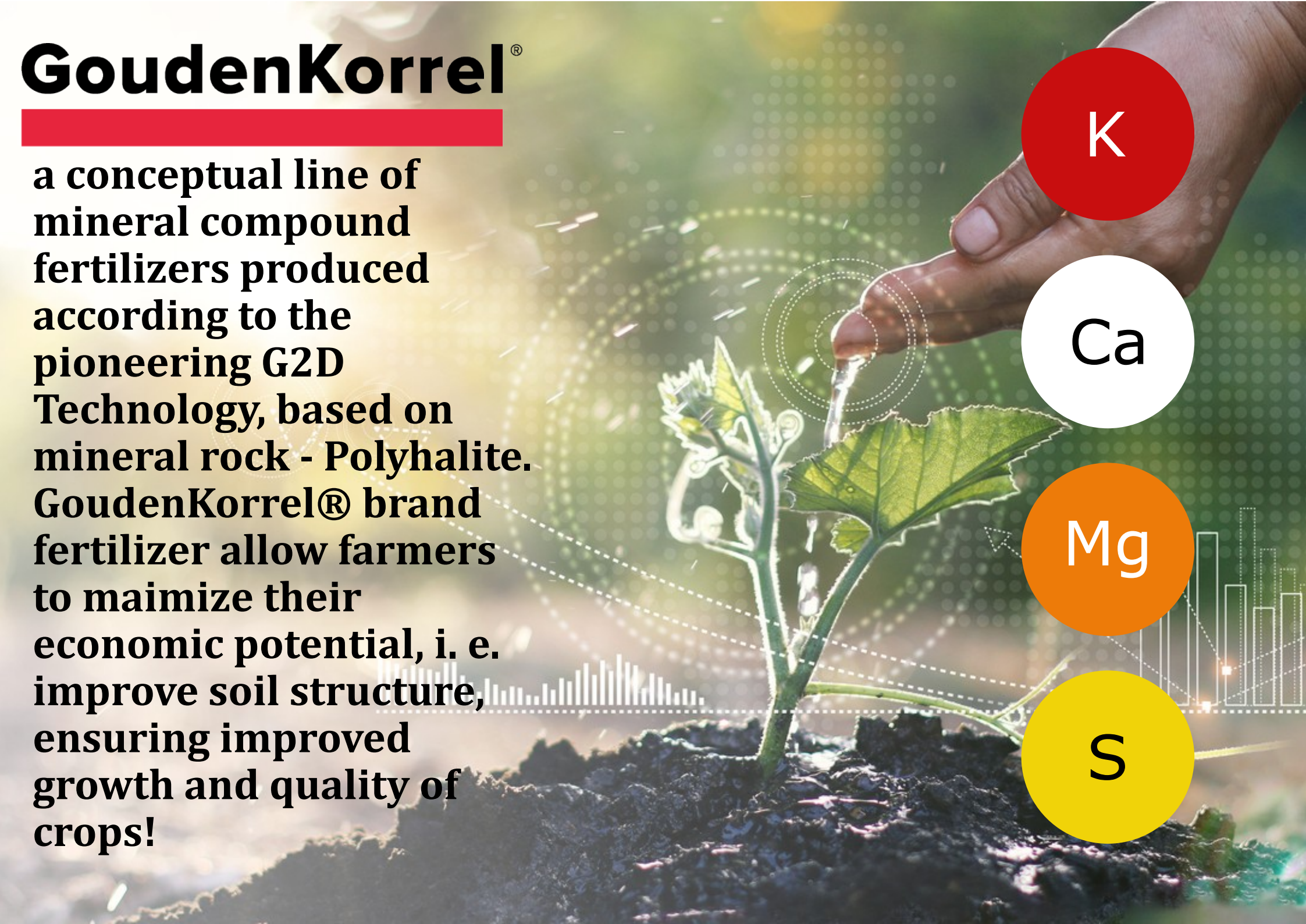
GoudenKorrel®

Compound fertiliser manufacturer

PRODUCT HANDBOOK

GoudenKorrel®

a conceptual line of mineral compound fertilizers produced according to the pioneering G2D Technology, based on mineral rock - Polyhalite. GoudenKorrel® brand fertilizer allow farmers to maimize their economic potential, i. e. improve soil structure, ensuring improved growth and quality of crops!



NEW BEGINNINGS

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GoudenKorrel®

2019

GoudenKorrel S.A. began cooperation with ICL by signing a contract for the supply of polyhalite to the Lubień Kujawski Plant.

2021

Construction of a new Compound Fertilizer Production Plant in Lubień Kujawski Launch of a granular compound fertilizer production line.

2022

Completion of construction works. A new office is built.

2023

BELENUS® - ecological fertilizer wins the “Gold Medal” of the International Agricultural Fair in Kielce, Poland.

2024

GoudenKorrel successfully entering the global market and expanding its distribution networkfor polyhalite fertilizers worldwide.

2025

A new phase of development and enhancement of the company’s market position following the acquisition of shares by Artano Sp. z o.o.

Boulby Mine
Great Britain
Polyhalite

Producer of Compound Fertilizers
Lubień Kujawski Poland
Belenus® & Vervactor®

Boulby Mine is a 200-hectare, site located just south-east of the village of Boulby, on the north-east coast of the North York Moors in Loftus, North England. It is run by Cleveland Potash Limited, which is now a subsidiary of Israel Chemicals Ltd. (ICL). In early 2016 polyhalite mining commenced. In 2019 GoudenKorrel S.A. sterted coopration withICL by signing a contract for the supply of polyhalite to Lubień Kujawski Mine.
This is where our adventure with polyhalite begins……

ICL Specialty Fertilizers

GoudenKorrel®

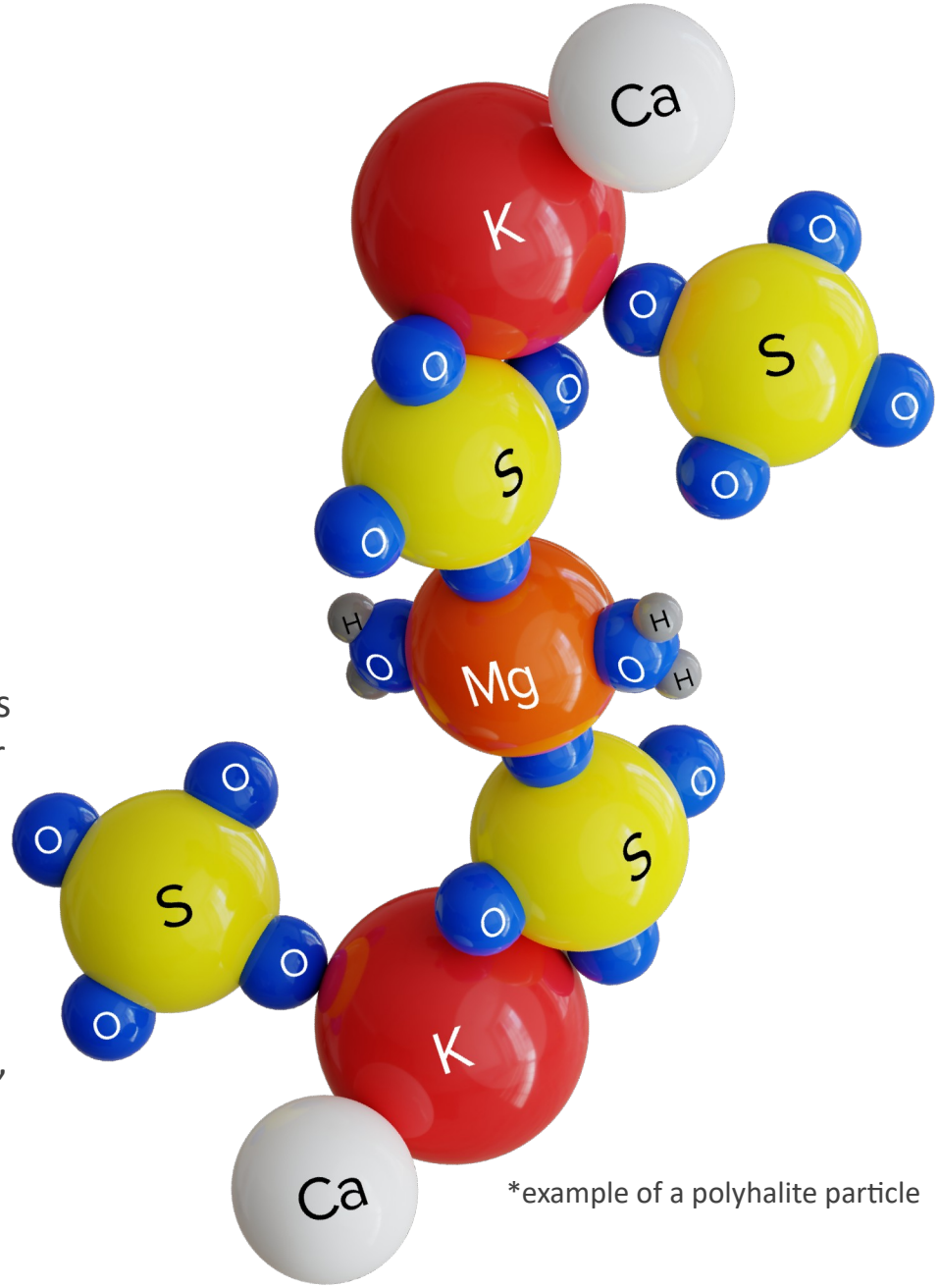
POLYHALITE

$K_2MgCa_2(SO_4)_4 \cdot 2H_2O$

Plyhalite - a naturally occurring mineral, derived from a layer of polyhalite rocks, more than 1000m below the level of the North Sea off the coast of North Yorkshire, UK.

Polyhalite mineral contains only sulphate bonds, which is why the fertilizer are safe for plants and the environment!

Polyhalite is a natural mineral source of potassium, calcium, magnesium and sulfur with the lowest carbon footprint on the market, with 0,0337 kg of carbon per kg of mined product, as it only requires mechanical processing.



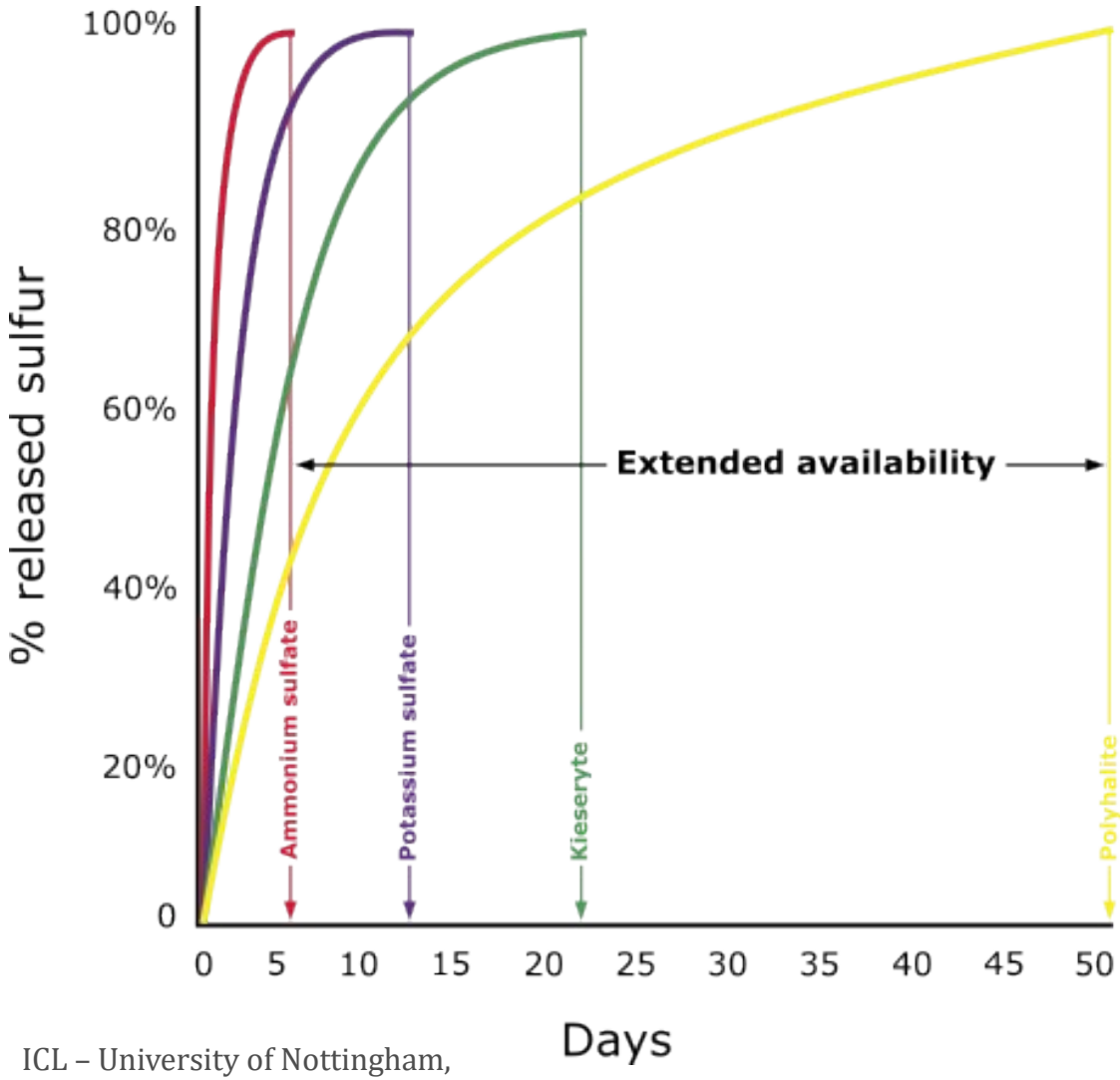
*example of a polyhalite particle

GoudenKorrel®

RELEASE OF SULFUR CONTAINED IN POLYHALITE VERSUS OTHER SOURCES

The sulfur contained in polyhalite fertilizers remains available to plants for over 50 days, allowing them to fully utilize other essential elements such as nitrogen, potassium, calcium, and magnesium.

In the initial stage, sulfur becomes 50% available within 15 days of applying the fertilizer. As the process progresses, this availability increases. Sulfur is released slowly, extending its action in the soil, allowing plants to absorb it for longer periods, and helping to prevent rapid leaching



ICL – University of Nottingham, UK Raport 2016

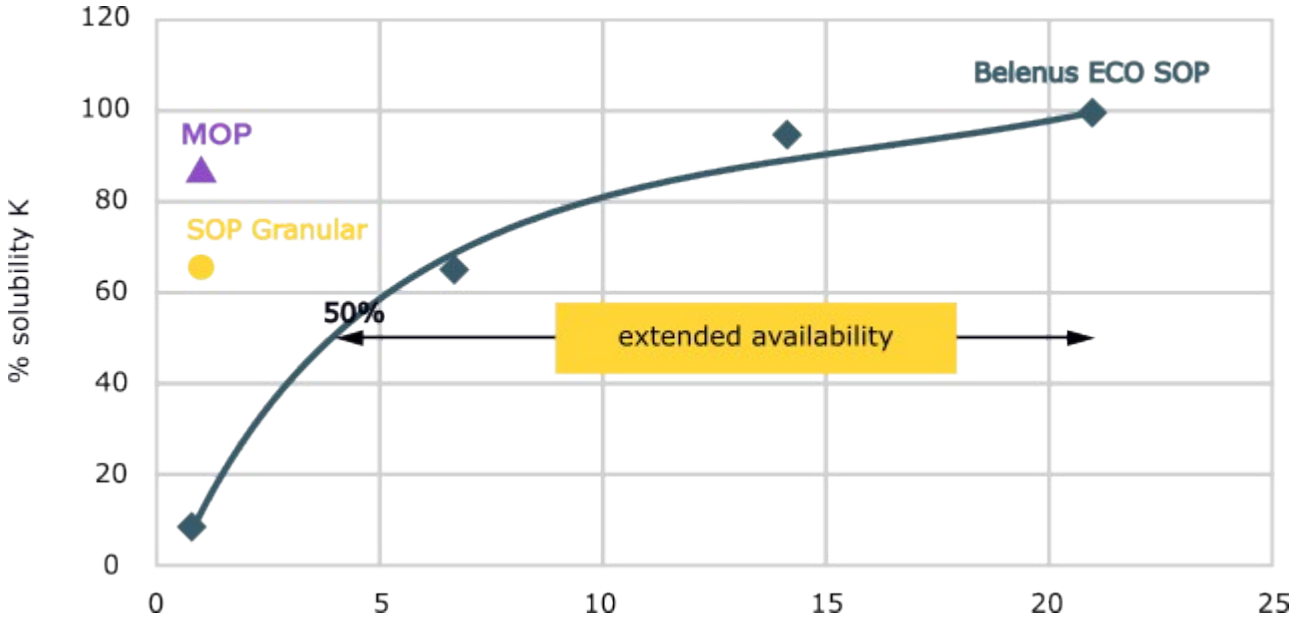
GoudenKorrel®

SOLUBILITY OF K FROM POLYHALITE, MOP AND SOP

The potassium available in polyhalite fertilizer is 100% soluble, and its availability process is extended over time.

In the initial stage, potassium becomes 50% available within 5 days of applying the fertilizer, and its accessibility increases over time. Potassium is released slowly, which extends its action in the soil, allowing plants to absorb it for longer periods, and additionally, we prevent rapid leaching.

Solubility K from Belenus ECO SOP®, MOP, SOP

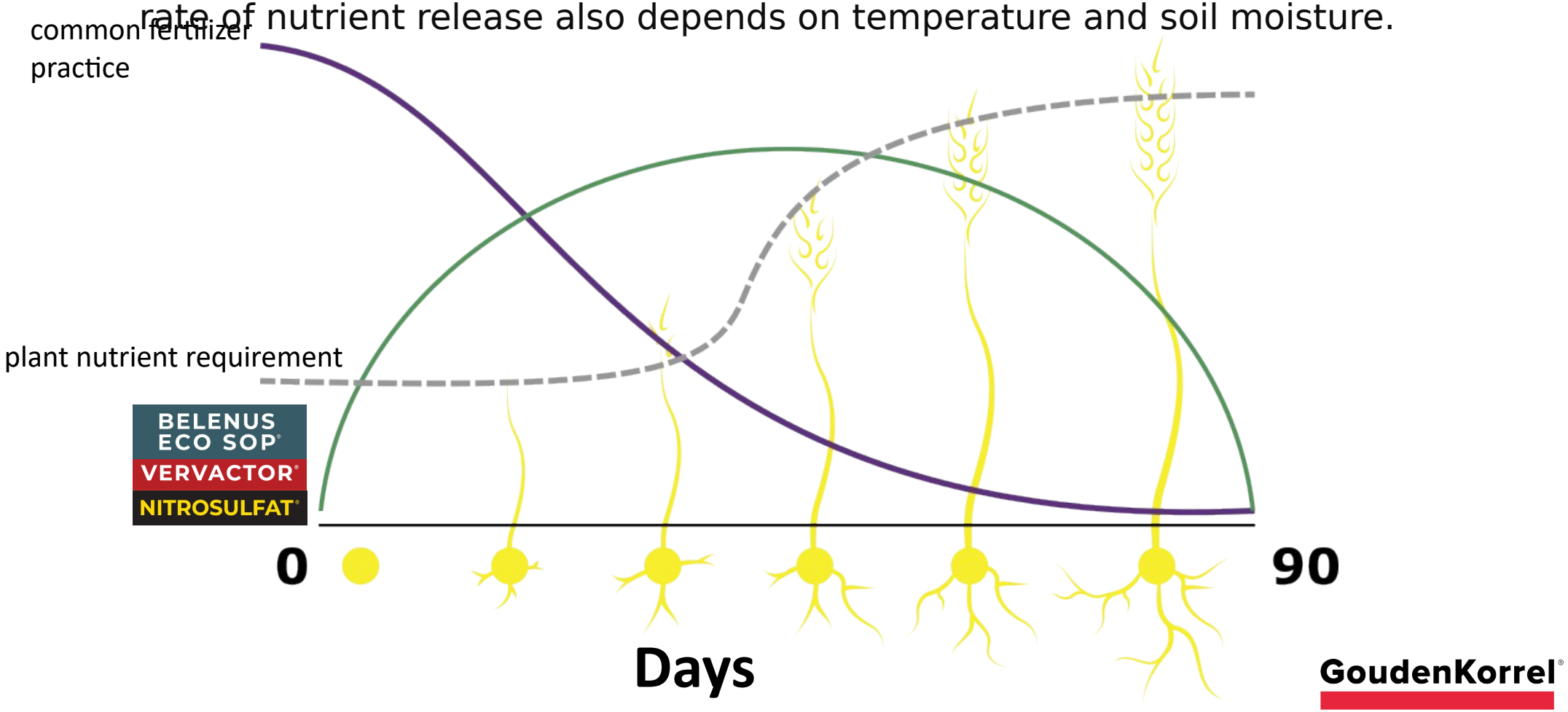


ICLSF lab R&D Netherlands, 2016

GoudenKorrel®

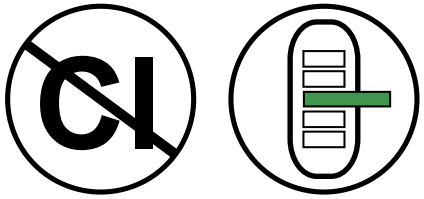
SUSTAINED RELEASE FERTILIZER

In GoudenKorrel® brand sustained release fertilizers, nutrients such as sulfur, potassium, calcium, magnesium, and sodium are already 50% available in the first stage, which occurs 15 days after fertilizer application. As the process progresses over time, this availability increases. The G2D Nodens Technology™ used in the production of GoudenKorrel® mineral fertilizers ensures that the granules have a sustained activation time, with the decomposition process taking about 3 months. The elements are released slowly, prolonging their duration of action in the soil and preventing rapid leaching. The rate of nutrient release also depends on temperature and soil moisture.



GoudenKorrel®

CONTENT OF CHLORIDES IN FERTILIZERS



Ideal for chloride – sensitive crops

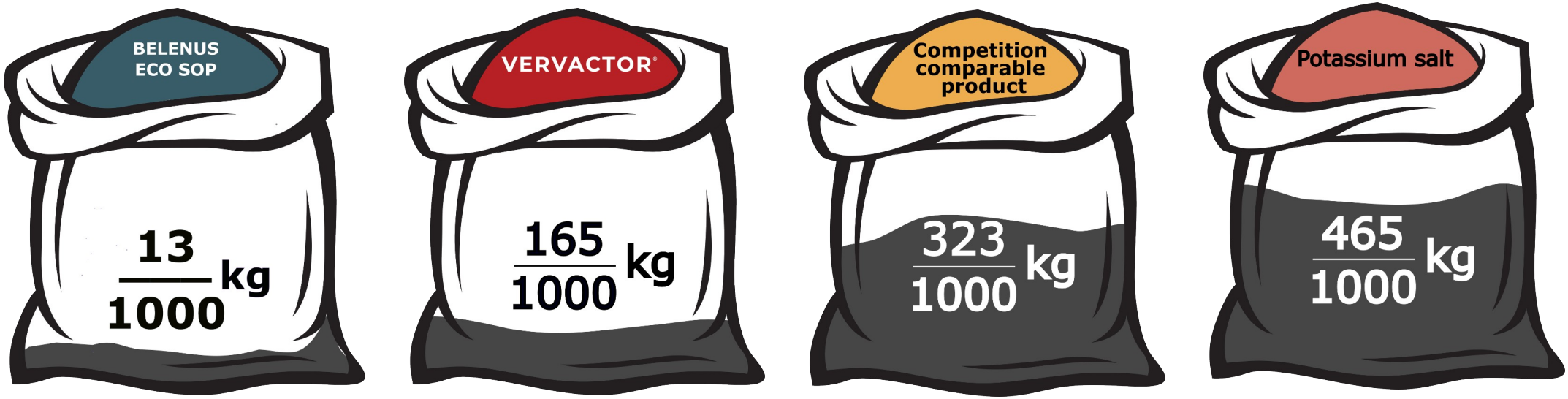
Low salinity index and neutral pH

A high content of chlorine in fertilizer can disinfect the soil, disrupt the bacterial flora, impair the plant's ability to absorb water, restrict plant growth and development, and lead to diseases and damage to plant tissues.

Belenus® & Vervactor® fertilizers are safe for the environment and plants.

Substance pH: 7,7

CHLORIDE CONTENT PER 1 TON OF FERTILIZER



GoudenKorrel®

TECHNOLOGY

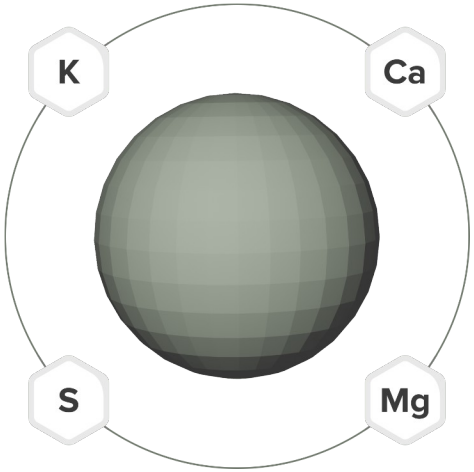
G2D Nodens Technology™

The Grind to Dust Nodens Technology™ is a unique, multi-stage process that atomizes materials down to tens of microns. In the first stage of treatment, the crystal structure of the polyhalite is broken down, releasing the sulphates 'trapped' in the rock. Only the raw material processed in this manner undergoes further processing, including the separation of active particles, their mixing, and aggregation. Each fully reactive granule obtained is equipped with a smart decomposition activation system, ensuring the product's highest performance, characterized by complete solubility and gradual release of nutrients

GoudenKorrel®

G2D Nodens Technology™

GoudenKorrel® granulate polyhalite using a patented G2D Technology™ to produce **Belenus ECO SOP®, Vervactor® & Nitrosulfat®**



98% of the products is in the form of granules measuring 2-5 mm

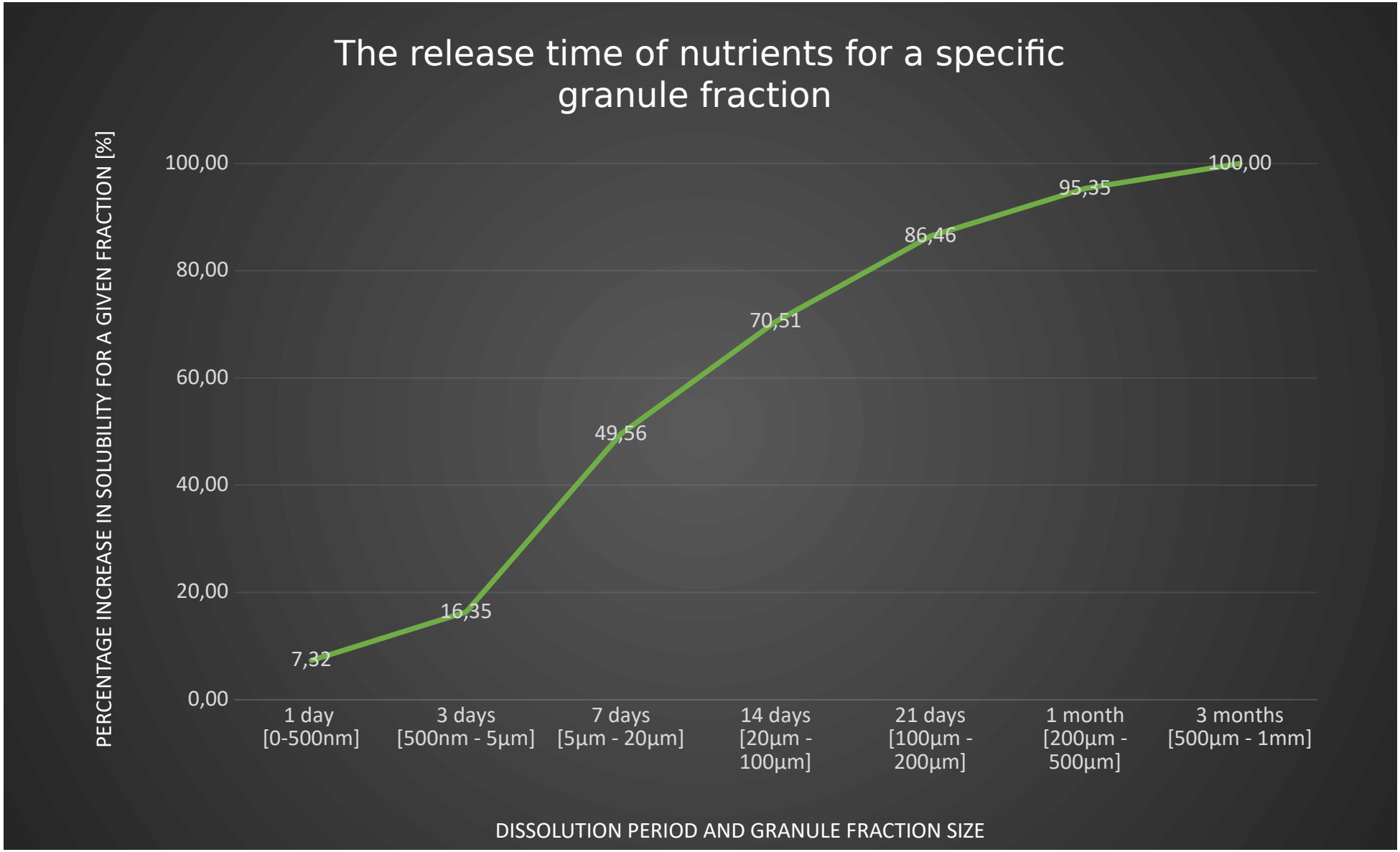
ICL, POLYHALITE – crushed rock

Technology G2D™

GoudenKorrel® products

GoudenKorrel®

Solubility of nutrients contained in particles of various fractions within a single granule of mineral fertilizers based polyhalite



*assuming normal rainfall

GoudenKorrel®

OUR PRODUCTS

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Our common goal is to maximise the beneficial power of **polyhalite**!

INORGANIC FERTILIZER (PFC1(C)(I)(a)(ii)) NPK(Ca, Mg, Na, S) MULTI-COMPONENT SOLID INORGANIC MACRONUTRIENT FERTILIZER
12,11,18(+4+1.5+1+29)

MINERAL FERTILIZER (PFC1(C)(I)(a)(i)) K(Ca, Mg, Na S) SIMPLE SOLID INORGANIC MACRONUTRIENT FERTILIZER
12(+19+5,5+6,5+42)

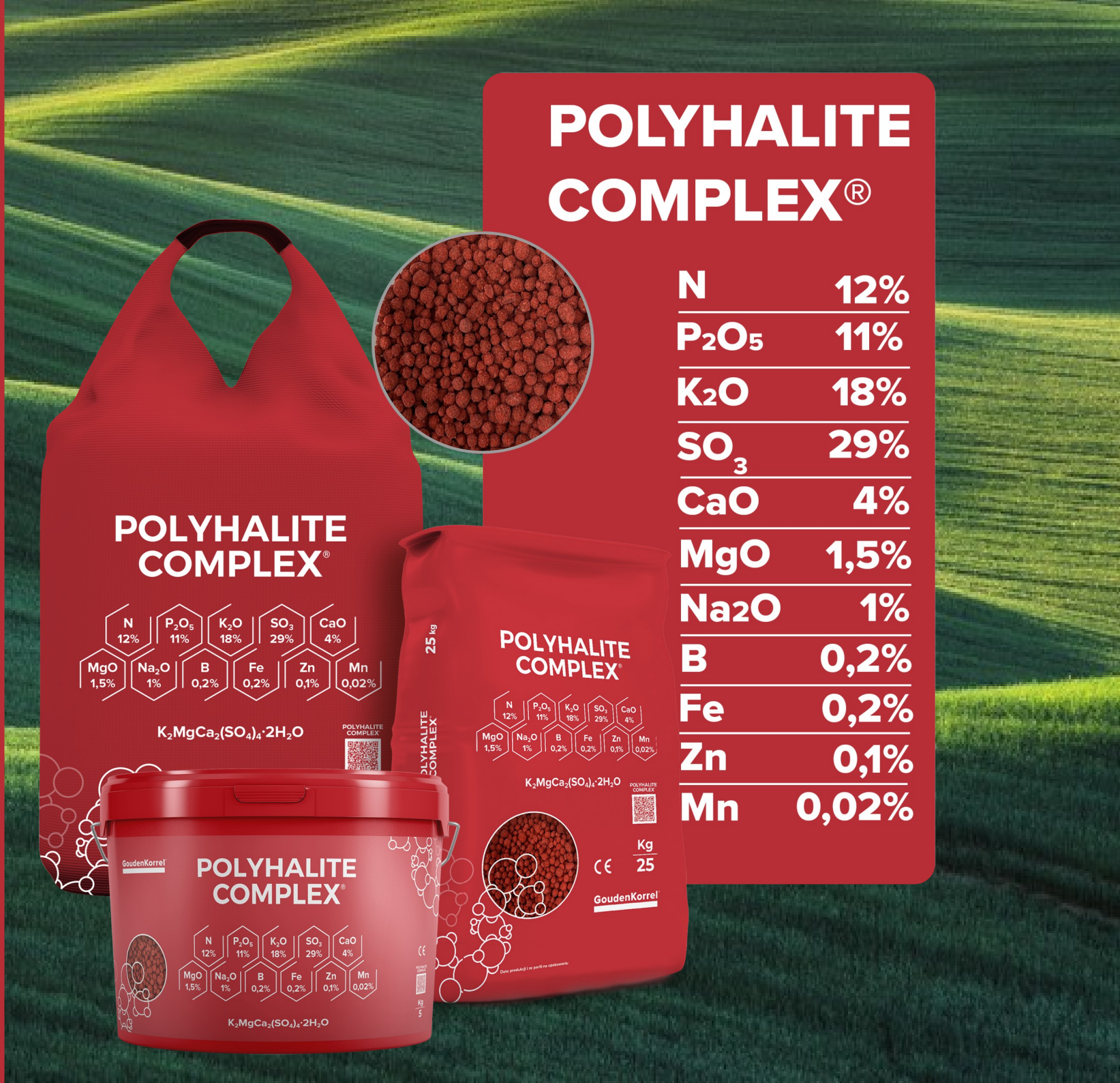
MINERAL FERTILIZER (PFC1(C)(I)(a)(i)) K(Ca, Mg, Na, S) SIMPLE SOLID INORGANIC MACRONUTRIENT FERTILIZER
30(+15+3+5,5+22)

FERTILIZER (PFC1(C)(I)(a)(ii)) NK(Ca, Mg, Na,S) MULTI-COMPONENT SOLID INORGANIC MACRONUTRIENT FERTILIZER
4,10 (+12+4+4+44)

GoudenKorrel®

POLYHALITE COMPLEX®

MACRONUTRIENTS POWERFUL FERTILIZER



6 reasons to choose

POLYHALITE COMPLEX

1. Complete composition of up to 11 fertilizer components

2. Created on the basis of several years of experience with polyhalite

3. Fully soluble in water

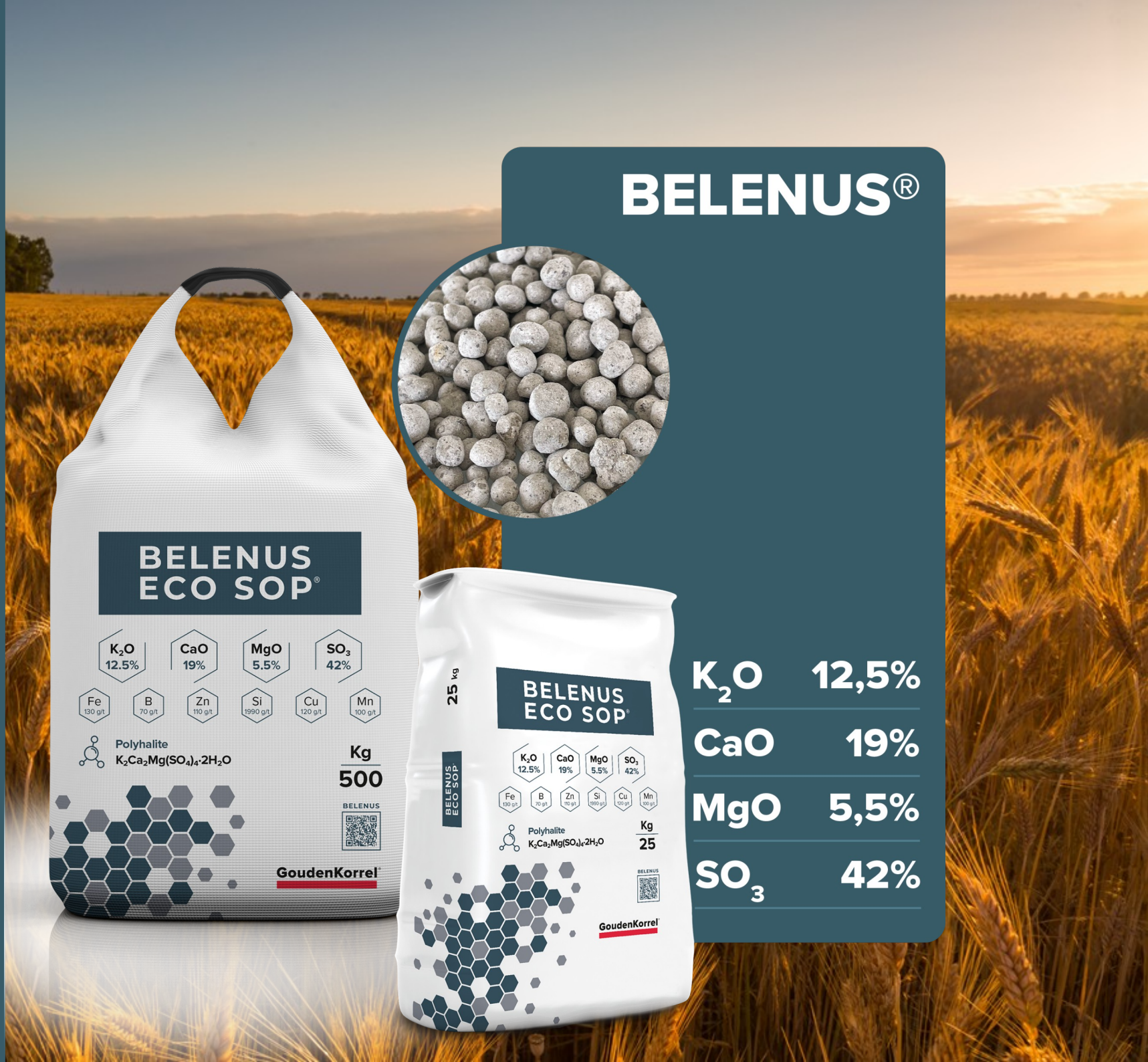
4. Chloride-free composition

5. Polyhalite as a urease inhibitor supercharges nitrogen efficiency

6. Patented formulation using an unique technology

BELENUS® ECOLOGICAL

MINERAL FERTILIZER

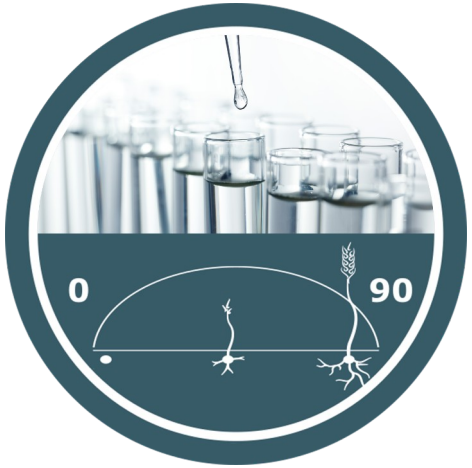


6 reasons to choose

1. Eco SOP = granulated fertilizer based on milled chloride-free polyhalite

BELENUS ECO SOP®

2. A safe source of natural sulfur, potassium, magnesium and calcium for ecological farming



3. High solubility and extended plant availability

4. No effect of acidification, salinity and elimination of soil bacterial flora substance pH: 7,7

5. For use before sowing and top dressing, also for ecological farming & gardening

6. Patented formulation

ECO CERTYFICATE

Instytut Uprawy
Nawożenia i Gleboznawstwa
Państwowy Instytut Badawczy

Puławy, 2022.08.18

Your letter from 01August 2022
Our sign: NŻN.501.387.2022.JT

Certificate of the qualification of the product for use in organic farming

issued for: GoudenKorrel S.A.

At the request of the producer: GoudenKorrel S.A., in accordance with Regulation (EU) 2018/848 and Regulation (EU) 2021/1165, EC fertilizer BELENUS - straight solid inorganic macronutrient fertilizer PFC 1(C)(I)(a)(i), was qualified by IUNG-PIB in Puławy for use in organic farming.

The product is included in the list of products qualified for use in organic farming under number NE/647/2022.

The certificate is not a guarantee of utility value and quality of the product. The party responsible for it, is GoudenKorrel S.A.

The certificate expires when the production technology (raw material composition or source of raw materials, etc.) changes and significantly affects properties of the product. The manufacturer is obliged to immediately inform IUNG-PIB in Puławy of any such modifications.

The certificate shall be withdrawn if facts about the adverse effects of the product on the environment, human or animal health, or non-compliance with the applicable regulations on organic farming, unknown at the date of issue, are discovered.

Issued to: GoudenKorrel S.A.

dr inż. Tamara Jadczyszyn

Kierownik Zakładu
prof. dr hab. Anna Podleśna

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NIP: 716-000-42-81

OF&G
Approved Inputs
Scheme

Certificate of Evaluation for Compliance

This is to certify that the products or services listed below comply with the OF&G Standards (incorporating EC Regulation 834/2007) and are approved for use in Organic Systems:

GoudenKorrel S.A.

ul. Sienkiewicza 82/84, 90-318 Łódź, Poland
Tel: +48 887 098 800

Product Approved for Restricted Use - Approval Required

Fertilisers	Belenus®

Registration Number: UKE1864 **Renewal Month:** 06 (June)
Date Issued: 19 June 2023 **Certificate Expiry Date:** 30 June 2024

Signed by: J Gadsbey Julie Gadsbey - Certification Officer

This Certificate remains at all times the property of OF&G
Old Estate Yard, Shrewsbury Road, Albrighton, Shrewsbury, Shropshire, SY4 3AG
Tel: 01939 291800 Email: info@ofgorganic.org

VERVACTOR®
MINERAL POTASSIUM FERTILIZER

6 reasons to choose

VERVACTOR®

1. High proportion of potassium in combination with sulfur and calcium with magnesium and sodium

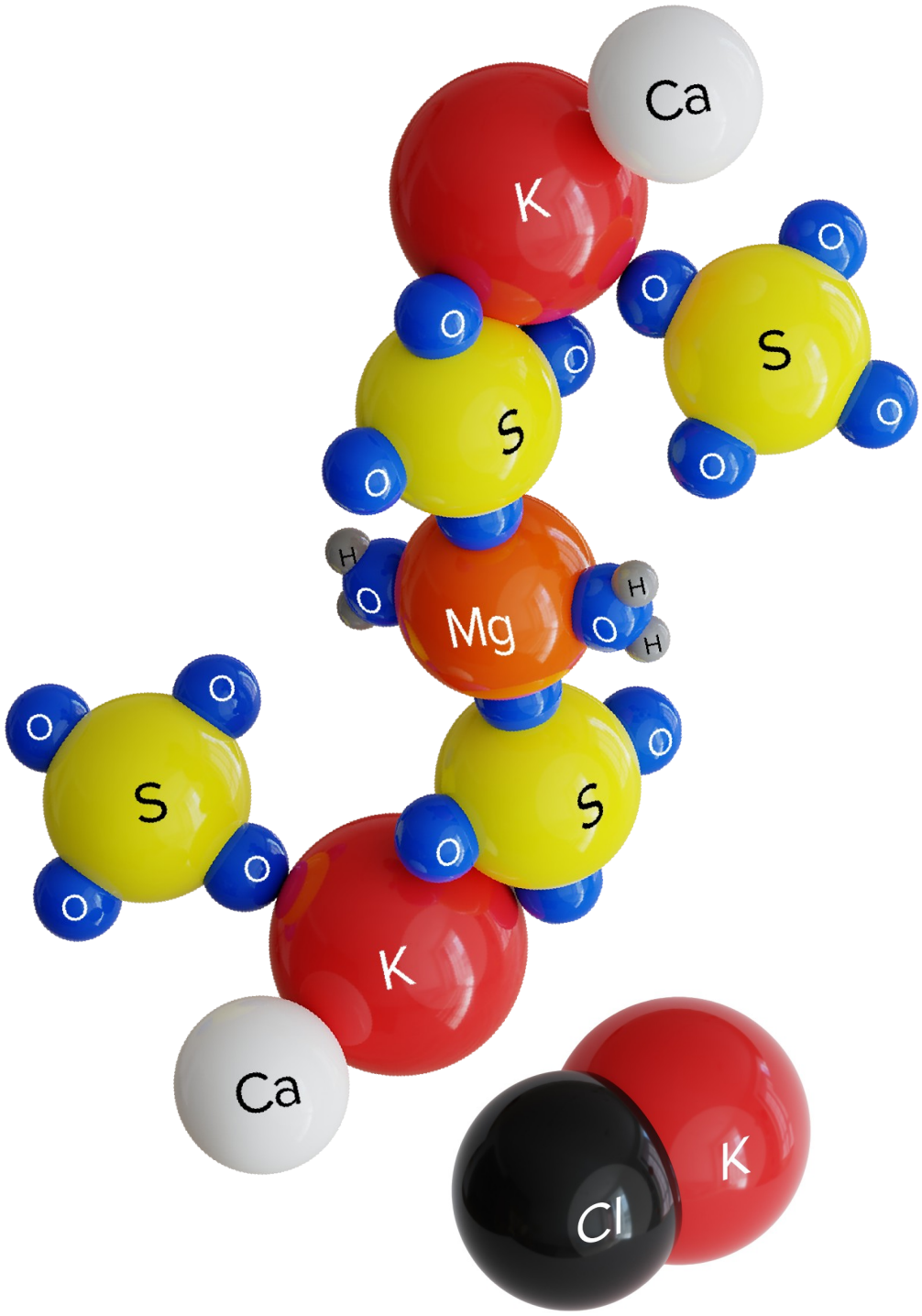
2. Reduced content of toxic chlorides - only 16.5% (potassium salt 46%)

3. For use before sowing and top dressing, on agricultural and vegetable crops

4. High solubility and extended availability to plants

5. No effect of salinity and acidification of the soil

6. Patented formulation



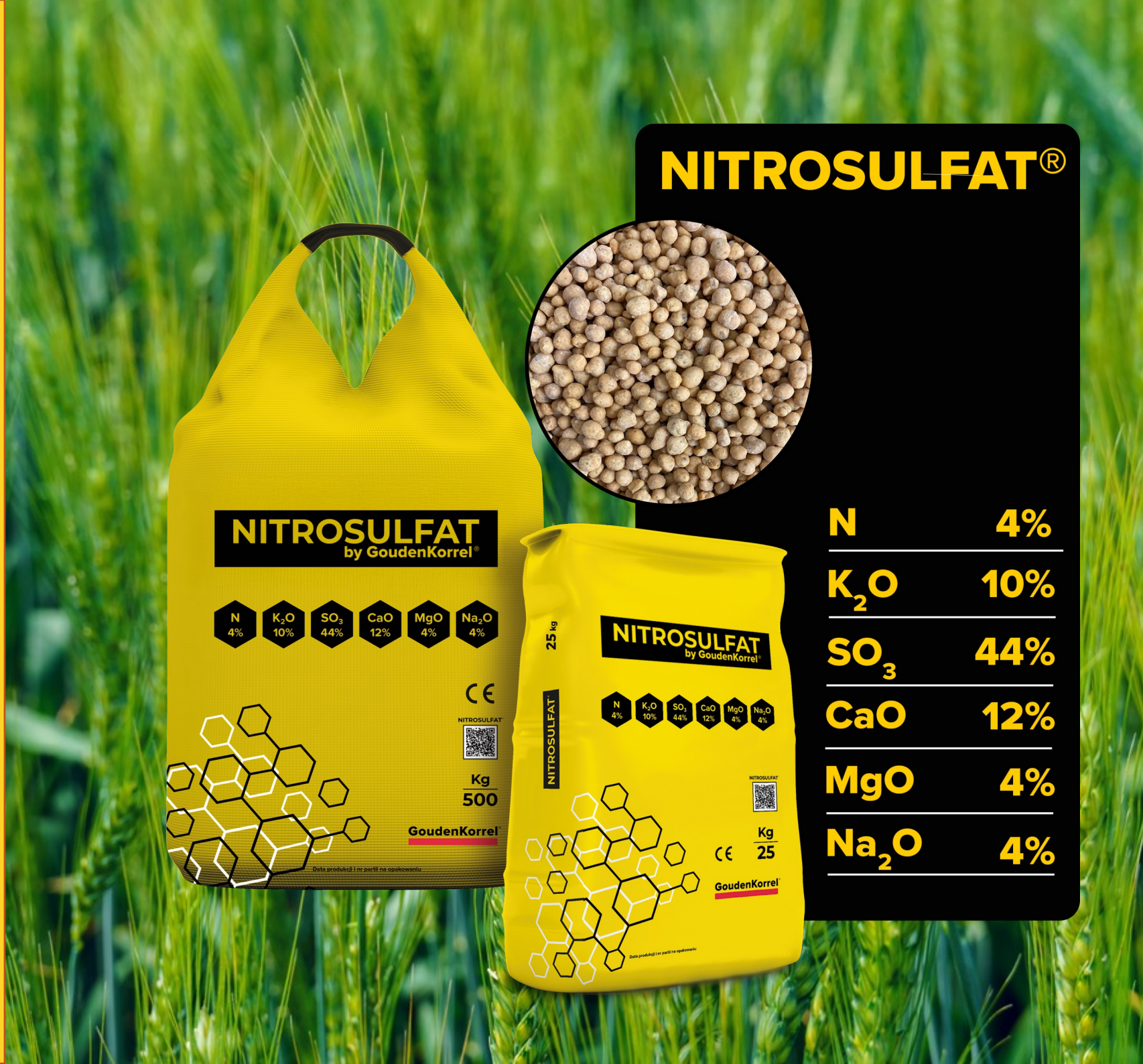
VERVACTOR® fertilizer is made from natural rock, specifically polyhalite, with the addition of potassium salt. As a result, its composition contains both sulfate and chloride elements, leading to a lower degree of salinity compared to similar fertilizers of this type.

Low chloride content – 16,5%

GoudenKorrel®

NITROSULFAT®

Nitrogen-sulfur multi-component fertilizer made from polyhalite



6 reasons to choose

NITROSULFAT®

1. Unique combination of nutrients

2. Minimal chloride content, no salinity or soil acidification effect

3. Maximum nitrogen utilization thanks to the presence of sulfate sulfur

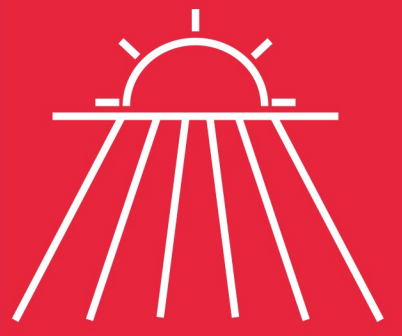
4. All components are completely water-soluble

5. For pre-sowing and top-dressing applications in all crops, including plants sensitive to chlorides

6. Patented G2D formula – perfect granule hardness and solubility













GoudenKorrel® fertilizers are dedicated to all types of crops and soils!

Notes

GoudenKorrel®

EXPORT TEAM :

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