

The K+S logo is positioned in the top right corner of the page. It consists of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue, trapezoidal background that is part of a larger blue graphic element extending from the top right corner of the page.

**K+S**

The background of the entire page is an aerial photograph of a tobacco plantation. The rows of tobacco plants are neatly spaced and stretch across the landscape towards a hazy horizon. The lighting suggests a soft, golden hour, with a misty or hazy atmosphere in the distance.

# Compendium

Information for investors, analysts and interested parties

Publication January 2023

# Table of contents





**K+S**

**1 | 7 K+S Group**

# K+S Conspect



The roots of the K+S Group date back to the **middle of the 19th century**. At that time, miners in Germany exploited the world's first potash deposits and started fertilizer production.

Today, the K+S Group is an **internationally oriented raw materials company** with production sites in **Europe and North America**.



## K+S Group financials Q3/2022

**Revenues**  
€1,469.9 million

**EBITDA**  
€633.3 million

**Adjusted free cash flow**  
€580.3 million

**EBITDA-Margin**  
43.1%



Mining of **potash and salt** on **two continents**

Almost **11.000 employees** worldwide

K+S strives for **sustainability** and acknowledges its responsibility towards people, the environment, communities and the economy in the regions in which it operates.

The claim is to enrich life for generations and to be a **pioneer for environmentally friendly and sustainable mining**.

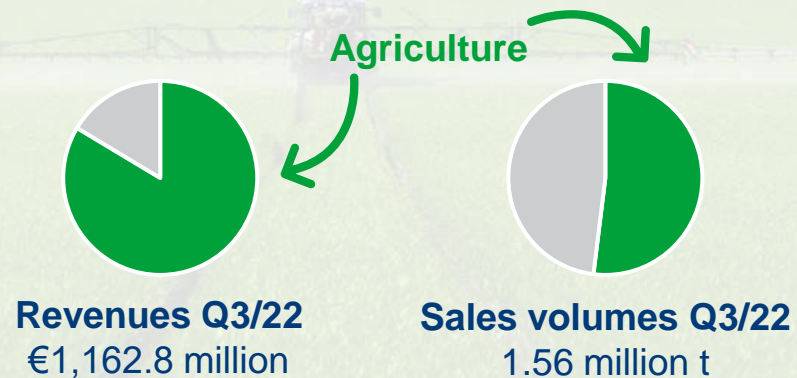


# K+S at a glance

## Customer segments (no segments according to IFRS)

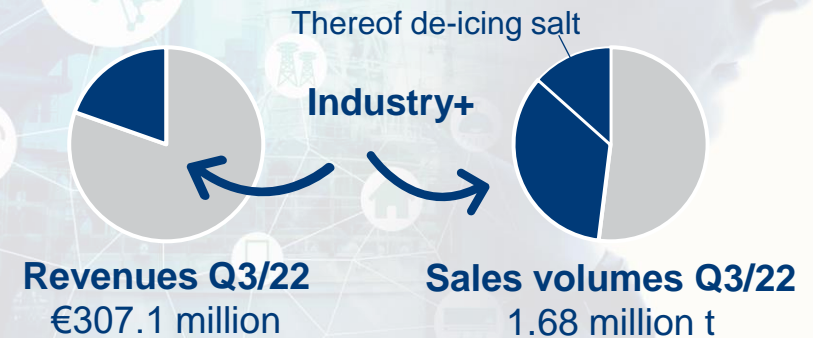
With our wide range of potassium chloride (MOP) and fertilizer specialties, as well as accompanying advice, we help growers around the world achieve high yields and the best crop qualities.

Agriculture



We produce, refine, and supply, natural raw materials for numerous industrial applications. And if there are residues, we have the right disposal solution. Our products and services keep your production running.

Industry+



# Sale of the OU Americas in 2021

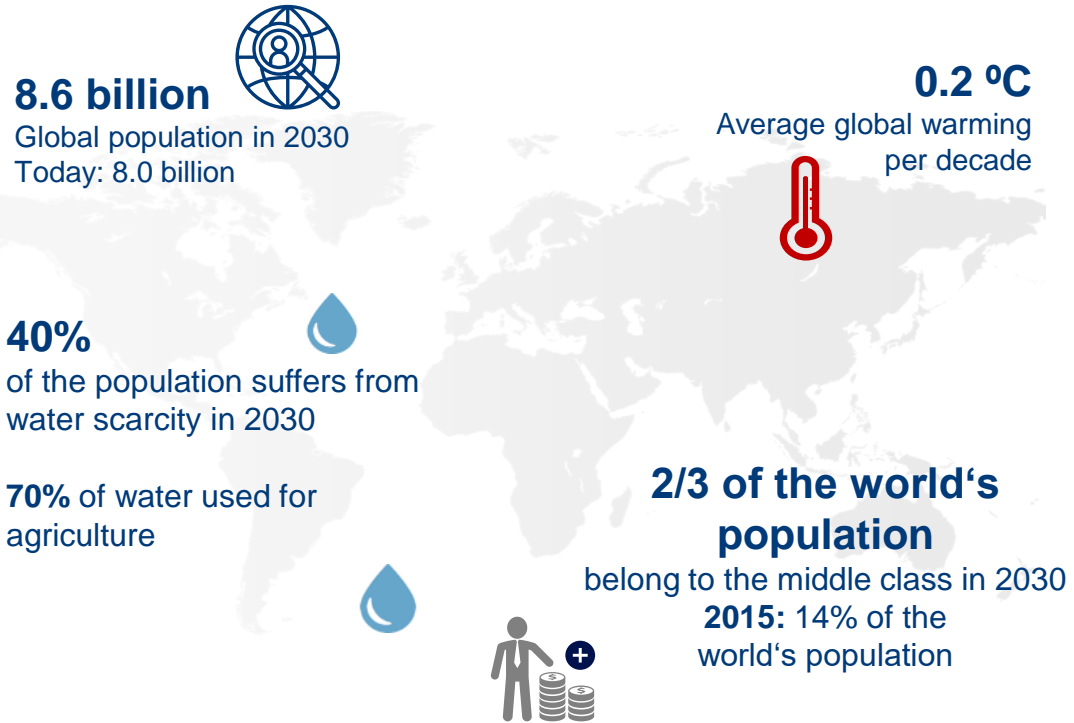
## Key data of the signed agreement

<b>Buyer</b>	Stone Canyon Industries Holdings LLC, Mark Demetree and Partner
<b>Gross proceeds</b>	USD 3.2 billion
<b>EV/EBITDA</b>	12.5x 2019 EBITDA of USD 257 million
<b>Closing</b>	April 30, 2021
<b>Net proceeds</b>	€2.6 billion after tax
<b>Preliminary gain on disposal</b>	€742 million



# Important megatrends and their implications

## Implications for K+S



- **Arable** land shrinking
- **Yield** needs to be **improved**
- Higher efficiency of **fertilization** and **irrigation** needed
- Plants have to be more **stress resistant**
- **Infrastructure** needs to be improved  
→ focus on **renewable energy**
- **Growing population**, especially in **Asia**, needs **more salt** for various purposes

**Sources:** United Nations, 2017; World Population Clock of the Deutsche Stiftung Weltbevölkerung (dated July 2022); "Global temperature change" from James Hansen et al. (September 25, 2006); World Water Report 2021 of the UNESCO; James Davies, Rodrigo Lluberas and Anthony Shorrocks, Credit Suisse Global Wealth Databook 2015

# Why use fertilizers?

“Die Naturgesetze des Feldbaus“, Justus von Liebig, 1863



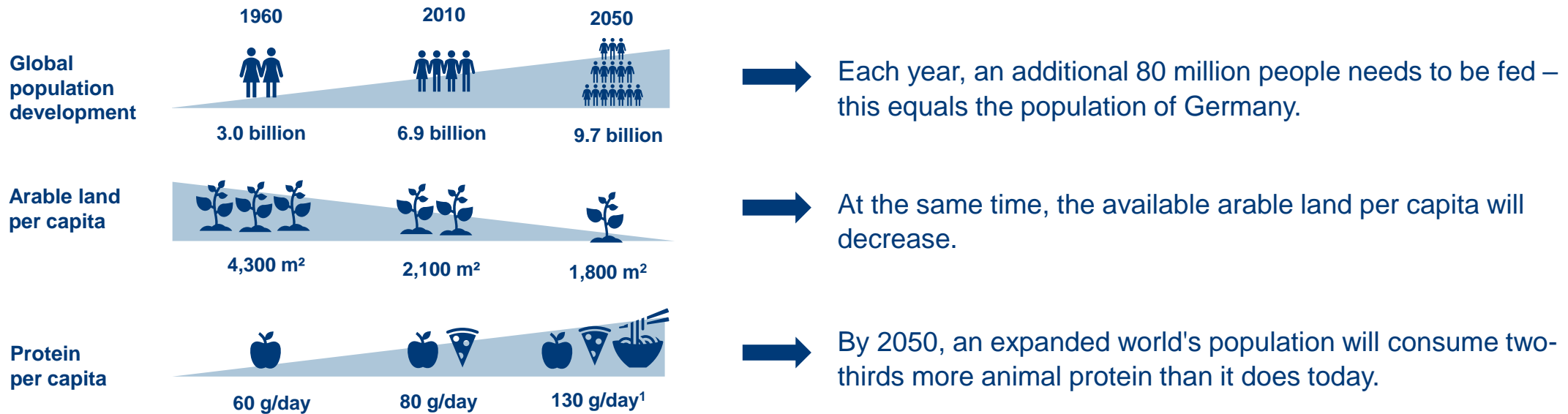
„The growth and yield of a plant is limited by the nutrient available in the smallest amount.“

- Plants need sunlight, water and **minerals** to thrive.
- There are few soils on earth which have a sufficient content and availability of **plant nutrients** to achieve **high yields** over a longer period without fertilization.
- Potash is an **indispensable** addition to the natural nutrient content of arable soils.
- The deprivation of nutrients by harvesting and other factors must be compensated by **balanced fertilization**.



# Long-term key drivers for our fertilizer business

## Less arable land – but more protein consumption per capita

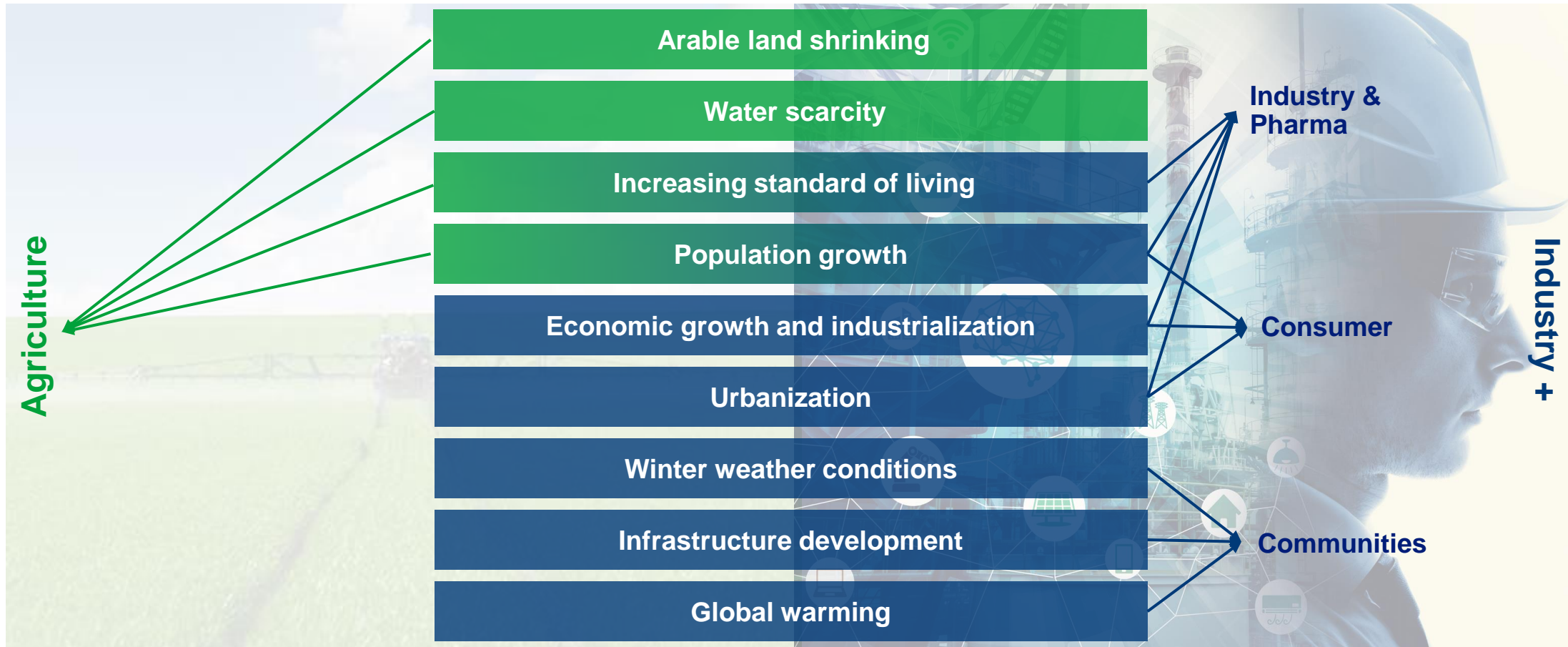


**In 2050, only roughly 25% of a soccer field will be available for a person's annual food supply – 80% of the future growth in agricultural commodity production will result from increases in yields. This is achieved through the use of balanced fertilization.**

Source: UN, World Population Prospects, 2022 Revision, UNDP, 2013; FAOStat 2014; <sup>1</sup> FAO 2014 - Forecasts based on expected increase in animal protein

# Long-term demand drivers

## Demand drivers



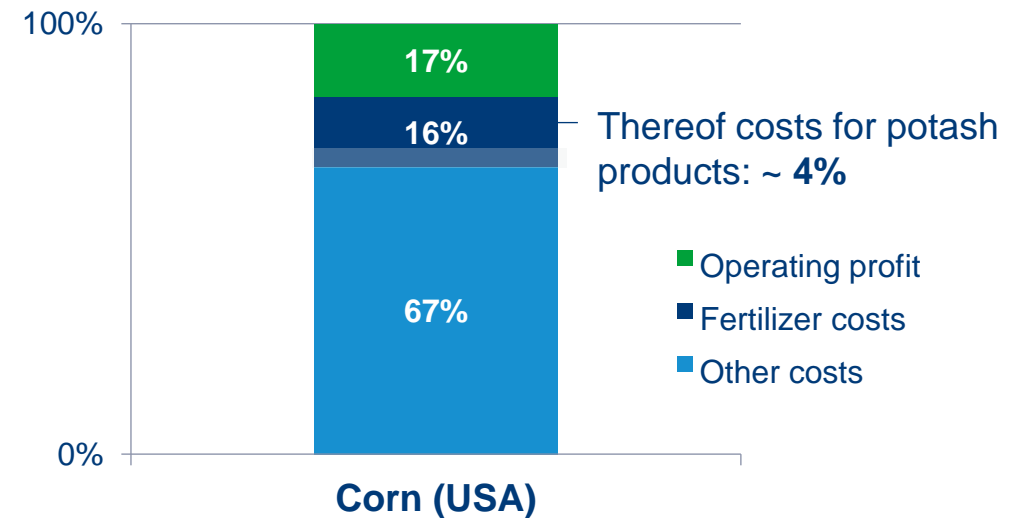
# Farmer profitability of corn (USA)

Expenditure for potash products of an agricultural farm: approx. 4% of the total cost



The earnings prospects should give the agricultural industry sufficient incentive to increase the yield per hectare by using plant nutrients.

## Profit potential in % of revenues



# Board of Executive Directors



**Dr. Burkhard Lohr**

Chief Executive Officer &  
Chief Financial Officer  
Mandate until May 31, 2025



**Holger Riemensperger**

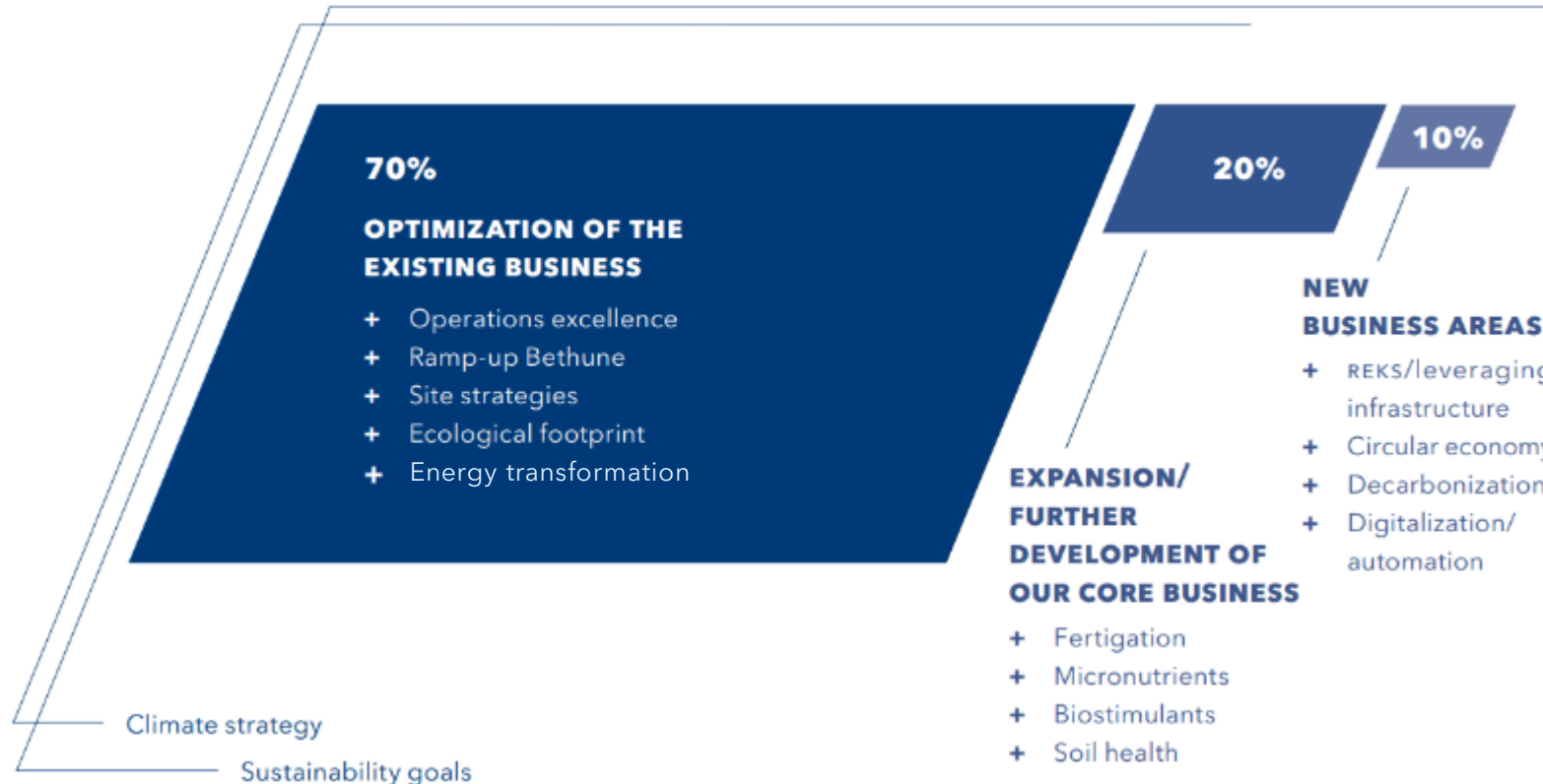
Chief Operating Officer  
Mandate until March 31, 2024

Dr. Burkhard Lohr, Chairman of the Board of Executive Directors, has also assumed the function of Chief Financial Officer on a transitional basis. Together with Holger Riemensperger, Chief Operating Officer he will continue to constitute the Board of Executive Directors of the Company.

## **Dr. Christian H. Meyer appointed new CFO**

The Supervisory Board of K+S has appointed Dr. Christian H. Meyer (50) as the new Chief Financial Officer. He will take over the management and further development of the finance area at K+S in spring 2023.

# Guiding principles of strategy and management focus



## Financial ambitions

- Earn cost of capital over a 5-year cycle
- At the same time, an EBITDA margin of > 20% is aimed for over this cycle
- Maximum accepted leverage (net debt/EBITDA), also on the low end of the cycle: 1.5x

# Optimize the existing

70 %

**EBITDA impact: around €30 million p.a. from 2023**

## Agriculture

- Increase of marketing in USA ex Bethune
- Increase of trading business in Middle East, China and India
- Improved leveraging of local sales network

## Industry+

- Focus on potash product groups for industrial product sales
- Capacity expansion of high-purity salts
- Optimization of de-icing salt setup

## Supply Chain

- Warehouse and network optimization for European salt logistics
- Optimization of warehousing
- Optimization of infrastructure utilization

# Clear focus of our sites

70 %

## Bethune

- Long-term ramp-up to up to four million tonnes of capacity
- Improvement of cost position
- Increase in granulated products



## Zielitz

- Improvement of the cost position
- Optimization of maintenance
- Increase in energy efficiency
- Increase in KaliSel production capacity



## Werra

- Optimization of product mix & production volumes
- Optimization of maintenance
- Increase in energy efficiency
- Increase in granulation capacity for potassium sulphate



## Neuhof-Ellers

- Improvement of the mineral content through AI
- Increase of the granulating capacity of kieserite



➔ **EBITDA impact: around €50 million p.a. from 2023**

# Werra 2060 – Securing a sustainable future

70 %

## How do we want to achieve this?

### Innovations in extraction and production



- Unterbreizbach and Wintershall sites: Focus on wastewater-free processing methods
- Unterbreizbach mine: Expansion of secondary mining operations (drill and blast)
- Hattorf-Wintershall mine: Introduction of secondary mining (drill and blast)
- Unterbreizbach and Hattorf-Wintershall mines: Dry backfill utilization
- Hattorf plant: Continued operation unchanged for the time being

Methods already tested or in use on other sites!

### Future-oriented product portfolio



- New processing methods in Unterbreizbach and Wintershall have an energy-saving effect with CO<sub>2</sub>-reduction, and also change the product portfolio:
- Further development of specialties portfolio with unchanged production volumes
- Increase in share of round granules
- The products become more competitive under cost, sustainability, and quality criteria.

### Reduction in environmental impact



**Reduction solid residues:**  
by 8 to 7 million t eff. p.a.  
▶ avoiding tailings pile expansion  
Wintershall beginning of the 2030s

**CO<sub>2</sub> emissions reduced**  
by 190kt to 650kt p.a.;  
Reduced steam requirement: higher  
flexibility regarding the energy source




**Saline process waters reduced:**  
by 1.2 to 1.0  
million m<sup>3</sup> p.a.



# Value contribution of Werra 2060

70 %

	NPV drivers	Ø FCF advantage p.a. 2026-2060
Significantly higher and more stable production over time/changed product mix	+€100m	+€45m
ESG improvements <ul style="list-style-type: none"> <li>• Reduction of solid residues and thus avoiding tailings pile expansions and enabling backfill and secondary mining</li> <li>• Reduction of CO<sub>2</sub> emissions</li> <li>• Reduction of saline process waters and thus reducing remote disposal</li> </ul> 	+€425m	+€40m
Mid-term adjusted personnel requirement	+€275m	+€25m
Present value of additional capex compared to unchanged operation mode	-€275m	
<b>Total</b>	<b>&gt;~500€m</b>	<b>+~€110m</b>

# We create value for our stakeholders!

70 %

Werra 2060 increases site NPV by > €0.5 bn to > €1.5 bn



**Total NPV Werra site**  
with Werra 2060 project  
**> €1.5 billion or 7.80 €/share**



Even an eternal price of ~330 \$/t (MOP Brazil) after 2026 results in NPV of more than 1 billion €.



Even 50% higher initial capex would still result in NPV advantage of more than €300 million.

Sensitivities

Variation of  
MOP Brazil price  
after 2026:

+/- 10 \$/t



change in NPV

+/- ~ €150 m

# Impacts on the valuation of K+S Group

70 %

## Using data of our Half-Year Financial Report:

K+S fair value (equity) as of 30 June 2022 <ul style="list-style-type: none"><li>• thereof: €6.2 billion book value (equity)</li><li>• thereof: €1.4 billion surplus recoverable amount Potash and Magnesium Products CGU (already reduced by mining provisions)*</li></ul>	€7.6 billion
Increase value of Werra site due to Werra 2060 (as presented with the previous slides)	+ €0.5 billion
<b>K+S fair value – total</b>	<b>€8.1 billion</b>
<b>K+S fair value per share</b>	<b>€42.40</b>

\* Surplus of recoverable amount of Potash and Magnesium Products cash generating unit compared with carrying amount (page 34 – Half-Year Financial Report) – ignoring minor surpluses of other CGUs.

# Grow the core

20 %

We enable farmers to achieve greater economic success



## Expansion of the portfolio

- Fertilization
- Micronutrients
- Biostimulants
- Concepts for soil health
- Further additions to the portfolio

## Logistic access

- Circular economy
- Last Mile Distribution

## Digital sales

- Agronomic services
- Digital sales channels (e.g. web shops)
- New digital business models
- Direct access to the farmer

# New business areas

10 %

## Reuse of existing assets and development of new business areas

### Renewable and green energy

- Increasing use of renewable energies (wind, sun) at our locations
- Use of available space at our locations
- Research into the production and use of green hydrogen

### Carbon dioxide (CO<sub>2</sub>)

- CCS: underground storage (solid and gaseous)
- CCU: Use for the production of biomass or as a raw material for basic chemicals

### Waste management and circular economy

- Underground recycling, underground storage
- Extraction of valuable minerals from waste streams (e.g. magnesia)

### Reuse of our mines

- Research into alternative uses for agriculture or as a production area for biotechnology

Mines

Caverns

Piles

Land

Technical/structural  
infrastructure

Technological  
know-how

Agronomic  
know-how

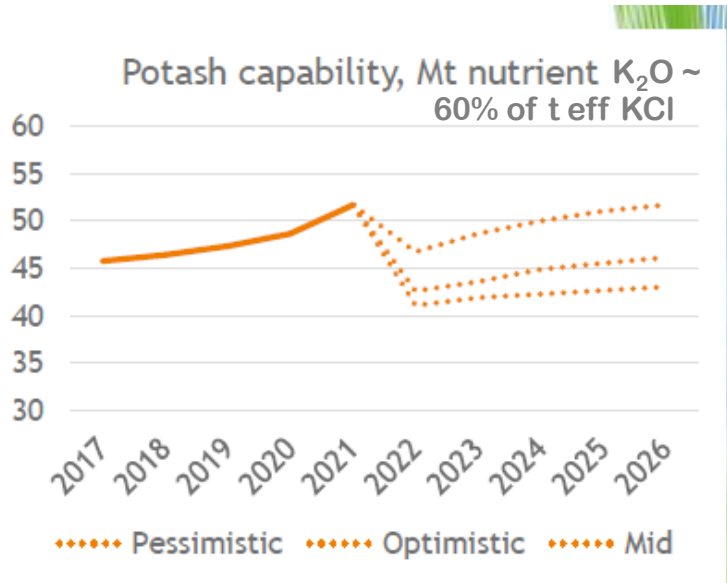


A photograph of a man carrying a young child on his back in a cornfield at sunset. The man is wearing a red shirt and dark pants, and the child is wearing a straw hat and dark pants. The sun is low on the horizon, creating a warm, golden glow over the field. The background shows a distant town and hills under a clear sky.

**K+S**

## 2 | 7 Market situation

# World potash supply: Geopolitical Effects



**Potash**  
Scenarios skewed to the downside based on sanctions and likely ability to export

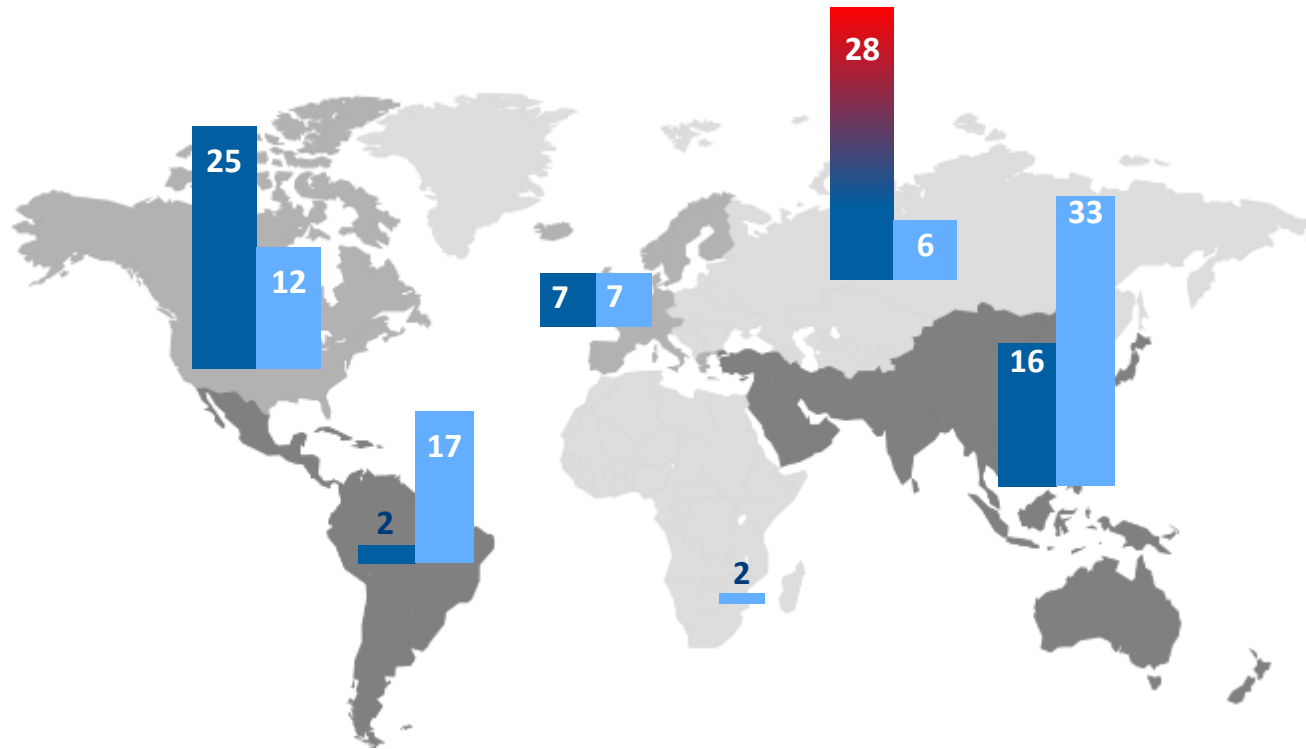
Source: IFA, May 2022

- Russia exports about 2/3 to "friendly countries"; 1/3 go to "unfriendly countries"
- More than 80% of the currently forecasted expansion of potash production comes from Russia
- Different assumptions for the recovery of the world's potash supply
  - **Pessimistic scenario:** Extended conflict, Western sanctions are extended, USD sanctions are also spreading to some "friendly countries"
  - **Optimistic scenario:** Resolution in 2022, economic sanctions will be eased, Russian exports will mostly recover, Belarusian exports will partially recover
  - **Mid scenario:** All current sanctions remain in force, but some "friendly countries" resume/continue partial trade with Russia

➔ **Even in the optimistic case, global potash supply will not return to the level of 2021 until 2026**

# World potash production and sales by region

in million tonnes



- Russia and Belarus each account for approx. 16% of global potash production.
- Most of the capacity expansion projects came from Russian potash producers.
- 28% of global *wheat* exports come from Russia and Ukraine.

Sources: IFA 2021, K+S

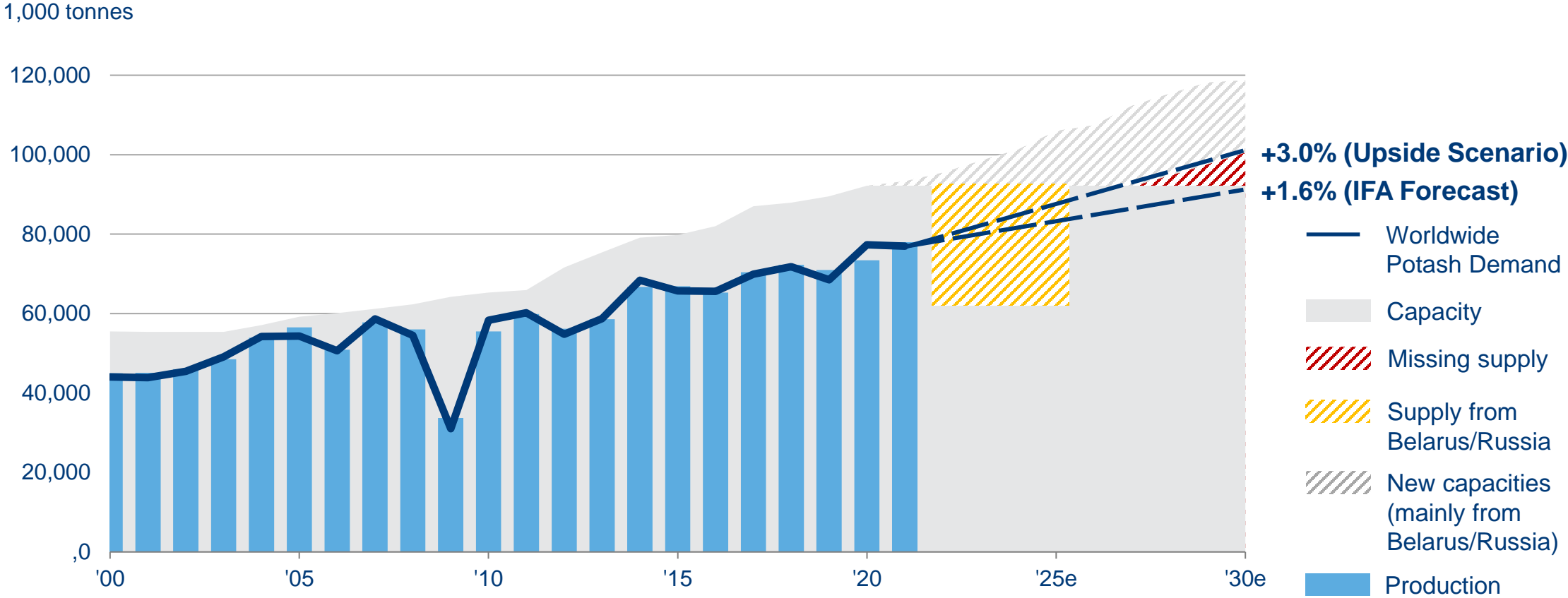
Basis: Year 2021 – incl. Potassium sulphate and low-grade potash

	2020	2021
World potash production	75.3 mt	77.9 mt
World potash sales volume	77.3 mt	77.0 mt



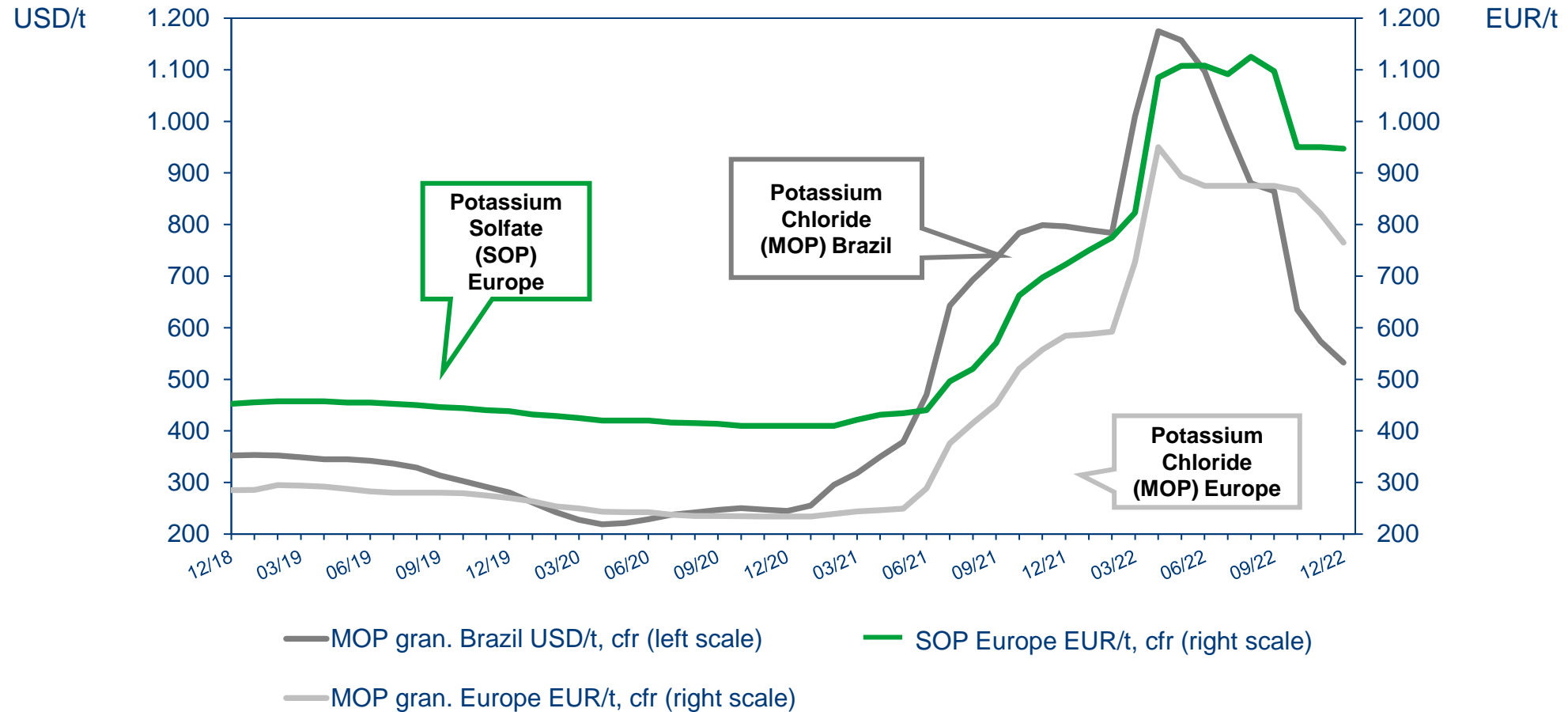
# Increasing demand for potash

## New potash capacities needed to meet rising demand



Source: IFA, K+S; including potassium sulphate and low-grade potash of about 5 million t eff. (product)

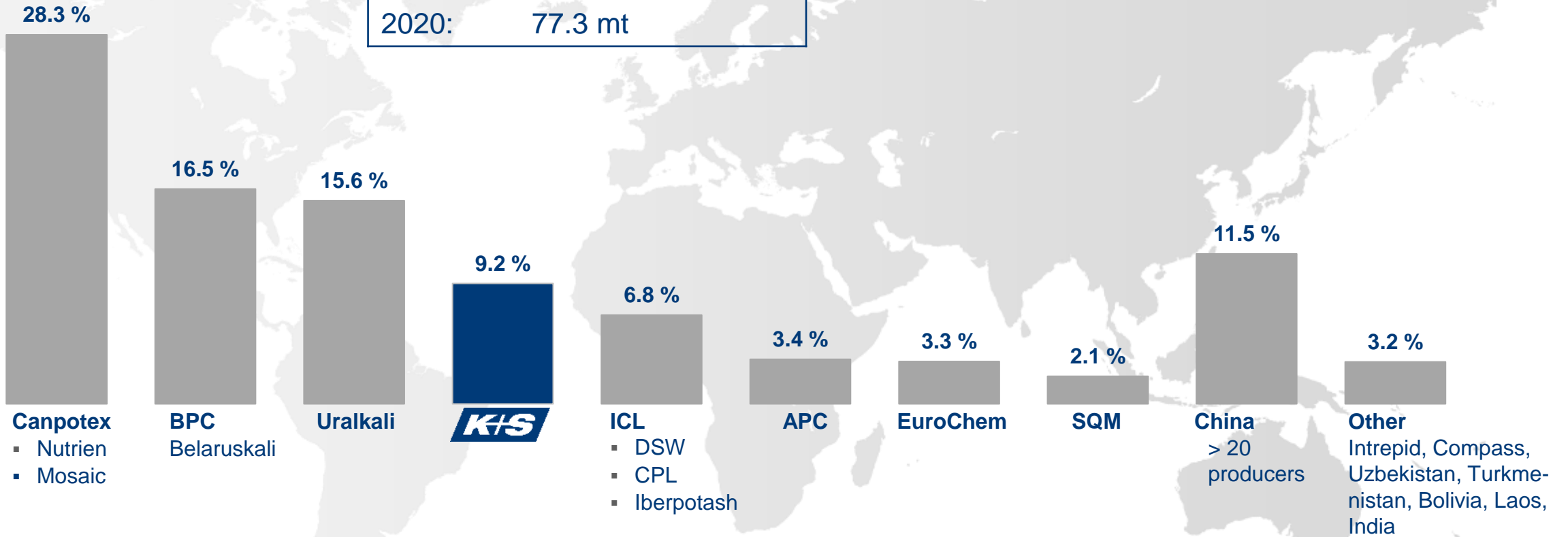
# Potash price development



Source: FMB Argus Potash

# Supplier structure on the global potash market

**Global potash sales volumes**  
 2021: 77.0 mt  
 2020: 77.3 mt



Source: IFA 2021, K+S

Basis: Year 2021 – incl. Potassium sulphate and low-grade potash

# Between desire and reality

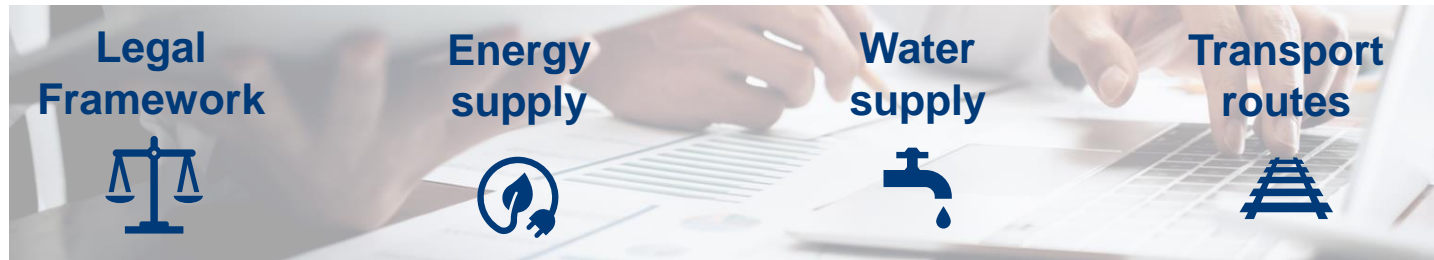
## Classification of potash projects announced since 2006 (Greenfield)

### Announced projects

Various greenfield projects planned in Thailand, Laos, Russia, Kazakhstan, Uzbekistan, Belarus, Canada, USA, Brazil and Argentina, among others. Companies involved include BHP Billiton, K+S, state-owned companies and new, start-up companies.



### Reasons for project cancellation



### Current projects in ramp-up

**K+S** accelerates annual ramp-up at Bethune to 150,000 t (2021: 2.1 million t, target: 4 million t per year). Since H1/2020, **EuroChem** has been producing potash at one of two Russian mines.

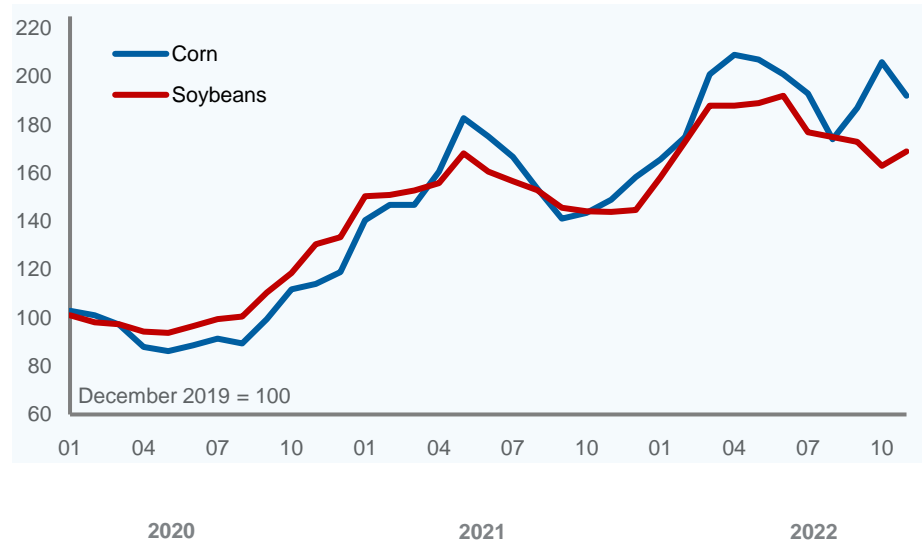


Source: World Potash Developments, Mark D. Cocker & Greta J. Orris, 2012

# Continued positive environment

## Farmer profitability at historical high level

Price development of agricultural commodities since 01/2020



Source: Worldbank

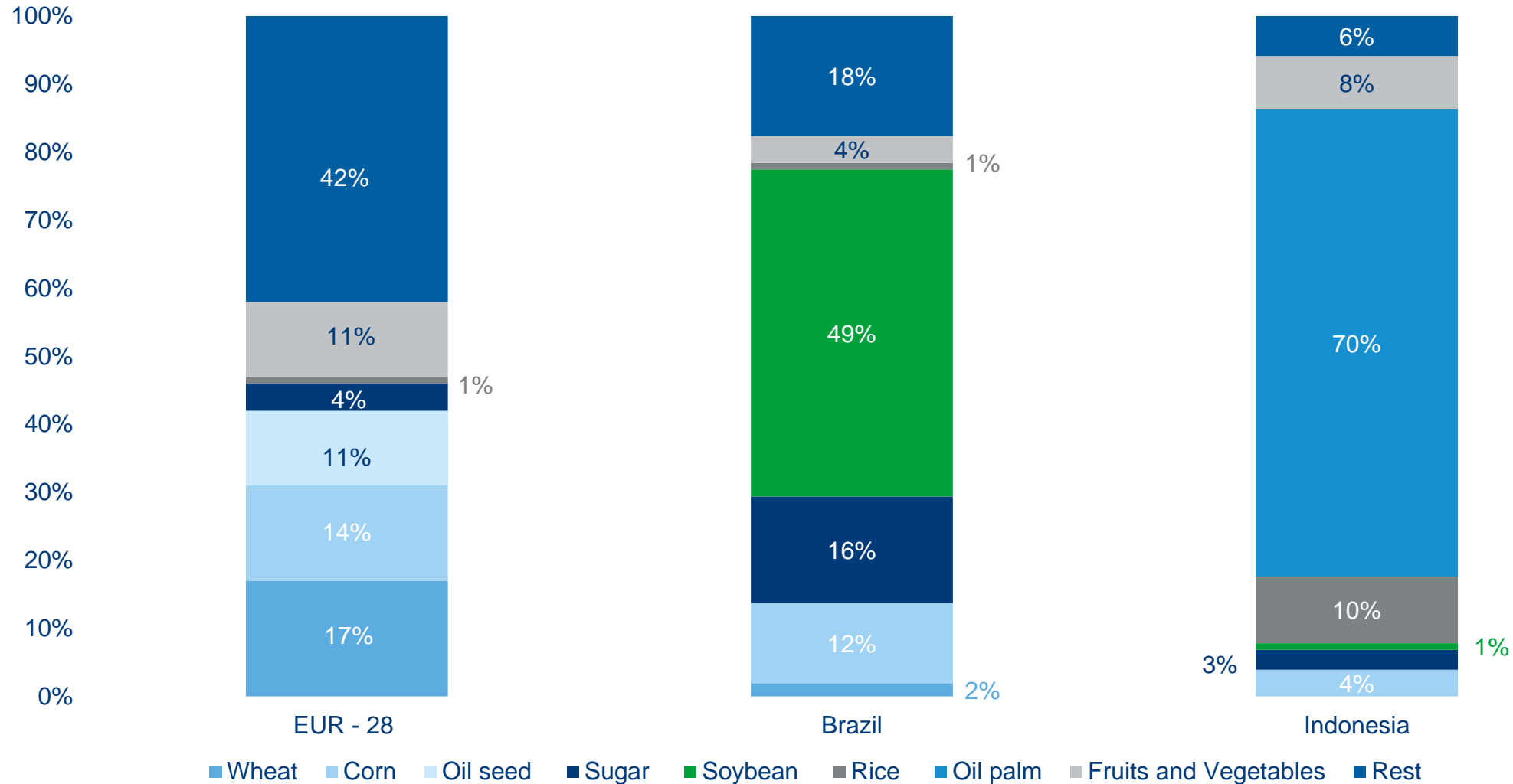
US corn farmer profitability in USD/acre since 01/1996



Source: USDA, Kepler Cheuvreux

- **Sharp increase in crop prices** significantly exceeds higher input costs; leading to **farmer profitability at all-time highs in some regions**
- **Potash costs** only account for **~5% of total input costs**

# Potassium use by crop in selected countries



Source: IFA, "Fertilizer Use by Crop" based on data from 2014, published 2017

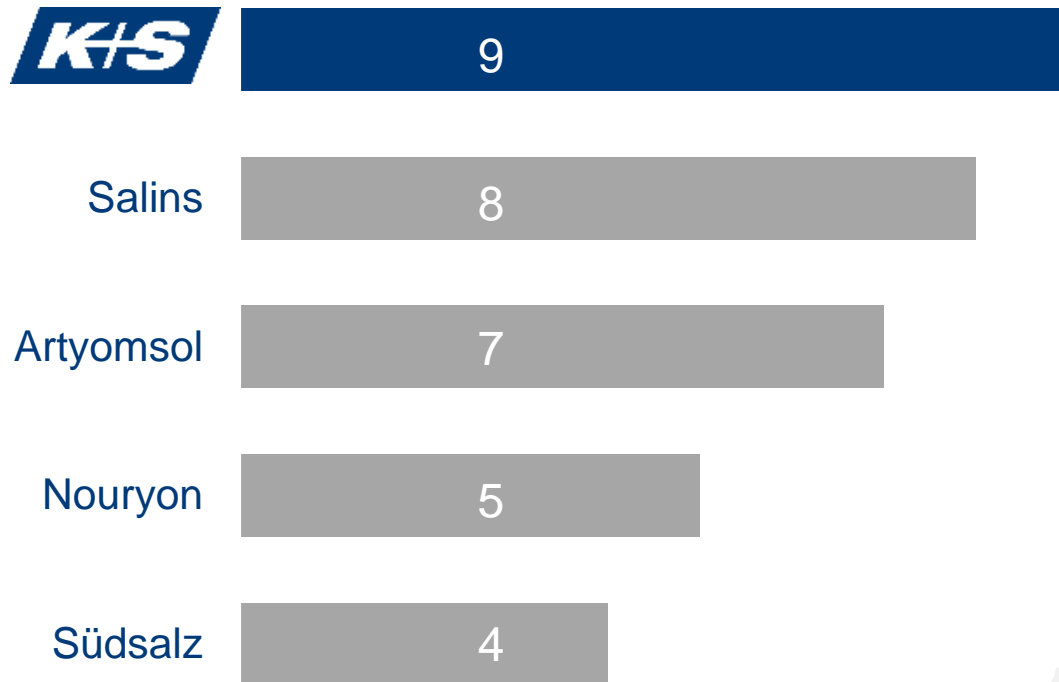
# Global potash sales volume by region

million tonnes	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Western Europe	5.6	5.8	6.2	6.0	5,9	6,2	6,2	6,0	6.2	6.5
Central Europe/FSU	5.1	4.7	4.4	4.8	4.8	5.2	5.4	5.5	5.6	6.2
Africa	0.7	0.8	1.0	1.0	1.1	1.4	1.6	1.4	1.6	1.9
North America	9.1	9.7	11.8	9.5	10.9	11.2	11.5	9.8	11.7	12.4
Latin America	10.5	11.0	11.9	11.5	12.2	12.7	13.7	13.5	15.8	17.2
Asia	23.4	26.2	32.4	32.3	30.1	32.5	32.6	31.6	35.7	32.0
- thereof China	12.0	13.8	16.7	18.5	16.2	16.2	16.3	17.8	19.5	16.3
- thereof India	2.8	3.5	4.5	4.1	4.0	5.0	4.5	4.5	5.4	3.3
Oceania	0.4	0.5	0.7	0.6	0.6	0.7	0.8	0.7	0.7	0.8
<b>World total</b>	<b>54.8</b>	<b>58.7</b>	<b>68.4</b>	<b>65.7</b>	<b>65.6</b>	<b>69.9</b>	<b>71.8</b>	<b>68.5</b>	<b>77.3</b>	<b>77.0</b>

Incl. potassium sulphate and low-grade potash of around 5 million tonnes eff. ; **Sources:** IFA, K+S

# Supplier structure on European salt market

Capacity in million tonnes (crystallized salt and salt in brine; excl. captive use)



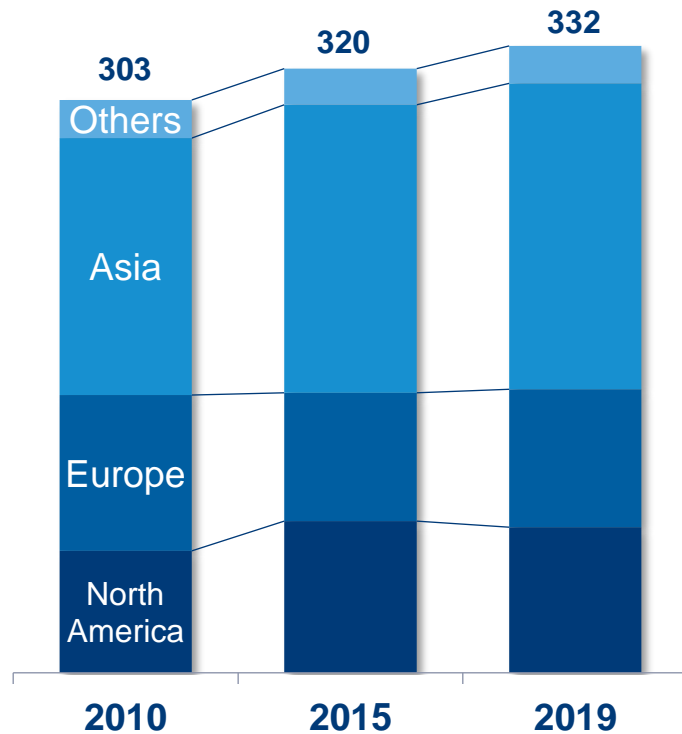
Source: Roskill, K+S



# Development of salt consumption and production

## Consumption (in million tonnes)

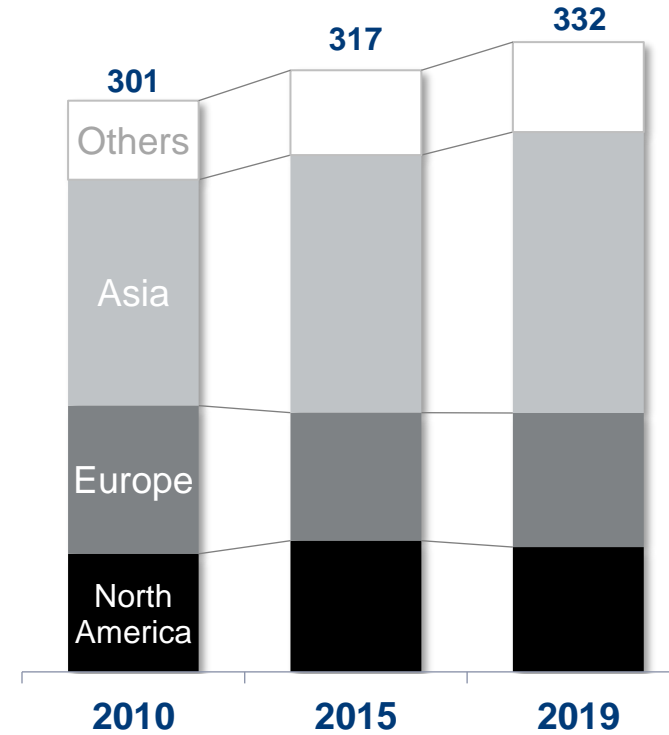
Between 2010 and 2019, global consumption increased by about 0.90% yoy to a record 332 million t.



Source: K+S, Roskill

## Production (in million tonnes)

World production reached a record of more than 330 million t in 2019. It increased by an average of 1% yoy between 2010 and 2019.



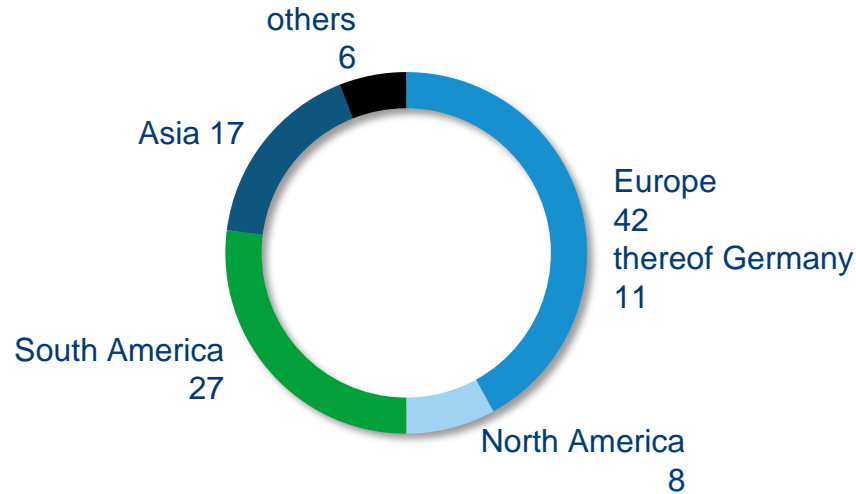


**K+S**

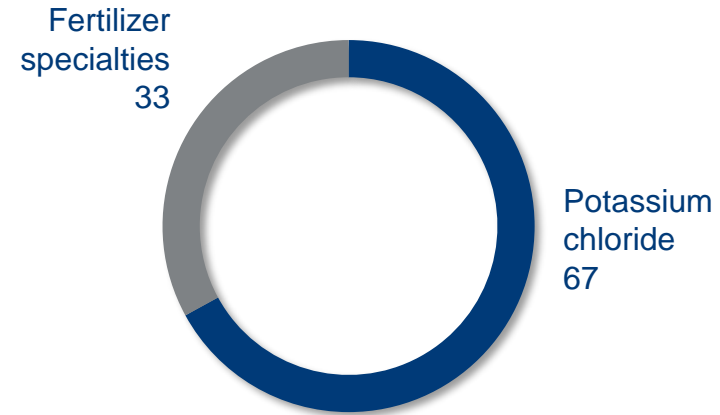
**3 | 7 Customer Segment Agriculture**

# Customer segment Agriculture at a glance

## Revenue split by region 2021 (%)



## Revenue split by products Q3/2022 (%)



## Characteristics

- Close proximity to our most important customers as a logistical advantage
- Shipments to overseas customers at competitive costs from Hamburg harbour
- Solid and long-term customer relationships
- Broad specialty portfolio provides flexibility and stability, partly following different trends and seasons

in € million	Q3/2022	Q3/2021
Revenues	1,162.8	529.1
Sales volumes (mt)	1.56	1.76

# What makes us different?

## Our ingredients of natural origin

### Soil fertilizer



**Korn-Kali®**

-

Our all-rounder - for your most different applications

**Korn-Kali<sup>+B</sup>**

-

Our all-rounder - for you also now with boron

**Roll-Kali**

-

Our potash fertilizer - the perfect partner for your fertilizer mix

**60. Kali®**

-

Our potassium chloride - your first choice

**Magnesia-Kainit®**



Our specialist for your healthy forage production

**KALISOP®**



Our top quality - for your specialty crops

**KALISOP<sup>Premium</sup>**



Our rolled granulate for wide, precisely distributed application

**Patentkali®**



Our formula for success - for the highest quality for your crops

**ESTA Kieserit**



Our highly concentrated - magnesium sulfur power for plants

### Foliar and liquid fertilizers



**EPSOTop®**



The basic ingredient for foliar fertilization

**EPSOMicrotop®**



Our specialist for root and leaf crops

**EPSOCombitop®**



Our specialist for health and quality

**EPSOBortop®**



Our specialist for rapeseed and sugar beet

**EPSOProfitop®**



Our specialist for all your cereals

**soluMOP®**

-

Our frost professional - for your winter yield security

**soluSOP<sup>52</sup> organic**



Our perfect source - potassium and sulfur for your crops

Further information: [www.kpluss.com/fertilizer](http://www.kpluss.com/fertilizer)



# 4 | 7 Customer Segment Industry+

**K+S**

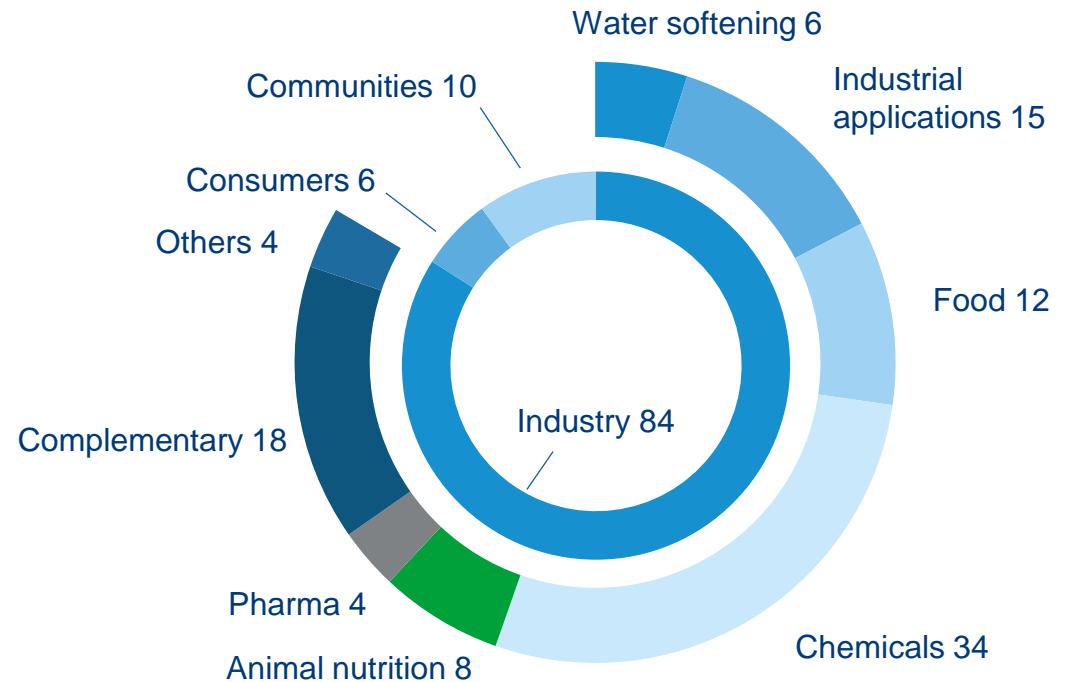


# Industry+ customer segment at a glance\*

## Characteristics

- Emerging markets: Growth, especially in Asia, leads to increasing demand for electrolysis.
- Electrolysis and specialties: Focus on product quality, service and proximity to the customer.
- Pharma: High quality standard, certified, innovative and overarching customer focus as well as reliability.
- Consumers: Strong brands in table salt, water softening salt, pool salts and de-icing salt.
- Communities: Public road construction authorities, winter road clearance service providers and large commercial users procure de-icing salt from K+S largely through public tenders.

## Revenue split by products Q3/2022 (%)



\*continued operations

€ million	Q3/2022	Q3/2021
Revenues	307.1	217.2
Sales volume (mt)	1.68	1.73
- thereof: de-icing	0.48	0.65

# Main areas of application

## Chemical

- Chlor-Alkali-processes (PVC)
- Polycarbonates and MDI (Isocyanat) (plastics, synthetic resin)
- Synthetic Soda ash (glass)



## Food processing

- Food processing industry
- Baking industry
- Condiment and preservative agent
- Preserving of fish



## Pharma

- Infusions, dialysis solutions
- Pharmaceuticals



## Oil and Gas

- Drilling fluids



## Animal nutrition

- Animal feed
- Lickstones



## Water softening

- Water softening
- Water treatment



## Complementary

- Waste management and recycling
- Granulation of Catsan® for Mars GmbH
- CFK (Trading)



## Others

- Dyeing works
- Leather treatment



The K+S logo is positioned in the top right corner of the image. It consists of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue, trapezoidal background that is part of a larger blue graphic element on the right side of the page.The text '5 | 7 Production' is located in the bottom left corner of the image. It is written in a bold, dark blue, sans-serif font. The background of this text is a semi-transparent white rectangular area that overlaps the industrial scene.



# Adding value along our entire supply chain

## Exploration



Our potash and salt deposits came into being millions of years ago. They are either our property or we have corresponding rights or approvals that allow the extraction or solution mining of the raw material reserves.

## Mining



We extract raw materials in conventional mining below ground as well as through solution mining. We also use the power of the sun and extract salt by evaporating sea water or saline water.

## Production



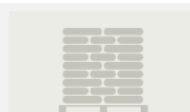
The refining of raw materials is one of our core competencies. Above ground, the crude salt is processed in complex, multi-phase, mechanical or physical processes, with the natural properties of the mineral remaining unchanged.

## Logistics



The long-term securing of freight capacity is of strategic importance to us. A large part of our international transportation volume is forwarded by service providers with which we maintain long-standing partnerships.

## Sales/ Marketing



The K+S Group wants to be the preferred partner of its customers in the market. High product quality and reliability are crucial prerequisites for this. K+S offers a comprehensive range of services for agriculture, industry and private consumers.

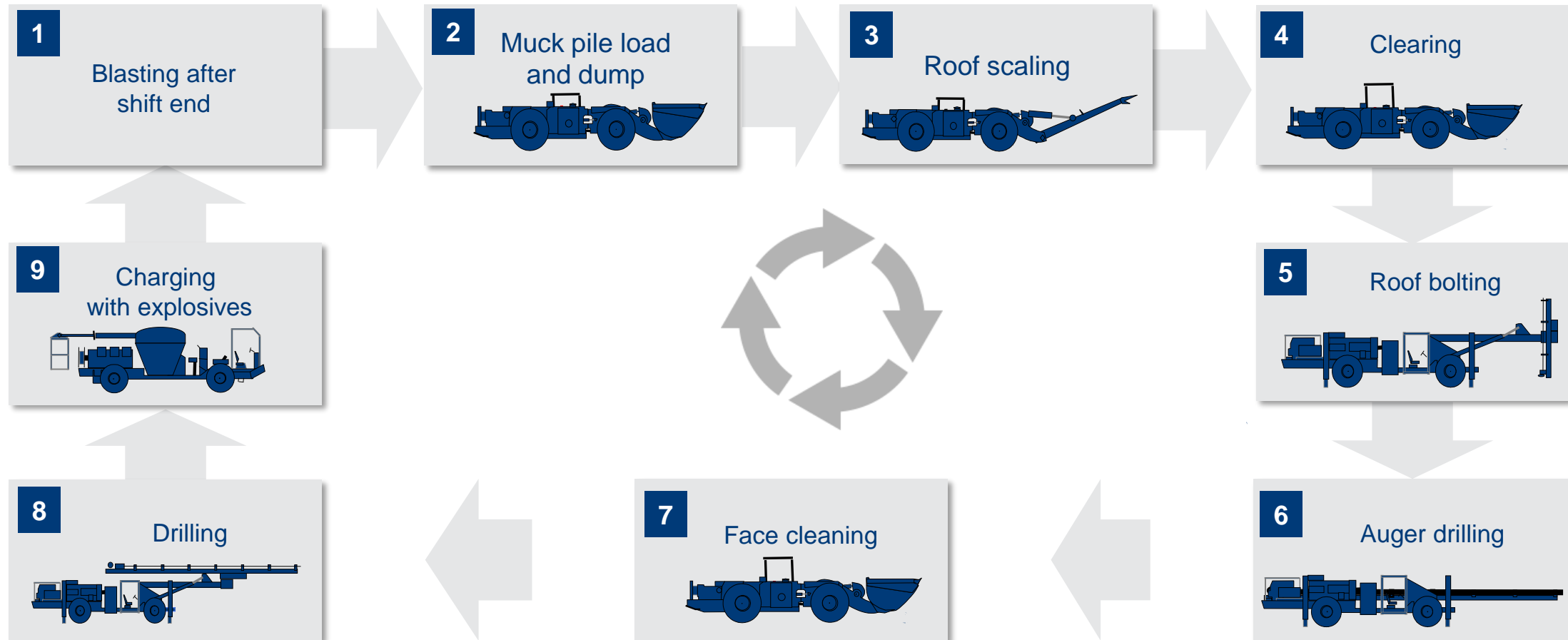
## Application



Our customers apply our products, use our raw materials in their processes or process them in their products. We make extensive product information available and advise our customers on the application of our products.

# Underground mining production cycle

## Conventional mining



# Main production methods

## Rock salt

Conventional  
mining



## Sea/solar salt

Crystallisation  
of sea water



## Evaporated salt

Recrystallization  
of purified brine



## Brine

Controlled  
borehole-brining

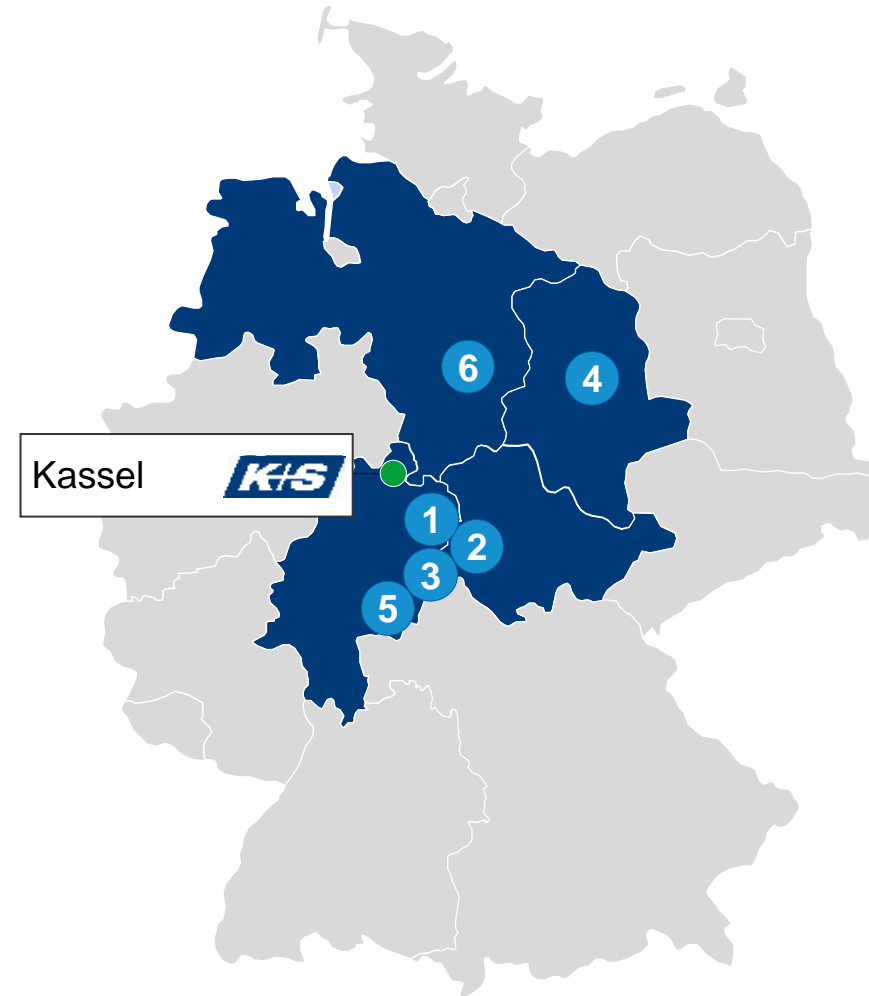


- Around 70% of worldwide salt production (more than 290 million tonnes including brine) is obtained from rock salt mining and solution mining.
- Approximately 30% of production is obtained from seawater and salt lakes.
- Salt is produced in almost every country in the world. Due to the high share of transportation costs in production costs, markets are generally regionally limited to the area around the production locations.

# Potash sites in Germany

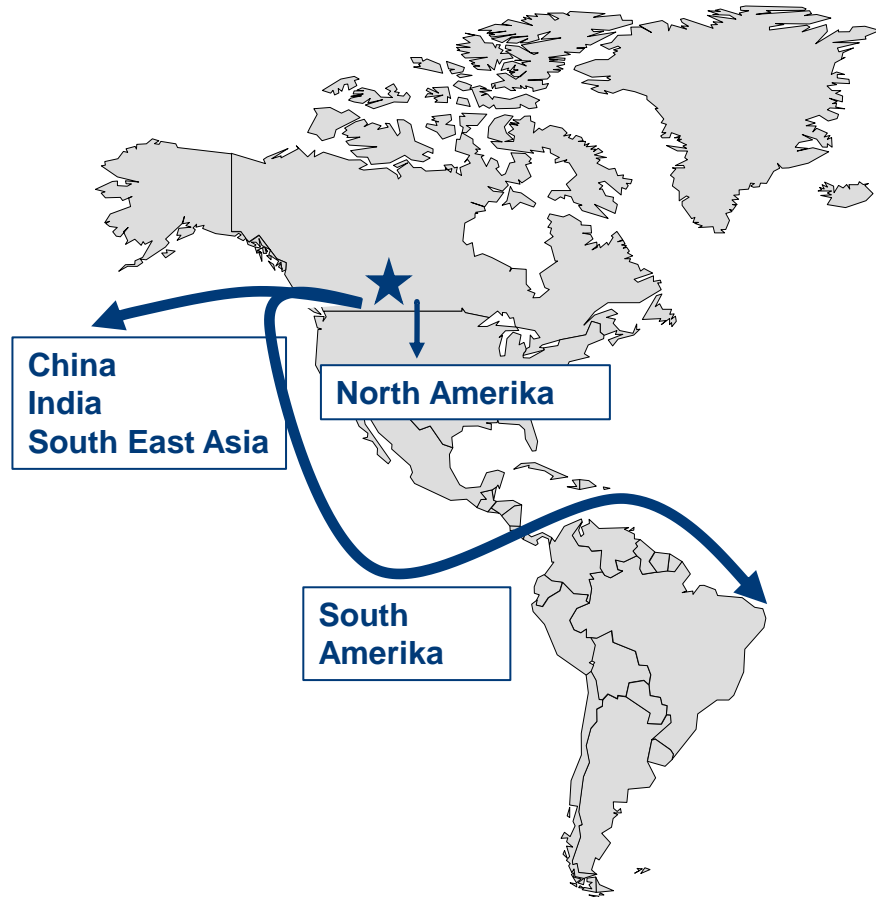
Share of annual production capacity (in %)

- |                         |                     |      |
|-------------------------|---------------------|------|
| 1. Wintershall          | } Verbundwerk Werra | ~ 50 |
| 2. Unterbreizbach       |                     |      |
| 3. Hattorf              |                     |      |
| 4. Zielitz              |                     | ~ 25 |
| 5. Neuhof-Ellers        |                     | ~ 20 |
| 6. Bergmannsseggen-Hugo |                     | ~ 5  |
- (production site, no mining)



# K+S in Kanada: Bethune

## Strengthening our global presence



- Expanding our current production portfolio in Germany with a North American production site → **Only supplier with production on two continents**
- Securing a **good asset base with competitive production costs**
- Sales and distribution through **existing distribution structures** of the K+S Group
- **Regional growth projects** in China and Southeast Asia
- **Flexible multi-product strategy**

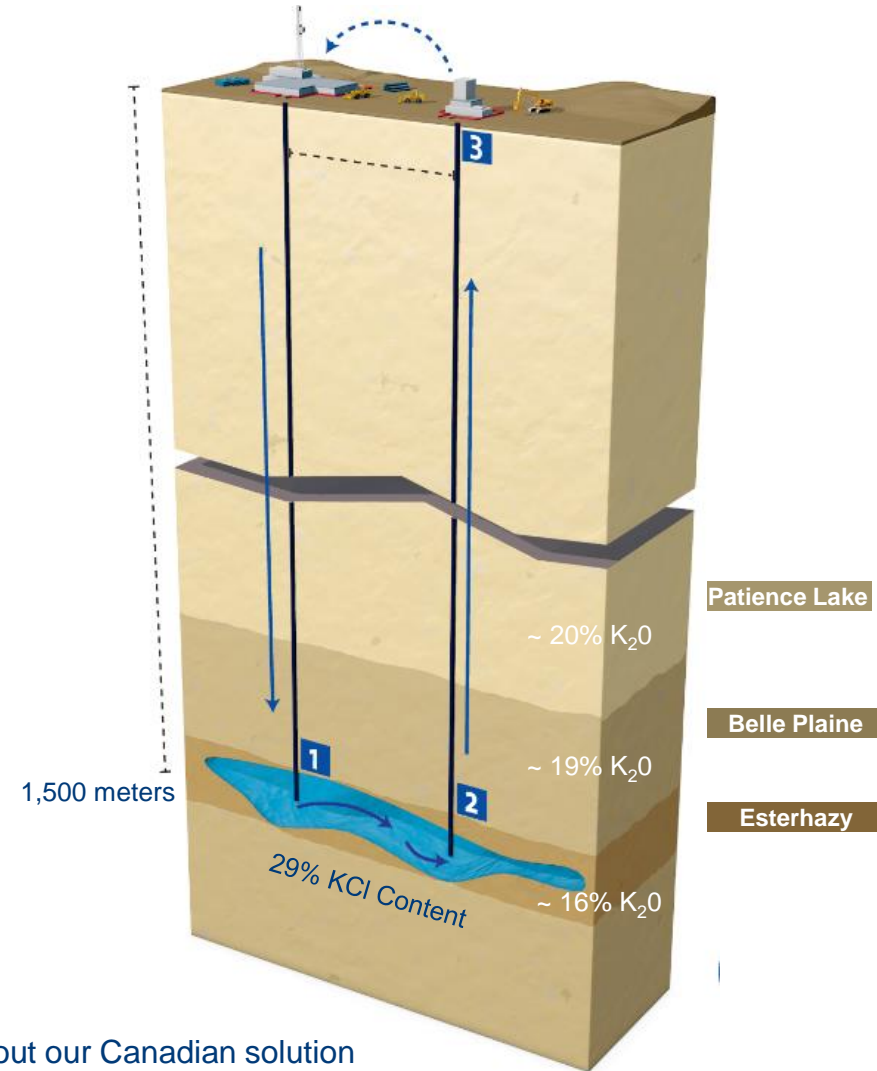
# Bethune – Solution Mining

## Procedure (Primary Mining)

Mining technique	Solution Mining
Depth	1,500 meters
Thickness	33 meters
K <sub>2</sub> O / KCl Content	18% / 29%

- 1** In solution mining, freshwater is brought into solvent (salt) rock through a drill hole, therefore creating chambers, or caverns, filled with a water-salt solution.
- 2** In a subsequent step, the saturated brine is brought to the surface through an additional pipeline.
- 3** This brine is then evaporated in the factory and processed into potash products. The water obtained during evaporation is recirculated back into the caverns.

 **Environmental impact statement approved for up to 4 million t KCl p.a.**



A film about our Canadian solution mining can be found [here.](#)



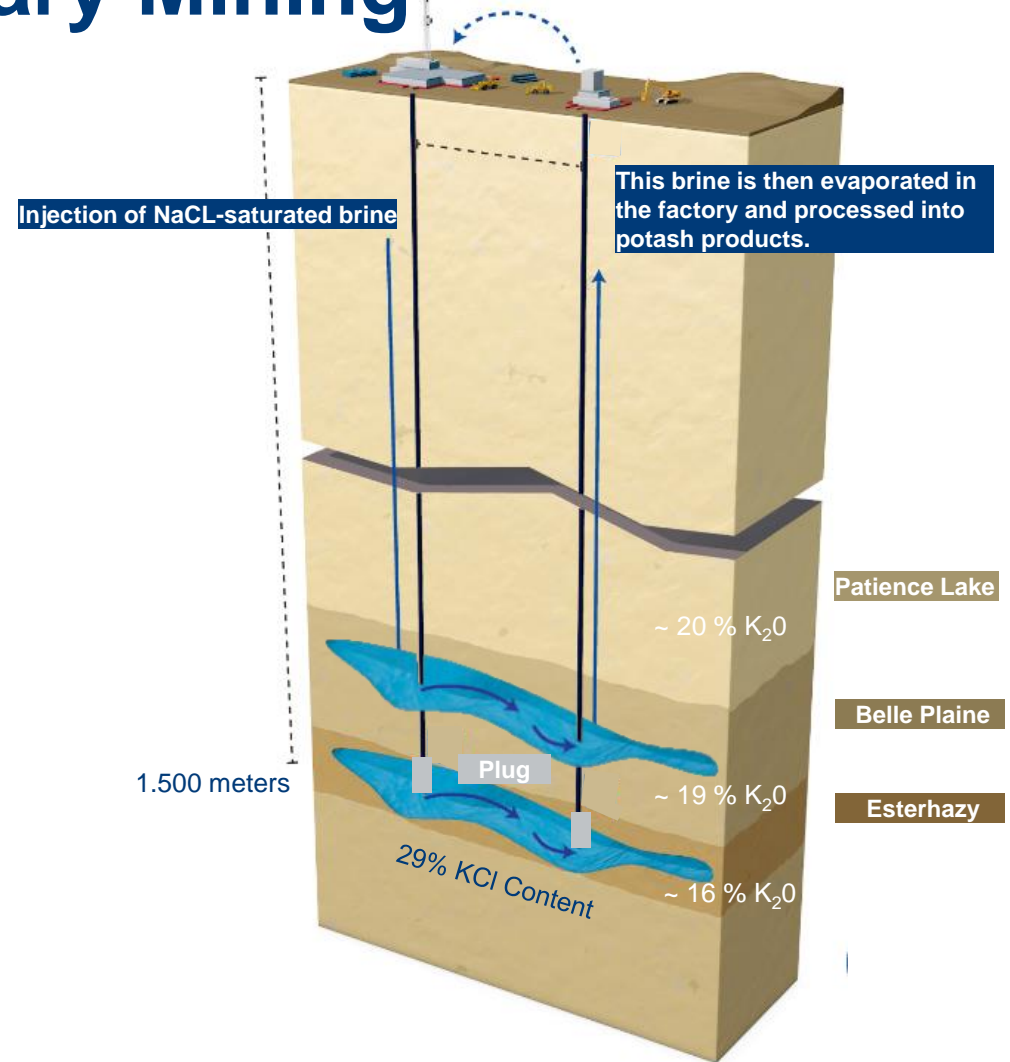
# Bethune – Primary vs. Secondary Mining

## Secondary Mining

Secondary mining uses exclusively saturated NaCl solution to selectively dissolve residual KCl from existing caverns.

## Advantages (in comparison to primary mining)

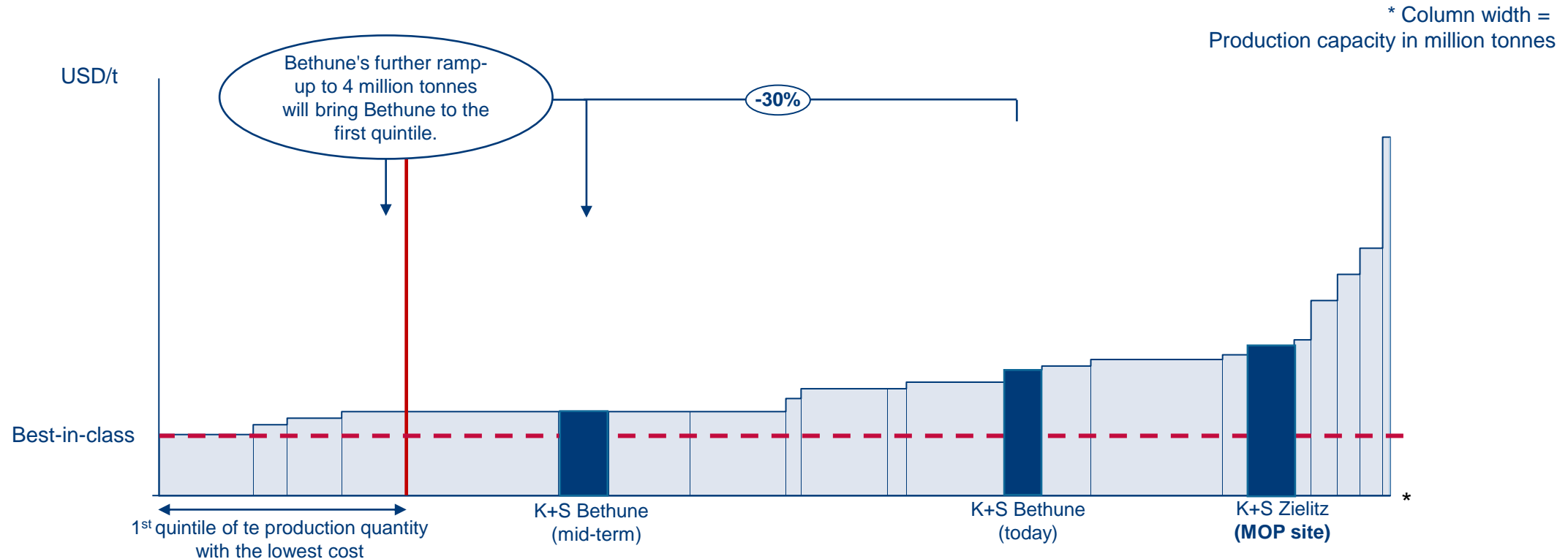
- Lower energy intensity (e.g. injection brine is heated via waste heat from evaporators and KCl is crystallized in the cooling pond via natural cooling)
- Substantially more efficient with the use of water
- Reduces salt to tailings up to 30%



➔ The production costs for NaCl brine mining are 50% of the production costs of primary mining.

# Site costs (at mine gate) in comparison

Ramp-up of Bethune as well as measures to optimize the portfolio business



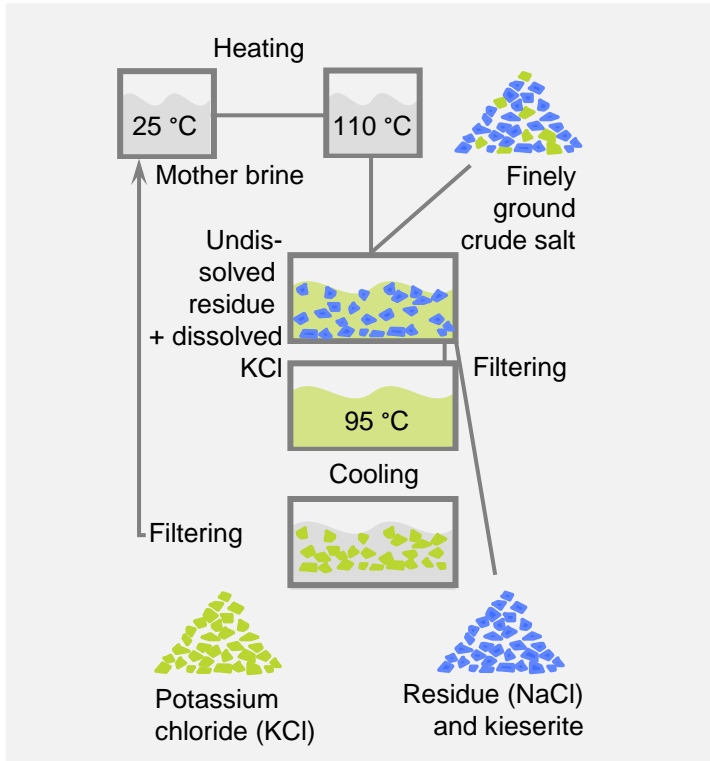
Source: CRU Report 2019, K+S

➔ Increasing improvement in cash costs and competitive position

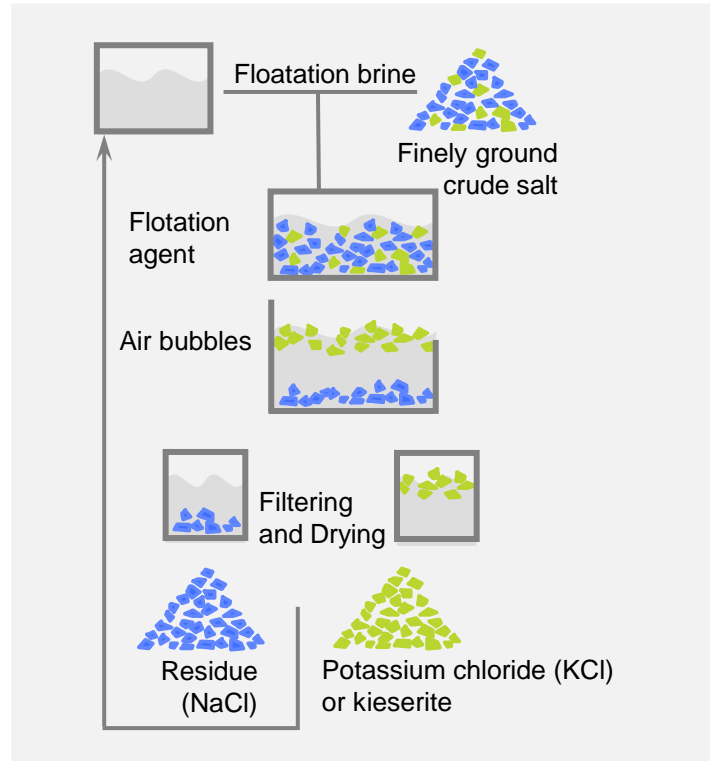


# Potash processing above ground

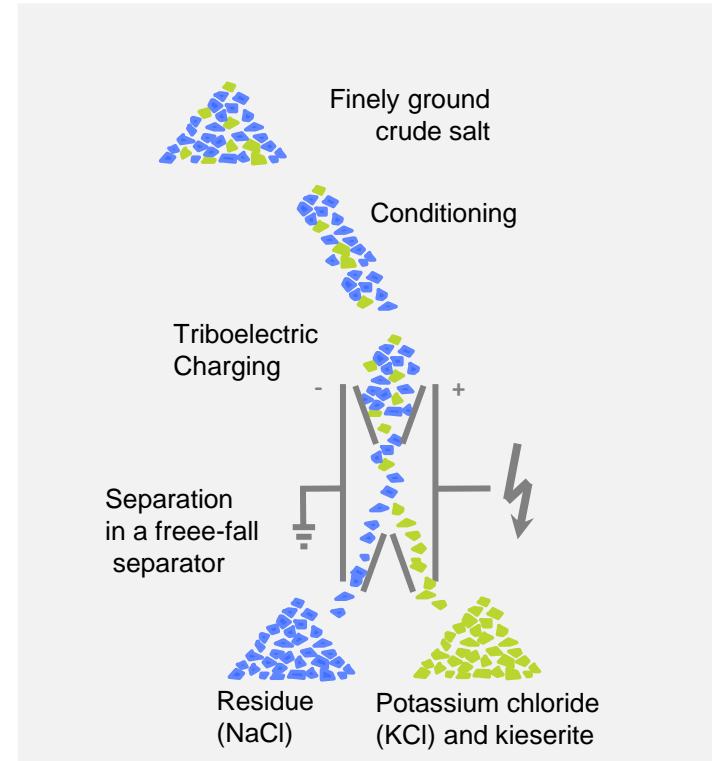
## Thermal dissolution



## Flotation



## Electrostatic separation (ESTA®)



# Potash production: management of residues

Rock salt only a limited share of usable material; residue accumulation is unavoidable...

The methods, processes and equipment for the construction of tailings piles from solid residues are **scientifically justified, tried and tested in practice**. These ways of disposal – depending on the corresponding site – are used also in combination. They currently represent the **best available technique**. Solid or liquid residues are disposed of worldwide in the following ways:

Tailings piles



~80%

Underground disposal



~9%

River injection\*



~8%

Deep-well injection

(for K+S in the Hessian-Thuringian potash district until the year 2021)



~3%

∅ Share of residue disposed by this method in the Hessian-Thuringian potash district :

\* With low river water levels in the Werra, there are possibilities for K+S in the Hessian-Thuringian potash district to temporarily store liquid residues in water basins or suitable mine spaces on site or temporary ways of disposal by flooding decommissioned mines or gas caverns in Lower Saxony or Saxony-Anhalt.

# Green investments = long-term planning security

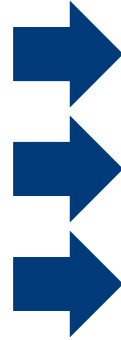
## Tailings piles extensions



Hattorf

Wintershall

Zielitz



- Completed by end of 2022 / beginning of 2023
- Next permit and significant investments in tailings pile extensions will not be necessary again until the end of the 2020s

## Liquid residues



Werra



- Deep-well injection ended 2021
- As of 2022: permanent storage underground (subject to approval)
- From 2028: Higher utilization of underground storage through further treatment of saline water
- Injection from 2028: only less concentrated tailings pile waters and no process waters

# Tailings pile coverage and greening

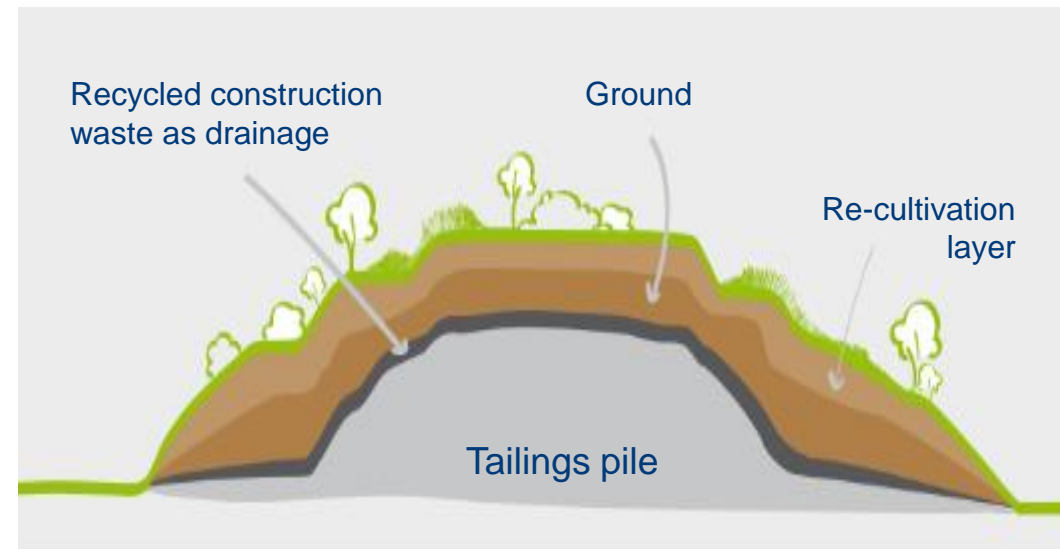
## Our objectives

- From 2030 onwards, K+S will be able to use three million tonnes of residue annually for purposes other than rearming.
- By 2030, we want to cover a further 155 hectares of tailings pile area and thus further reduce or avoid the accumulation of tailings pile water.

## The procedure

Soil and construction rubble are installed in several layers on the stockpile in a precisely defined process.

→ Formation of a cover, the upper layer of which is permanently greened.



# Tailings pile and process water at the Werra site

## Development of saline wastewater

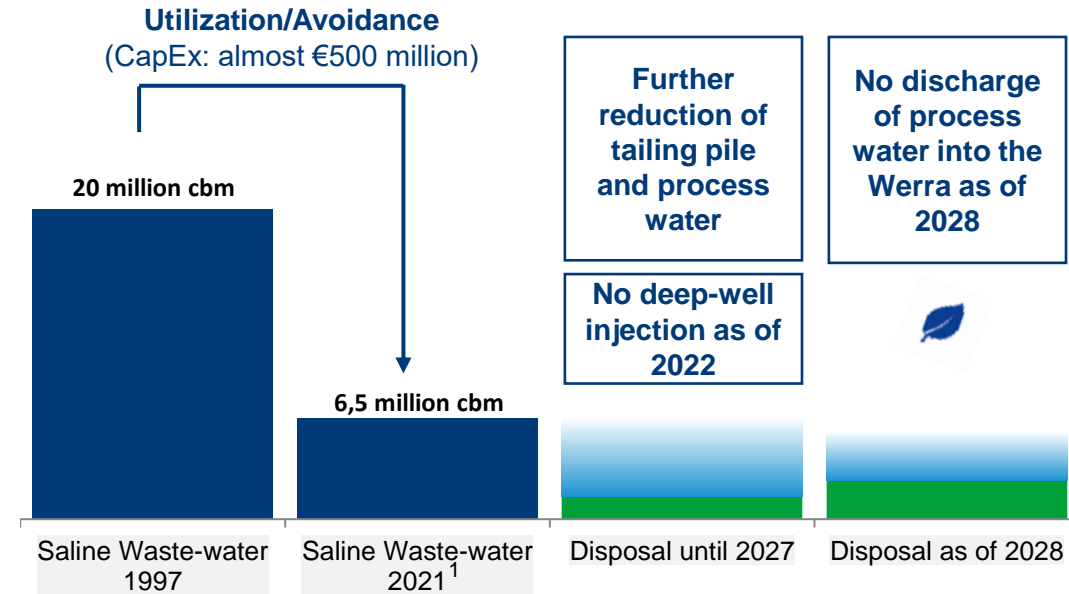
Reduction of saline wastewater based on various measures within the last 25 years:

- Underground disposal in Unterbreizbach
- Optimization of production and manufacturing processes
- ESTA - facility, cold preliminary decomposition and high consistency facility, kainite crystallization and MgCl<sub>2</sub> facility
- Establishment of a Kainite crystallization and flotation facility; advantage: additional product

## Additional ways of disposing saline wastewater

- **On-Site:** Temporary storage possibility of up to 1.0 million m<sup>3</sup> (basins and temporary storage underground).
- **Off-Site:** Flooding of decommissioned mines or caverns for their restoration.
- As part of our strategy and the optimization of our existing business, the focus at the Werra site will be on reducing solid and liquid residues as well as energy consumption and therefore CO<sub>2</sub> emissions.

## Disposal of saline wastewater



Remote flooding of abandoned mines or caverns and temporary storage underground  
 as of 2022: permanent storage underground (subject to approval);  
 as of 2028: higher utilization of storage underground with additional processing

Discharge Werra<sup>2</sup> in compliance with the target values of the FGG Weser  
 as of 2028: only tailing pile water

<sup>1</sup> Including Neuhof

<sup>2</sup> Further reduction and avoidance of tailing pile water targeted by covering tailings piles; continuing R&D developments with external partners, among others

# Underground storage in Springen

## Our goal

- Our first goal of stopping the injection of saline wastewater into the plate dolomite as of 2022 has been accomplished.
- Stopping the discharge of saline wastewater into the Werra as of 2028.

**The solution:** Storage of process water into disused cavities



→ Mine field Springen offers 21,000,000 m<sup>3</sup> of space for underground storage.

## The procedure

- Highly concentrated saline solution from potash production is discharged into the mine field via existing lines.
- Due to the high salt concentration of the liquid, the salt pillars, which are responsible for the stability of the shaft, are not damaged.
- Finally, the old shafts are tightly closed with gravel and clay so that no saline water can discharge.

The K+S logo is positioned in the top right corner of the slide. It consists of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue, trapezoidal background that is part of a larger blue and white geometric design on the right side of the slide.The background of the slide is a wide-angle photograph of a lush green landscape. In the foreground, there is a field of tall, vibrant green grasses that appear to be blowing in the wind. In the middle ground, a dense line of green trees and shrubs stretches across the frame. In the background, a large, rounded green hill rises under a bright blue sky filled with scattered white clouds.

# 6 | 7 Sustainability

# K+S Sustainability Goals



We have set ourselves ambitious goals in these three areas of action:

## **Society & Employees, Environment & Resources and Business Ethics & Human Rights**

- The human being is our focus
- Active commitment to environmentally friendly production
- Integrity & a sense of responsibility characterize our actions

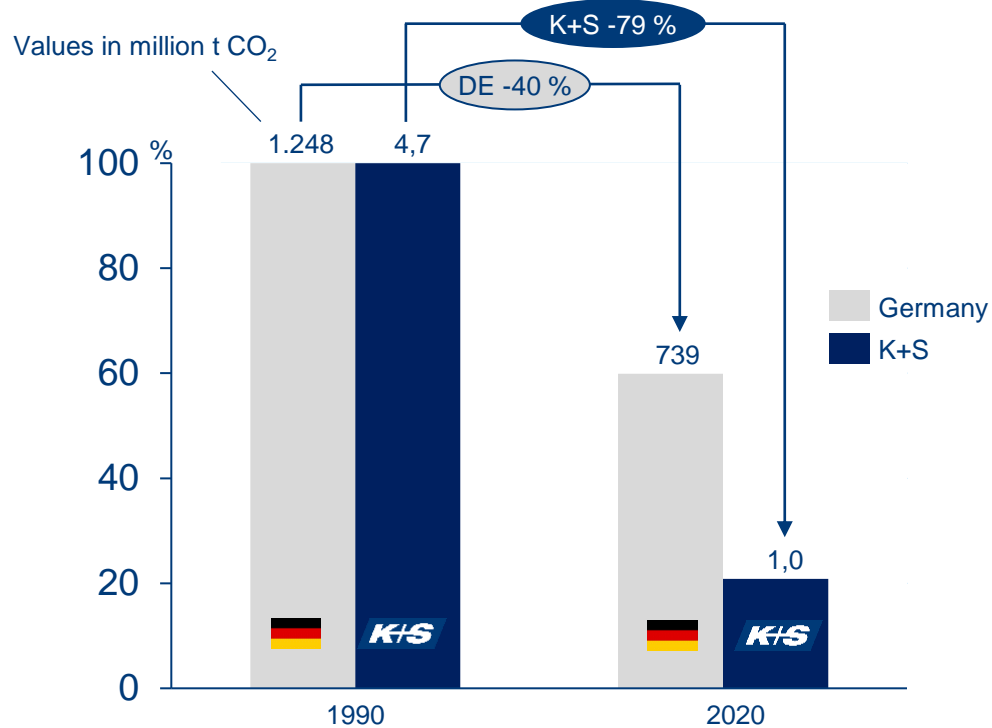




# K+S Climate Strategy

## Germany compared to K+S

(German potash production, Scope 1)



### 80% of CO<sub>2</sub> emissions already reduced (1990 – 2020):

Through fuel change, increased energy efficiency and site closures.

## Short-term goal

Introduction of a “**K+S climate protection fund**” from 2022 to reduce our CO<sub>2</sub> emissions.

## Mid-term goal

Reduction of our **CO<sub>2</sub> emissions by 10% by 2030** compared to 2020.

## Long-term goal

K+S supports the goals of the “**Paris Agreement**”: **Climate neutrality in 2050** can be internationally achieved with a supportive regulatory framework.


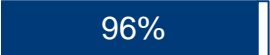
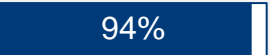
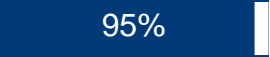

K+S, therefore, calls for a worldwide **level playing** field (until then carbon leakage protection is required), strong energy **infrastructure**, transition **funding** and **affordable renewable energies**.

# K+S Sustainability Goals 2030

	Goal (Sponsor)	KPI	Q3/22	Target value 2030	Base year	Achievement of targets
Environment & Resources		Injection of saline wastewater in Germany (million m <sup>3</sup> p.a.)	0	0 (starting January 2022)	2017 (1.2)	100%
	<b>Resource efficiency</b> (Holger Riemensperger, COO)	Additional reduction of saline process water to be disposed of from potash production in Germany (million m <sup>3</sup> p.a.)	-0.1	-0.5 (excluding reduction by KCF facility and end of production SI)	2017 (0)	20%
		Amount of residue used for purposes other than tailings piles formation or avoided by increasing the yield of raw material (million t p.a.)	1.2 <sup>1</sup>	3	2017 (0.2)	40%
		Additional covered tailings piles area	11.4	155	2017 (0)	7%
	<b>Energy &amp; Climate</b> (Dr. Burkhard Lohr, CEO)	Absolute CO <sub>2</sub> emissions in the K+S Group worldwide	-0.4 %	-10%	2020	4%
	Specific greenhouse gas emissions (CO <sub>2</sub> ) in logistics (kg CO <sub>2</sub> e/t)	-11.6% <sup>1</sup>	-10%	2017	100%	















<sup>1</sup> No quarterly information, only FY reporting

# K+S Sustainability Goals 2030

	Goal (Sponsor)	KPI	Q3/22	Target value 2030	Base year	Achievements of targets
Society & Employees	<b>Health &amp; Safety</b> (Holger Riemensperger, COO)	Injury with lost time (LTIR)*	9.1	0 Vision 2030	2017 (11.5)	
	<b>Diversity &amp; Inclusion</b> (Dr. Burkhard Lohr, CEO)	Positive perception of an inclusive work environment by employees	87 %	> 90%	2019 (54.4)	
Business Ethics & Human Rights	<b>Sustainable Supply Chains</b> (Holger Riemensperger, COO)	Percentage of critical suppliers that have acknowledged the Supplier Code of Conduct of the K+S Group*	94 %	100% end 2025	2017 (0)	
		Coverage of the purchasing volume by the Supplier Code of Conduct of the K+S Group*	86 %	> 90% end 2025	2017 (0)	
	<b>Compliance &amp; Anti-Corruption</b> (Dr. Burkhard Lohr, CEO)	Coverage of the K+S companies with a standardized compliance risk analysis (was designed 100% in 2020 after achieving the old target)	51 %	100% end 2023	2020 (0)	

\* LTI relevant (Board of Executive Directors and management)

# K+S Sustainability Management

Organisation	Rating Scale	2019	2020	2021	2022	Development
 Dow Jones Sustainability Indexes	Rating scale 0 to 100 (The lower, the better)	35				
 MSCI	Rating scale from AAA to CCC (A: average)	A	A	AA		
 ISS ESG	Rating scale from A+ to D-	C-	C-	C-	C	
 CDP DISCLOSURE INSIGHT ACTION	<b>Climate:</b> Rating Skala von A bis D-	C	C	C	C	
	<b>Water:</b> Rating Skala von A bis D-	B-	B	B	B	
 SUSTAINALYTICS a Morningstar company	Rating scale from 0 to 40+ (The lower, the better)	40	38.8	36.8	36.3	
 MOODY'S	Rating scale from 0 to 100 (The higher, the better)	44	45	46		
 FTSE Russell	Rating scale from 0 to 5 (The higher, the better)		2.8	3.2		



EU principles for sustainable raw materials



# The contribution of our products to the SDGs



The K+S logo is positioned in the top right corner of the slide. It consists of the letters 'K+S' in a bold, white, sans-serif font, set against a dark blue, trapezoidal background that is part of a larger blue graphic element on the right side of the slide.

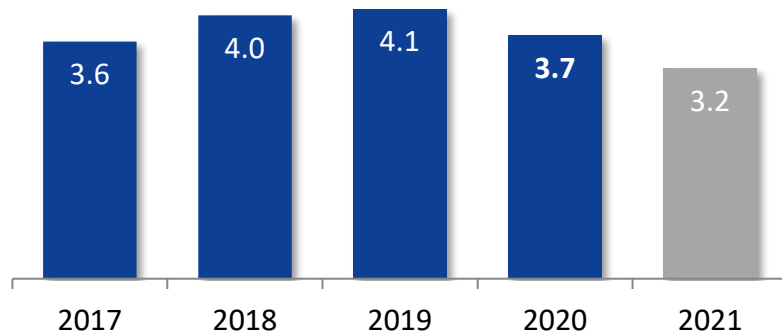
**K+S**

The background of the slide is a photograph of an underground mine. A large, black, rectangular haul truck is filled with a pile of grey, rocky material. The truck is positioned in the center of the frame. The surrounding environment is a dimly lit, cavernous space with rough, grey rock walls and ceiling. A bright light source from the left creates a strong beam of light that illuminates the truck and the surrounding rock. In the background, there are some faint markings on the rock wall, including the number 'E30'.

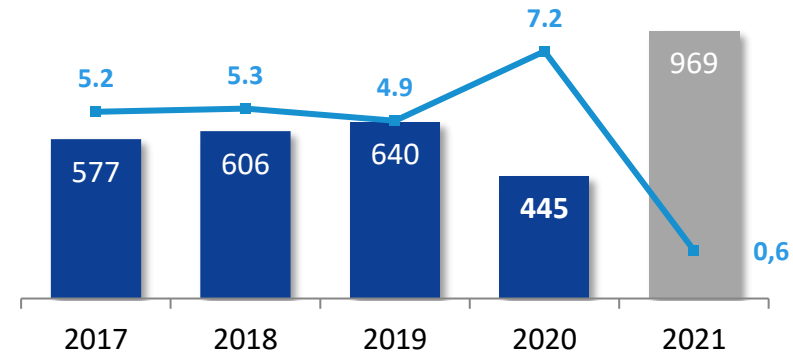
**7 | 7 Financial data & IR**

# Key financial figures<sup>1</sup>

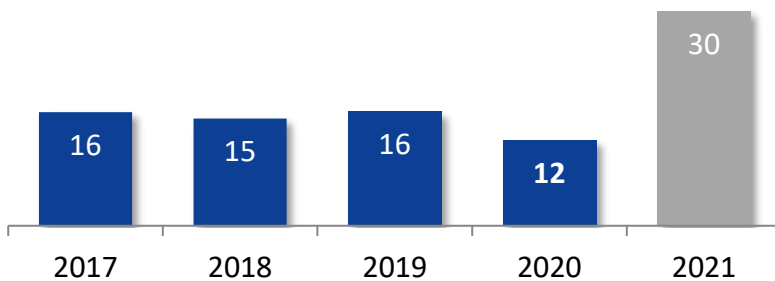
## Revenues (€ billion)



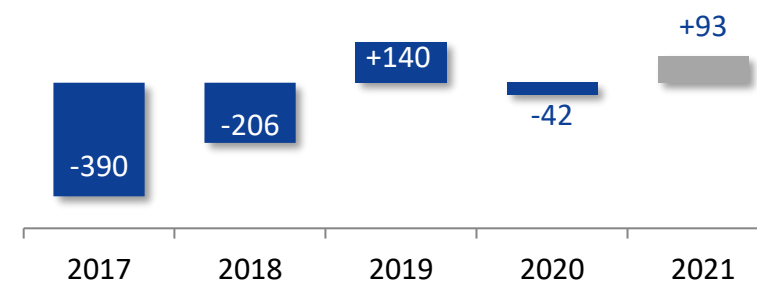
## EBITDA vs. Net Financial Debt/EBITDA



## EBITDA margin (%)

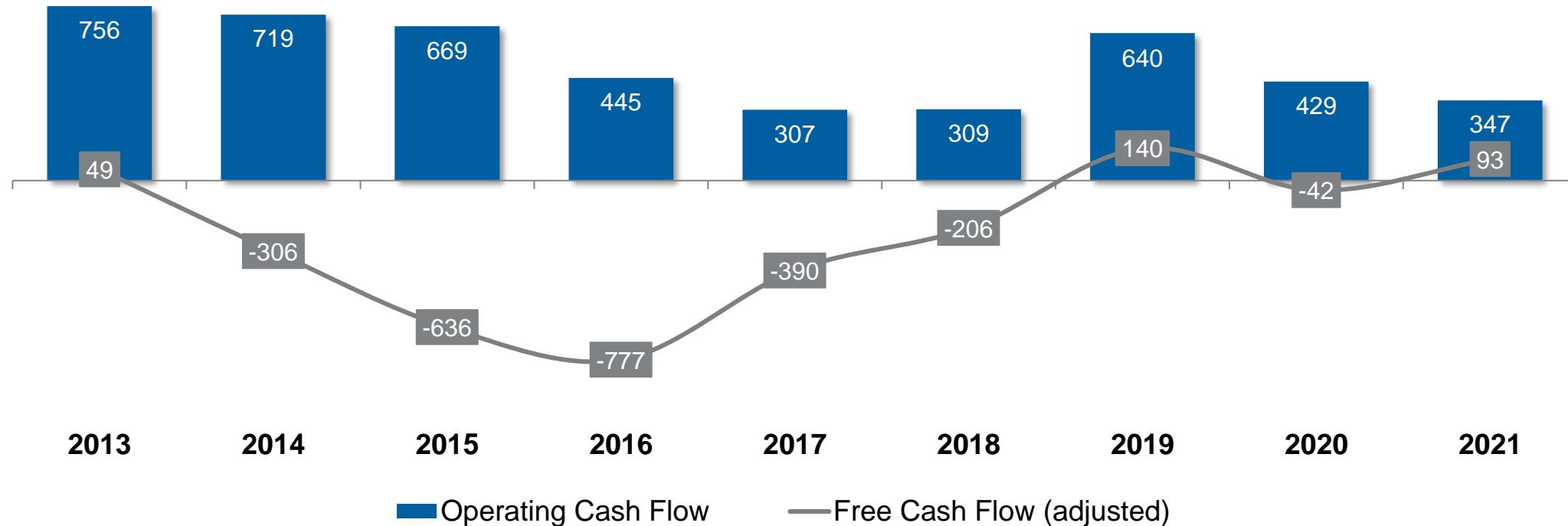


## FCF (€ million)



<sup>1</sup> The figures relate to the continuing and discontinued operations of the K+S Group for the years 2017 to 2020. For the year 2021, the figures relate to the continuing operations of the K+S Group.

# Operating and adjusted cash flow<sup>1</sup>



<sup>1</sup> The figures relate to the continuing and discontinued operations of the K+S Group for the years 2013 to 2020. For the year 2021, the figures relate to the continuing operations of the K+S Group (in € million).

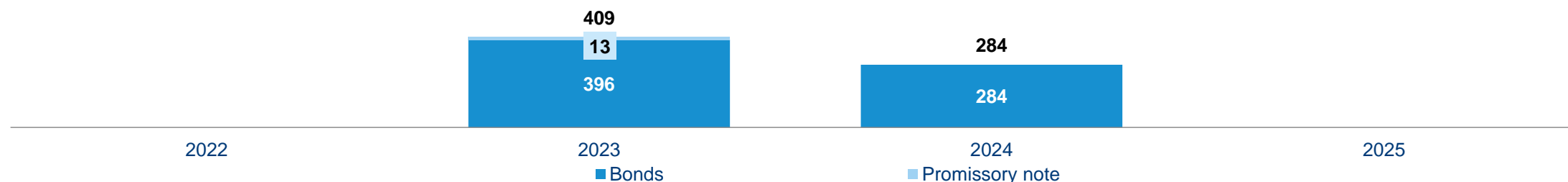


# Debt profile (promissory notes and bonds)

## Financial instruments

in € million	Amount outstanding	Coupon	Maturity
Promissory note loans	13		
Senior unsecured notes due 2023	396	2.625%	Jan 23 (3-months-par-call utilized)
Senior unsecured notes due 2024	284	3.250%	Apr-Jul-24 (3-months-par-call)

## Debt maturity profile



**+ Syndicated credit facility up to €600 million (available until 2024)**

**+ Commercial paper program as an additional source of liquidity**

# Cash flow and balance sheet

	FY/20	3M/21	H1/21	9M/21	FY/21	3M/22	H1/22	9M/22
Operating cash flow	429	147	69	83	347	254	486	1,143
- thereof continuing operations		82	81	95				
Investing cash flow (pre-sale/purchase of securities and other financial investments)	-471	-110	2,480	2,063				
- thereof continuing operations	-381	-97	-164	-247	-255	-151	-252	-329
<b>Adjusted Free Cash Flow</b>	<b>-42</b>	<b>37</b>	<b>2,549</b>	<b>2,480</b>	<b>2,691</b>	<b>103</b>	<b>234</b>	<b>814</b>
- thereof continuing operations	-110	-15	-83	-152	93			
Capex	526							
- thereof continuing operations	428	48	135	223	334	49	125	240
<b>Net financial liabilities (-); Net financial asset position (+)<sup>1</sup></b>	<b>-3,217</b>	<b>-3,185</b>	<b>-695</b>	<b>-784</b>	<b>-606</b>	<b>-520</b>	<b>-426</b>	<b>+152</b>
Net financial liabilities / EBITDA <sup>1</sup> (LTM)	7.2	7.2	2.0	2.0	0.6	0.4	0.2	-
Equity ratio <sup>1</sup>	27%	30%	48%	55%	61%	63%	65%	65%

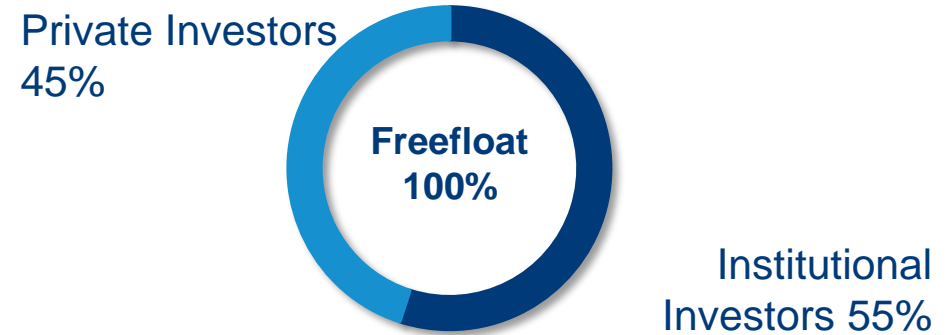
<sup>1</sup> The figures relate to the continuing and discontinued operations of the K+S Group for the year 2020. For the years 2021 and 2022, the figures relate to the continuing operations of the K+S Group.

# K+S Share

## Key data

- **WKN:** KSAG88
- **ISIN:** DE000KSAG888
- **Type of shares:** registered shares of no-par value
- **Total number of shares :** 191,400,000
- **Trading segment:** Prime Standard
- **Ticker symbols:** Bloomberg SDF/Reuters SDFG

## Shareholder structure as of Dec 31, 2021



## The following banks publish research studies about K+S

- Baader Helvea Equity Research
- Bank of America
- Berenberg Bank
- BMO Capital Markets
- Citi Research
- Deutsche Bank
- DZ Bank AG
- Exane BNP Paribas
- J.P. Morgan
- Kepler Cheuvreux
- LBBW
- M.M. Warburg
- Morgan Stanley
- Oddo BHF
- Pareto Securities AS
- Scotia Capital
- Société Générale
- Stifel
- UBS

# K+S ADR Programme

The K+S ADR Program offers North American investors the opportunity to take stock in K+S. Since the ADRs are quoted in US dollars and dividends are also distributed in US dollars, this financial instrument closely resembles an American share. Two ADRs represent one K+S ordinary share. The K+S ADRs are traded in the United States under a level 1 ADR Program in the over-the-counter market (OTC).

## Trade on OTCQX

**Symbol:** KPLUY  
**CUSIP:** 48265W108  
**Ratio:** 2 ADRs = 1 Share  
**Country:** Germany  
**ISIN:** DE000KSAG888  
**Depository:** The Bank of New York Mellon

## Benefits to North American investors

- Clear and settle according to normal U.S. standards
- Stock quotes and dividend payments in U.S. dollars
- Can be purchased/sold in the same way as other U.S. stocks via a U.S. broker
- Cost-effective means of international portfolio diversification

Further information: [www.kpluss.com/adr](http://www.kpluss.com/adr)

# K+S bonds and issuer rating

**Issuer rating (S&P):** BB+ (outlook: positive), November 2022

	<b>Bond 04/2023</b>	<b>Bond 07/2024*</b>
<b>WKN</b>	A2E 4U9	A2N BE7
<b>ISIN</b>	XS1591416679	XS1854830889
<b>Listing</b>	Luxembourg SE	Luxembourg SE
<b>Issue volume</b>	€625 million	€600 million
<b>Outstanding volume</b>	€396 million	€284 million
<b>Issue Price</b>	100.982%	100.000%
<b>Coupon</b>	2.625%	3.250%
<b>Maturity</b>	06.01.2023 (3-months-par-call utilized)	18.07.2024
<b>Denomination</b>	€1,000	€100,000

\* 3-months-par-call

# Financial calendar 2022/23

Annual Report 2022	March 15, 2023
Quarterly Report: March 31, 2023	May 9, 2023
Annual Shareholders' Meeting	May 10, 2023
Half-year Financial Report; June 30, 2023	August 10, 2023
Quarterly Report: September 31, 2023	November 14, 2023

## More content available online

- K+S Website: [www.kpluss.com](http://www.kpluss.com)
- Annual reports: [www.kpluss.com/ar2021](http://www.kpluss.com/ar2021)
- Newsletter subscription: [www.kpluss.com/newsletter](http://www.kpluss.com/newsletter)
- Social Media: 

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- IR-Website: [www.kpluss.com/ir](http://www.kpluss.com/ir)
- Newsletter: [www.kpluss.com/newsletter](http://www.kpluss.com/newsletter)

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