresholds based on the Combustion Plant Ordinance (Feuerungsanlagenverordnung)

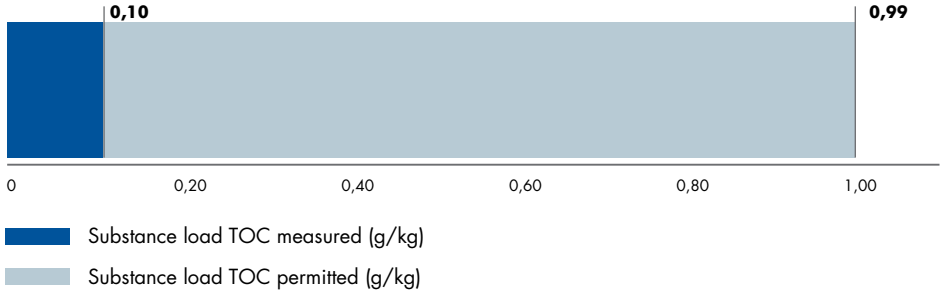
## EMISSIONS OF DUST UND ORGANIC CARBON FROM PRODUCTION FACILITIES

The following diagrams show the loads of emissions of dust and organic carbon in relation to production output. Our installations are state of the art and achieve levels below the official thresholds.

**RELATIVE DUST LOAD** (production)



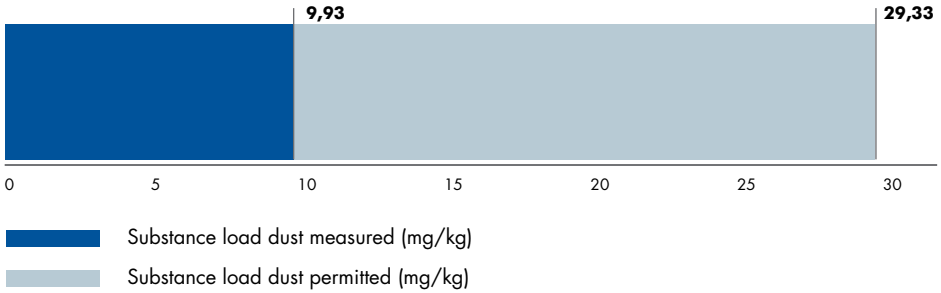

**RELATIVE CARBON LOAD** (production)



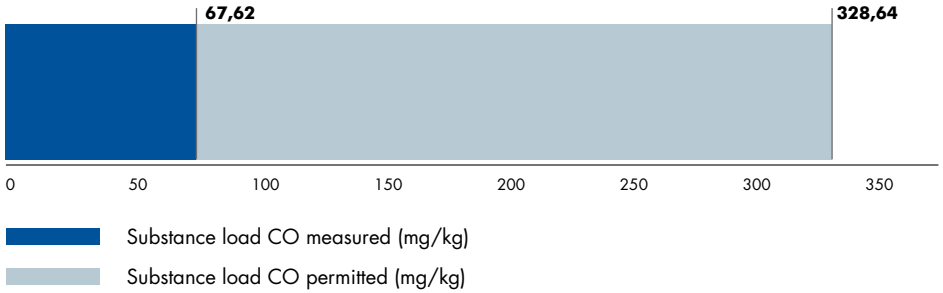

## EMISSIONS OF CO, NOX, DUST FROM THE BOILER PLANTS (STEAM AND HEAT GENERATION)

The following diagrams show the loads of pollutant emissions from the boiler plants used for steam and heat generation in relation to production output.

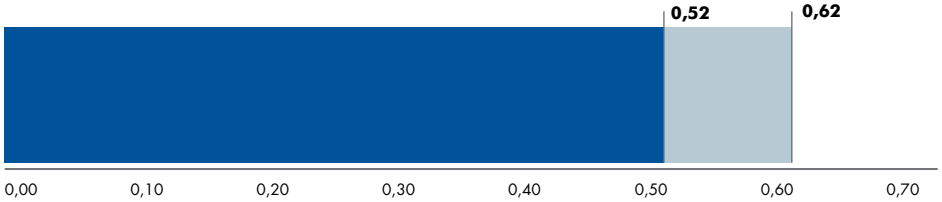
**RELATIVE DUST LOAD** from the supply of utilities




**RELATIVE CARBON MONOXIDE LOADS** from the supply of utilities




**RELATIVE NITROGEN LOADS**
from the supply of utilities



## $CO_2$ - EMISSIONS

### $CO_2$ - EMISSIONS FROM ELECTRICITY AS AN ENERGY SOURCE

In accordance with the energy supplier 454.04 g $CO_2$ of emission occur during electricity generation. Hence approximately 2,101 t $CO_2$ was emitted in 2020 as a result of the provision of electricity.

### $CO_2$ - EMISSIONS FROM THE SUPPLY OF UTILITIES

The supply of utilities (provision of room heating, process heat and process steam) in the heating and steam power houses fired with light heating oil and gas generates around 2,712 t $CO_2$ [1)].

## ACOUSTIC (NOISE) EMISSIONS

The local level of noise is determined by the traffic on the dual carriageway S1 and the Laaer Strasse. Acoustic emissions from the factory do not exacerbate local noise levels since the roads mentioned above largely determine the noise level in the surrounding neighbourhood.

## INDUSTRIAL AND DOMESTIC WASTEWATER

The following table shows the use of fresh water. A percentage of fresh water (up to 29%) is processed in the products (in particular in liquid products) or during the production process or is emitted as steam during purification of exhaust gases. A further fraction (up to 23%) is used to clean the production facilities and is fed into the industrial wastewater system.
Around 28% of fresh water is used in staff facilities (kitchens, toilets, showers).
Together with the wastewater generated by steam generation and water purification, it is fed via the public sewerage system into the sewage plant of the Korneuburg sewage treatment company.
The absolute figures for steam generation, scrubbing tower added dosage and water supply to staff facilities will not be correct due to the hydrant leak which was only repaired by the end of September 2020.
Usage for production (calculated based on water used for the manufacture of products) and usage for washing (disposal records) may be assumed correct.

1) Calculated using the $CO_2$ calculator/Environment Agency Austria

| **WATER CONSUMPTION** | **2018 ($m^3$)** | **2019 ($m^3$)** | **2020 ($m^3$)** |
|---|---|---|---|
| Fresh water consumption ($m^3$) | 17.327 | 16.784 | 14.115 |
| Construction water | 125 | 25 | 30 |
| Construction water | 400 | - | - |
| **Net consumption minus construction water ($m^3$)** | **16.802 (+40,6 %)*** | **16.759 (-0,3 %)** | **14.085 (-16 %)** |
| | | | |
| Utilisation in production | 3.150 | 3.297 | 4.074 |
| Washing water | 2.480 | 2.523 | 3.176 |
| Steam generation | 1.986 | 1.862 | 1.166 |
| Additional dosage for scrubbing towers | 3.090 | 2.896 | 1.813 |
| Versorgung Sozialbereiche | 6.621 | 6.206 | 3.886 |
| | | | |
| Disposal of industrial wastewater | 2.480 | 2.523 | 3.176 |
| Feed-in to public channel | 4.225 | 4.095 | 4.693 |
| Feed-in to sewage pit | 76 | 101 | 103 |

*) The reason for the higher consumption of $H_2O$ is the higher production output of water-intensive formulations, such as (WG, EW)

## INDUSTRIAL WASTEWATER FED INTO THE PUBLIC SEWERAGE NETWORK

Officially prescribed wastewater thresholds and measurements 2019

| TYPE OF INDUSTRIAL WASTEWATER | PARAMETERS | UNIT | THRESHOLD | MEASURED VALUES |
|---|---|---|---|---|
| Steam generators (Mixer cooler) | Substances that can be filtered out | mg/l | 150,00 | <10,00 |
| | pH-value | - | 6,50 – 9,50 | 7,63 |
| | Total chromium (as Cr) | mg/l | 0,50 | <0,001 |
| | Copper (as Cu) | mg/l | 0,50 | 0,006 |
| | Hydrazine (as $N_2H_2$) | mg/l | 2,00 | <0,05 |
| | Sulphite (as $SO_3$) | mg/l | 10,00 | <0,05 |
| | Adsorbable or bound halogens AOX (as Cl) | mg/l | 0,50 | <0,01 |
| | Total hydrocarbons | mg/l | 15,00 | <0,10 |
| Water purification (ion exchanger, reverse osmosis system) | Substances that can be filtered out | mg/l | 150,00 | <10,00 |
| | pH-value | - | 6,50 – 9,50 | 7,86 – 8,02 |
| | Adsorbable or bound halogens AOX (as Cl) | mg/l | 1,00 | <0,01 |
| | Free chlorine (as $Cl_2$) | mg/l | 0,20 | <0,05 |

## WASTE, INDUSTRIAL WASTEWATER

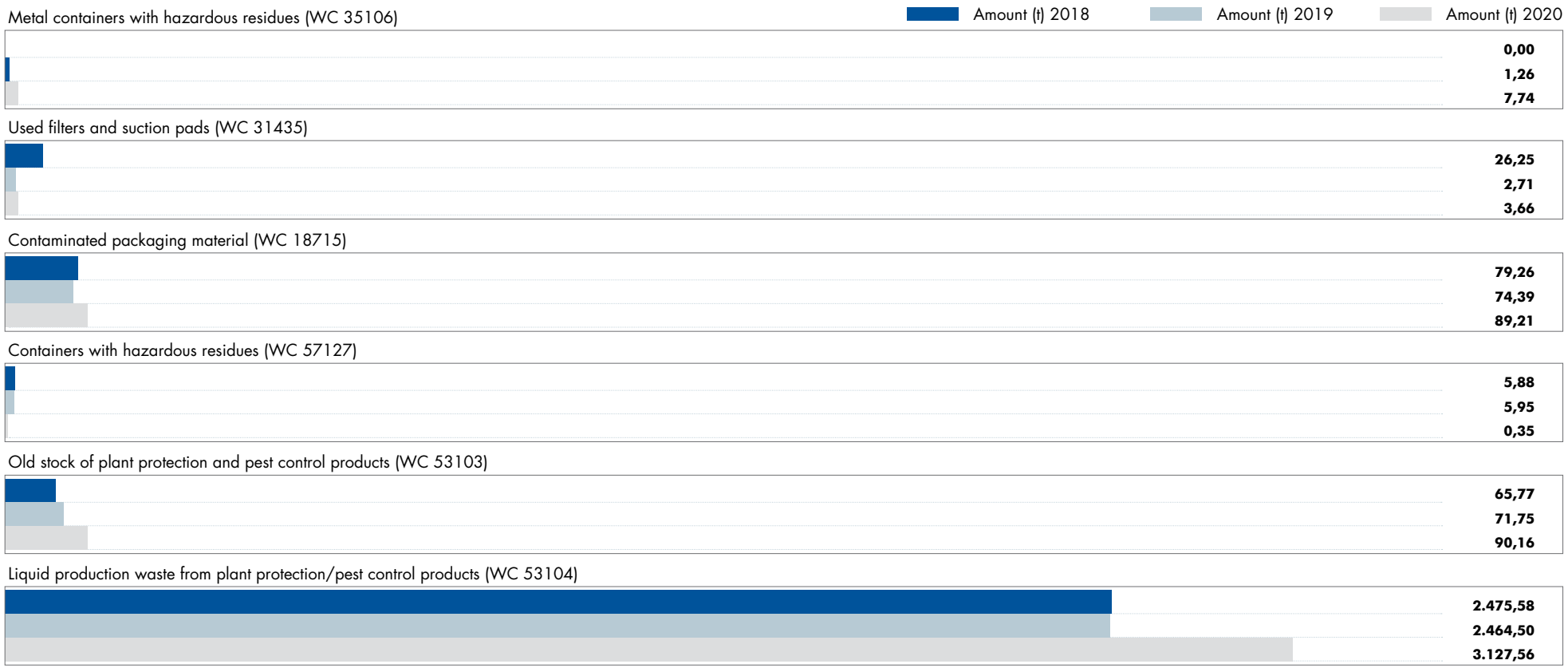
In addition to production output, the key factors for the generation of waste are the product mix, the number and scope of unplanned maintenance activities (repairs), the number and scope of conversion or construction projects and the number of employees.
The key factors for the generation of industrial wastewater is the number of product changes.
At over 90%, the majority of waste is made up of liquid industrial wastewater. This is washing water that occurs when cleaning production equipment as a result of product changes.
This water is contaminated with active substances and is collected in a separate wastewater collection system and fed into wastewater collection basins.

Waste is disposed of by a certified specialist company which treats the wastewater in a physiochemical plant with subsequent thermal utilisation. The optimisation measures determined in 2020 for waste collection and segregation were very successful. The relative amount of waste – in relation to production output – could be reduced from 0.41 (2018) to 0.36 (2019/2020) kg/kg output. The amount of liquid production waste has increased in 2020. Production output, however, increased by more than 40% compared to 2018. More old pesticide and insecticide stock was disposed of again in 2020. Increased output of production of course also meant more packaging materials contaminated with impurities or residues and ferrous metal packaging materials and containers with hazardous residues. The volume of disposed plastic packaging materials decreased. Modification of the WG 3 [fluidised bed granulator 3] granulation plant generated ferrous metal waste which was included in the total waste, yet as a special item.

**HAZARDOUS WASTE** (in relation to production)

| TYPE OF WASTE | WC | AMOUNT (t) 2018 | AMOUNT (t) 2019 | AMOUNT (t) 2020 |
|---|---|---|---|---|
| Liquid production waste from plant protection/pest control products | 53104 | 2.475,58 | 2.464,50 | 3.127,56 |
| Old stock of plant protection and pest control products | 53103 | 65,77 | 71,75 | 90,16 |
| Plastic packaging and containers with hazardous residues | 57127 | 5,88 | 5,95 | 0,35 |
| Packaging material contaminated by impurities or residues | 18715 | 79,26 | 74,39 | 89,21 |
| Used filters and suction pads with hazardous impurities | 31435 | 26,25 | 2,71 | 3,66 |
| Ferrous metal packaging and containers with hazardous residues | 35106 | 0,00 | 1,26 | 7,74 |
| **Total** | | **2.652,74** | **2.620,56** | **3.318,69** |

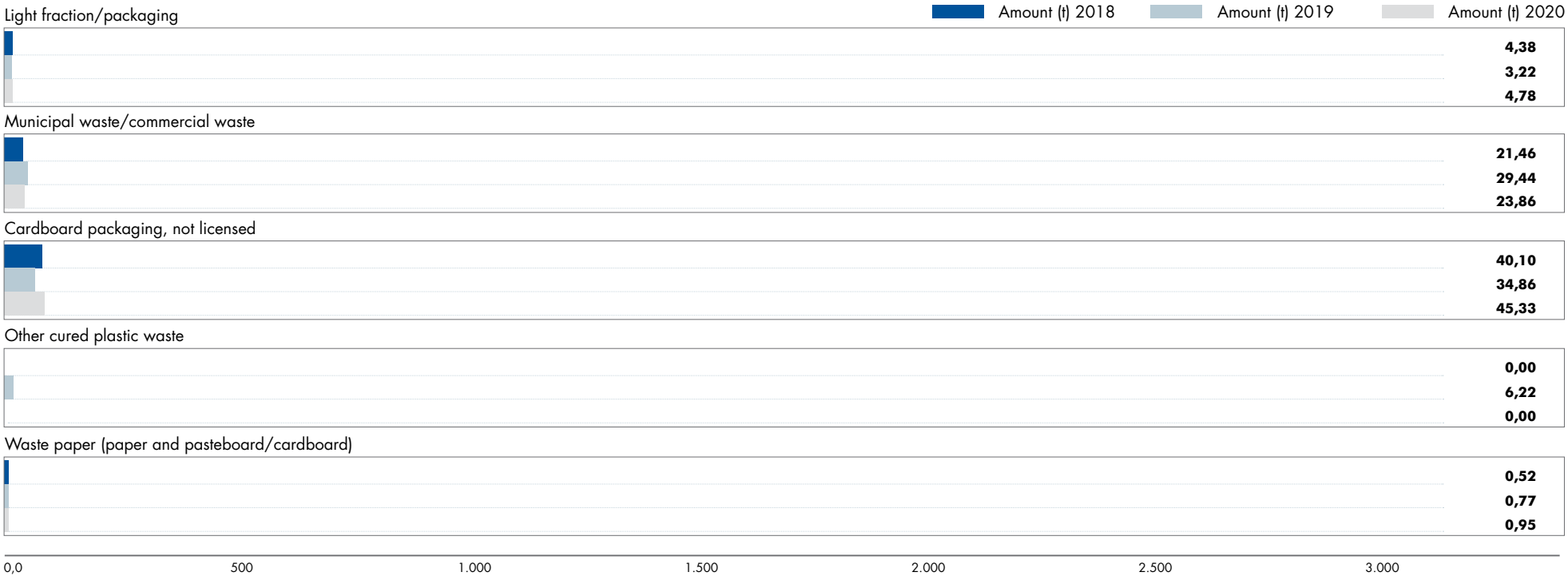
## **VOLUME TREND OF HAZARDOUS WASTE** 2018/2019/2020



## **NON-HAZARDOUS WASTE** (in relation to production)

| TYPE OF WASTE | AMOUNT (t) 2018 | AMOUNT (t) 2019 | AMOUNT (t) 2020 |
|---|---|---|---|
| Light fraction from the collection of packaging waste not licensed, IBC containers, etc. | 4,38 | 3,22 | 4,78 |
| Municipal waste and similar commercial waste | 21,46 | 29,44 | 23,86 |
| Cardboard packaging, not licensed | 40,10 | 34,86 | 45,33 |
| Other cured plastic waste | 0,00 | 6,22 | 0,00 |
| Waste paper (paper and pasteboard/cardboard) not coated | 0,52 | 0,77 | 0,95 |
| **Total** | **66,46** | **74,51** | **74,93** |

## **VOLUME TREND OF NON-HAZARDOUS WASTE** 2018/2019/2020



**HAZARDOUS WASTE** (not relevant to production)

| TYPE OF WASTE | WC | AMOUNT (t) 2018 | AMOUNT (t) 2019 | AMOUNT (t) 2020 |
|---|---|---|---|---|
| Waste oil | 55370 | 0,00 | 0,00 | 0,03 |
| Iron and steel waste, contaminated | 54102 | 0,07 | 0,74 | 0,49 |
| Solid grease and oil contaminated operating supplies (workshops, industrial and petrol filling station waste) | 35103 | 7,39 | 5,02 | 1,00 |
| Unsorted or hazardous laboratory waste and chemical residues | 54930 | 0,15 | 0,58 | 0,11 |
| Gas discharge lamps – fluorescent tubes | 59305 | 6,23 | 0,10 | 0,00 |
| **Total** | | **13,84** | **6,44** | **1,63** |

**NON-HAZARDOUS WASTE** (not relevant to production)

| TYPE OF WASTE | WC | AMOUNT (t) 2018 | AMOUNT (t) 2019 | AMOUNT (t) 2020 |
|---|---|---|---|---|
| Bulky waste | 91401 | 5,64 | 19,56 | 19,79 |
| Electrical and electronic appliances – large appliances with length > 50cm | 35221 | 0,75 | 0,84 | 0,00 |
| Clear glass/coloured glass | 31468 | 0,32 | 0,43 | 0,46 |
| **Total** | | **6,71** | **20,83** | **20,25** |

## TOTAL WASTE GENERATED

| TYPE OF WASTE | WC | AMOUNT (t) 2018 | AMOUNT (t) 2019 | AMOUNT (t) 2020 |
|---|---|---|---|---|
| Liquid production waste from plant protection/pest control products | 53104 | 2.475,58 | 2.464,50 | 3127,56 |
| Old stock of plant protection and pest control products | 53103 | 65,77 | 71,75 | 90,16 |
| Plastic packaging and containers with hazardous residues | 57127 | 5,88 | 5,95 | 0,35 |
| Packaging material contaminated by impurities or residues | 18715 | 79,26 | 74,39 | 89,21 |
| Used filters and suction pads with hazardous impurities | 31435 | 26,25 | 2,71 | 3,66 |
| Iron and steel waste, contaminated | 35103 | 7,39 | 5,02 | 1,00 |
| Ferrous metal packaging and containers with hazardous residues | 35106 | 0,00 | 1,26 | 7,74 |
| Solid grease and oil contaminated operating supplies (workshops, industrial and petrol filling station waste) | 54930 | 0,15 | 0,58 | 0,11 |
| Unsorted or hazardous laboratory waste and chemical residues | 59305 | 6,23 | 0,10 | 0,00 |
| Gas discharge lamps – fluorescent tubes | 35339 | 0,00 | 0,00 | 0,00 |
| Light fraction from the collection of packaging waste not licensed, IBC containers, etc. | 91207 | 4,38 | 3,22 | 4,78 |
| Municipal waste and similar commercial waste | 91101 | 21,46 | 29,44 | 23,86 |
| Cardboard packaging, not licensed | 91201 | 40,10 | 34,86 | 45,33 |
| Other cured plastic waste | 57129 | 0,00 | 6,22 | 0,00 |
| Waste paper (paper and pasteboard/cardboard) not coated | 18718 | 0,52 | 0,77 | 0,95 |
| Bulky waste | 91401 | 5,64 | 19,56 | 19,79 |
| Electrical and electronic appliances – large appliances with length >50 cm | 35221 | 0,75 | 0,84 | 0,00 |
| Electrical and electronic appliances – small appliances with length <50 cm | 35231 | 0,00 | 0,00 | 0,00 |
| Clear glass/coloured glass | 31468 | 0,32 | 0,43 | 0,46 |
| Solvent mixtures without halogenated organic components | 55370 | 0,00 | 0,00 | 0,03 |
| Waste oil | 54102 | 0,07 | 0,74 | 0,49 |
| **Total** | | **2.739,75** | **2.722,34** | **3.415,49** |
| Total waste per kg of product (in kg) | | 0,41 | 0,36 | 0,36 |

# DECLARATION OF VALIDITY OF THE ENVIRONMENTAL STATEMENT

ETA Umweltmanagement GmbH, as an accredited
environmental verifier organisation in accordance with the Austrian Environmental Management Act (UMG),
Federal Gazette I 99/2004, as amended, registration number AT-V-0001, licensed for scope NACE Code 20.20

confirms that

**Kwizda Agro GmbH, Leobendorf plant**
Kwizda Allee/Laaer Straße 1, A- 2100 Leobendorf

as described in this 2021 Environmental Statement, meets all the requirements of Regulation (EC) 1221/2009 of the European Parliament and the Council of 25 November 2009, on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), Regulation (EU) No. 1505/2017.

It is confirmed that

- the assessment and validation were carried out fully compliant with the requirements of Regulation (EC) 1221/2009, version Regulation (EU) 1505/2017 and 2026/2018,,
- There is no evidence of non-compliance with applicable legal requirements relating to the environment. As environmental experts we have also ascertained the progress made with the remedial measures. These are complied with as prescribed with the remedial plan of the authorities.
- the data and information given in the Environmental Statement reflect a reliable, credible and correct image of all the activities of the organisation within the scope mentioned in the environmental statement.

The next comprehensive Environmental Statement will be published in 2024.
Updated and validated Environmental Statements will be published each year.

Vienna, 05.05.2021

Dipl.-Ing. Manfred Mühlberger
Senior Environmental Expert

Dr. Roland Buchner
Environmental Expert

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

## PRESENTATION OF THE NEXT ENVIRONMENTAL STATEMENT

The date for presentation of the updated environmental statement is 30.04.2022.

**PERSONS INVOLVED IN THE COMPILATION OF THE ENVIRONMENTAL STATEMENT:**

Regine Kacetl, Quality Management & Compliance
Karl-Heinz Ludwig, Head of Business Unit Tolling
Chris Muri, Head of Quality Management & Compliance
Thomas Salzl, Leobendorf Plant Operations Manager
Manfred Winter, Head of Business and Site Development

Printed on FSC certified recycled paper Nautilus Superwhite with colours with no mineral oil.

## LIST OF ABBREVIATIONS

acc. to - according to m – metre I BU – Business Unit I Ch. - chapter I cm - centimetre I Dr - Doctor (academic title) I EC - European Community I EDP - electronic data processing I e.g. - for example I Fig. – figure I Flammable Liquids Ordinance (Vbf – Verordnung über brennbare Flüssigkeiten)I g – gram I GW – groundwater I haz. - hazardous I HSE – Healthy Safety Environment I i.e. - that is I incl. - including I kg – kilogram I KR – Kommerzialrat (councillor of commerce) I LKW – Lastkraftwagen (truck) I Mag. – Magister (master's degree at Austrian university) I max. – maximum I PVB – Produktionsvorbereitungsbereiche (supply areas) I Regional administrative authority (BH – Bezirkshauptmannschaft) I SC - storage class (LGK – Lagerklasse) I WC – waste code I t – metric ton I WG - Wirbelschichtgranulator (fluidised bed granulator)

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