

# Verde's Products Remove Carbon Dioxide From the Air

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SINGAPORE, July 19, 2023 - [Verde AgriTech Ltd.](#) (TSX: "NPK") ("Verde" or the "Company") is pleased to announce the carbon capture properties of its K Forte® and Super Greensand® ("Products"), as detailed by an independent study conducted at Newcastle University under the leadership of Prof. David Manning, PhD, a renowned soil scientist (the "Study"). The carbon dioxide ("CO<sub>2</sub>") capture is inherent to the Products and is estimated at 120kg per tonne. The CO<sub>2</sub> removal does not require any change to the Products' production and farmland application methods, nor does it change the nutritional benefits to plants. As a result, in the production scenario of 50 million tonnes per year ("Mtpy"),<sup>1</sup> Verde would be one of the world's largest carbon capture projects with a total of 6 million tonnes of CO<sub>2</sub> permanently subtracted from the atmosphere every year.

## The Science on Enhanced Rock Weathering and the Study Findings

Enhanced Rock Weathering ("ERW") is a naturally occurring process whereby CO<sub>2</sub> is removed from the atmosphere when it reacts with silicate minerals present within certain types of rocks. In other words, through weathering, certain types of minerals naturally absorb CO<sub>2</sub> from the air and store it permanently as part of the new mineral structure.

Over many years, Verde's prospecting led to the identification of a silicate mineral that is rich in glauconite (the "Rock"). It is distinctive in its faster weathering rate compared to other minerals used in ERW schemes, such as basalt, which allows the Rock to capture CO<sub>2</sub> more rapidly. In a parallel benefit, the Rock is a source of several plant nutrients including potassium (represented on the periodic table as "K"), which is a crucial element for plant growth, and is a proven substitute for Potassium Chloride ("KCl").

To evaluate Verde's Products, the Company engaged Professor David Manning Ph.D., who is a leading expert in ERW. Dr. Manning has been a member of the Institution of Geologists since 1979, was the president of the Geological Society of London from 2014-2016, member of Council of the European Federation of Geologists ("EFG") and chaired the EFG's Panel of Experts on Soil Protection. He has extensive publications on the topic of soil and its role in combating climate change.<sup>2,3</sup>

Analyses performed on Verde's Products at Newcastle University have confirmed its efficiency to extract CO<sub>2</sub> from the atmosphere at a ratio of 120kg of CO<sub>2</sub> per 1 tonne of Product, based on a well-established scientific calculation formula.<sup>4</sup> In conclusion, Verde's Rock undergoes ERW to permanently capture atmospheric CO<sub>2</sub> while releasing K and other plant nutrients.

Previously, following extensive geological research of the Rock, including over 40,000 meters of drilling and chemical analyses, Verde had commissioned an independent mineral resource and reserve study under the Canadian National Instrument 43-101, which has established a combined measured and indicated mineral resource of 1.47 billion tonnes at 9.28% K<sub>2</sub>O and an inferred mineral resource of 1.85 billion tonnes at 8.60% K<sub>2</sub>O (using a 7.5% K<sub>2</sub>O cut-off grade).<sup>5</sup> This amounts to 295.70 million tonnes of potash equivalent in K<sub>2</sub>O. For context, in 2021 Brazil's total consumption of potash in K<sub>2</sub>O was 6.57 million.<sup>6</sup>

Professor David Manning commented on the findings: "For over 40 years I have devoted the bulk of my research to how we can exploit soil processes to mitigate the effects of anthropogenic greenhouse gas emissions. More specifically, I use my research-based understanding of how soils and their constituent minerals interact with the biosphere in the context of carbon capture and plant nutrient supply. It was therefore no surprise when our research demonstrated the potential of Verde's Products to absorb CO<sub>2</sub>. More impressive is Verde's total mineral resources' potential to remove around 398 million tonnes of CO<sub>2</sub> from the atmosphere,<sup>7</sup> in what will be a significant contribution to global efforts to reduce atmospheric CO<sub>2</sub> levels."

## Verde's ERW Carbon Capture Potential

Scalable and cost-effective ERW carbon capture projects depend on farmers' willingness to apply minerals on a large scale over their farmland. In that sense, Verde's has multiple advantages in ERW:

1. The Products have fast dissolution rate, as evidenced by agronomic trials and potassium release.
2. The Products are sources of essential macronutrients for plants, which creates significant motivation for farmers to adopt them in place of traditional chemical fertilizers;
3. The Products have certified mineral reserves proving reliably consistency in their mineralogy, carbon capture effectiveness and absence of deleterious elements;
4. The Products are certified organic by several governmental and non-governmental organizations, including some of the most stringent global standards such as the Washington State Fertilizer Registration and the California Department of Food & Agriculture;
5. The Products undergo meticulous particle size control when of its manufacturing process, guaranteeing a consistent particle size distribution. This is advantageous because particle size is essential for optimal carbon capture and its calculation.

Few carbon capture projects based on ERW showcase all, if any, of the above advantages which are consistently delivered by Verde.

Cristiano Veloso, Verde's Founder and CEO, commented: "This is a disruptive moment for agriculture in general and Verde in particular because it marks the point when plant nutrition can be directly and quantifiably linked to permanent carbon capture. As a company and team, at Verde we have always been committed to sustainable and environmentally friendly solutions for agriculture. We are now devoting significant energy and resources to the Life Cycle Analysis, which will determine our products' carbon footprint - if there is any and how best to pursue monetization from potential carbon credits. Verde is uniquely positioned to help feed the world and reduce greenhouse gases in our atmosphere."

## Next Step: Life Cycle Analysis and Carbon Credits Studies

Verde has commissioned a leading Canadian consultancy firm to conduct a comprehensive Life Cycle Analysis (LCA) of its Products. The LCA will provide a more complete understanding of the overall carbon footprint of Verde AgriTech's products, from mining through processing and delivery, thereby allowing for an exact calculation of CO<sub>2</sub> captured. The fact that 100% of the electricity used by the Company comes from renewable zero emission hydropower will contribute to ensure a negative carbon footprint.

The Company will also determine how its Products can meet the requirements necessary to generate carbon credits. In 2022 the global market for carbon credits totalled US\$ 909 billion.<sup>8</sup>

## KCl Compared to Verde's Product

Potassium chloride (KCl) is the conventional source of potassium, produced mostly in Canada, Russia, and Belarus. Brazil is highly dependent on imported KCl, accounting for over 96% of the total potassium used in the country's crops. Despite its effectiveness as a potassium fertilizer, the production and use of KCl have resulted in significant environmental and social costs. The manufacturing process of KCl, has been linked to devastating effects, including human fatalities, large-scale water pollution due to chloride contamination, and the formation of sinkholes leading to the destruction of an entire city.

Contrary to KCl, Verde's Product is economically more viable and sustainable because it does not contain chlorine, has gradual release, does not leach out with rain or irrigation water, and does not cause soil salinization. Verde's Products have a much smaller carbon footprint compared to KCl because it does not need to be transported over transcontinental distances, being produced close to its final point of application, rely on electricity produced from renewable sources, and once applied to soils it captures carbon.

In Q1 2023, 8,559 tonnes of chloride have been prevented from being applied into soils by farmers who used the Product in lieu of potassium chloride fertilizers.<sup>9,10</sup> A total of 121,201 tonnes of chloride has been

prevented from being applied into soils by Verde's customers since the Company started production. Once it achieves the production capacity of 50 million tonnes per year, the Company aims to mitigate the application of approximately 94.5 billion tonnes of chloride into soils over time<sup>11</sup> in collaboration with its customers.

Furthermore, Verde's Products are produced close to its final point of application, rely on electricity produced from renewable sources, and once applied to soils they capture carbon.

Finally, KCl is not approved for organic farming due to its harmful impacts on the environment. Its extensive use has been associated with damaging effects on soil health and microbiome balance, as well as contributing to chloride leaching into water systems. Whereas Verde's products are certified organic.

Verde plans to use carbon credits to reduce the price of the Product to farmers while increasing overall profitability, therefore further incentivizing the substitution of KCl.

#### Select Historic Overview of Verde's Environmental Initiatives

Verde has an extensive history of commitments towards sustainable and productive agriculture. Below are some of the highlights of recent years that help ensure that the carbon capture initiative of the Company is buttressed by best-in-class environmental practices.

In September 2019, the Company was awarded the "Good Environmental Practices Award," promoted by the State System of Environment and Water Resources (SISEMA, in Portuguese) in the category "Best Practice of Mineral Solid Waste Management." The Company has presented its sustainable mining project that is intended to improve the health of people and of the planet.

In June 2021, the Company launched N Keeper, a proprietary processing technology for the Rock that alters its physical-chemical properties to enable ammonia retention for use as a calibrated additive in Nitrogen fertilizers. N Keeper leads to the reduction of Nitrogen volatilization loss, which provides the efficiency of crop fertilization increase, mitigation of environmental impacts, and reduction of climate changes.<sup>12</sup>

In April 2022, Bio Revolution, Verde's technology that enables the incorporation of microorganisms to mineral fertilizers, was launched by the Company. K Forte® is the first fertilizer in the world to use Bio Revolution technology. *Bacillus aryabhattai*, a bacterial strain widely renowned in agriculture for its multiple benefits, is the first microorganism to be incorporated into Verde's Product.<sup>13</sup>

In February 2022, the Company's Brazilian subsidiaries, Verde Fertilizantes LTDA and FVS Mineração LTDA, earned ISO 9001 and ISO 14001 certifications.

ISO 9001 is the international standard that specifies requirements for a Quality Management System, demonstrating good management practices throughout the Company's processes. This certification reflects Verde's commitment to meeting the highest standards of environmental protection and adopting a responsible approach to environmental issues in our operational activities.

ISO 14001 is an international standard that sets out the requirements for an environmental management system. It helps Verde to improve our environmental performance through more efficient use of resources and reduction of waste.

Through the implementation of the Environmental Management System in accordance with ISO 14000, Verde has established and maintains specific policies and procedures for identifying, monitoring, and controlling the environmental aspects of our operations, with the aim of minimizing negative impacts on the environment, preventing pollution, and promoting sustainability.

Moreover, we continue to actively seek opportunities to improve our environmental performance, through training and awareness programs developed for our employees, as well as the pursuit of technological innovations and more sustainable practices in our operations.

ISO 14001 certification shows Verde's commitment to protecting the environment and operating transparently and responsibly regarding environmental issues.

Furthermore, Verde's mining and processing do not require tailings dams. Its mined area is mainly composed of degraded pasturelands that, once mined, Verde transforms into tropical forest. To that end, the Company planted 4,300 trees in 2019, 5,000 in 2020, 9,888 in 2021 and 10,341 in 2022, totaling over 29,500 trees planted. All planted species are native to the region located around the Company's production area.

Over the past few years, the company has contributed resources to expand production. Since last year, with the start of operation of the second plant, Verde AgriTech has become the company with the largest potash production capacity in Brazil. At 3Mtpy production, which can be achieved at its existing production facilities with issued permits and licenses, Verde can capture 360,000 tonnes of CO<sub>2</sub>.

In June 2023, Verde's shareholders voted overwhelmingly to approve the Company's proposal to ban sales to Amazon Rainforest regions in a commitment to combat deforestation.<sup>14</sup>

#### About Verde AgriTech

Verde is an agricultural technology Company that produces potash fertilizers. Our purpose is to improve the health of all people and the planet. Rooting our solutions in nature, we make agriculture healthier, more productive, and profitable.

Verde is a fully integrated Company: it mines and processes its main feedstock from its 100% owned mineral properties, then sells and distributes the Product.

Verde's focus on research and development has resulted in one patent and eight patents pending. Among its proprietary technologies are Cambridge Tech, 3D Alliance, MicroS Technology, N Keeper, and Bio Revolution.<sup>15</sup> Currently, the Company is fully licensed to produce up to 2.8 million tonnes per year of its multinutrient potassium fertilizers K Forte® and BAKS®, sold internationally as Super Greensand®. In 2022, it became Brazil's largest potash producer by capacity.<sup>16</sup> Verde has a combined measured and indicated mineral resource of 1.47 billion tonnes at 9.28% K<sub>2</sub>O and an inferred mineral resource of 1.85 billion tonnes at 8.60% K<sub>2</sub>O (using a 7.5% K<sub>2</sub>O cut-off grade).<sup>17</sup> This amounts to 295.70 million tonnes of potash in K<sub>2</sub>O. For context, in 2021 Brazil's total consumption of potash in K<sub>2</sub>O was 6.57 million.<sup>18</sup>

Brazil ranks second in global potash demand and is its single largest importer, currently depending on external sources for over 97% of its potash needs. In 2022, potash accounted for approximately 3% of all Brazilian imports by dollar value.<sup>19</sup>

#### Corporate Presentation

For further information on the Company, please view shareholders' deck:

<https://verde.docsend.com/view/49z9mmp6zfq8dgak>

#### Investors Newsletter

Subscribe to receive the Company's updates at: <https://bit.ly/InvestorsNL-April2023>

<http://cloud.marketing.verde.ag/InvestorsSubscription>

The last edition of the newsletter can be accessed at:

#### Cautionary Language and Forward-Looking Statements

All Mineral Reserve and Mineral Resources estimates reported by the Company were estimated in accordance with the Canadian National Instrument 43-101 and the Canadian Institute of Mining, Metallurgy, and Petroleum Definition Standards (May 10, 2014). These standards differ significantly from the requirements of the U.S. Securities and Exchange Commission. Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.

This document contains "forward-looking information" within the meaning of Canadian securities legislation and "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995. This information and these statements, referred to herein as "forward-looking statements" are made as of the date of this document. Forward-looking statements relate to future events or future performance and reflect current estimates, predictions, expectations or beliefs regarding future events and include, but are not limited to, statements with respect to:

1. the estimated amount and grade of Mineral Resources and Mineral Reserves;
2. the PFS representing a viable development option for the Project;
3. estimates of the capital costs of constructing mine facilities and bringing a mine into production, of sustaining capital and the duration of financing payback periods;
4. the estimated amount of future production, both produced and sold;
5. timing of disclosure for the PFS and recommendations from the Special Committee;
6. the Company's competitive position in Brazil and demand for potash; and,
7. estimates of operating costs and total costs, net cash flow, net present value and economic returns from an operating mine.

Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives or future events or performance (often, but not always, using words or phrases such as "expects", "anticipates", "plans", "projects", "estimates", "envisages", "assumes", "intends", "strategy", "goals", "objectives" or variations thereof or stating that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved, or the negative of any of these terms and similar expressions) are not statements of historical fact and may be forward-looking statements.

All forward-looking statements are based on Verde's or its consultants' current beliefs as well as various assumptions made by them and information currently available to them. The most significant assumptions are set forth above, but generally these assumptions include, but are not limited to:

1. the presence of and continuity of resources and reserves at the Project at estimated grades;
2. the geotechnical and metallurgical characteristics of rock conforming to sampled results; including the quantities of water and the quality of the water that must be diverted or treated during mining operations;
3. the capacities and durability of various machinery and equipment;
4. the availability of personnel, machinery and equipment at estimated prices and within the estimated delivery times;
5. currency exchange rates;
6. Super Greensand® and K Forte® sales prices, market size and exchange rate assumed;
7. appropriate discount rates applied to the cash flows in the economic analysis;
8. tax rates and royalty rates applicable to the proposed mining operation;
9. the availability of acceptable financing under assumed structure and costs;
10. anticipated mining losses and dilution;
11. reasonable contingency requirements;
12. success in realizing proposed operations;
13. receipt of permits and other regulatory approvals on acceptable terms; and
14. the fulfilment of environmental assessment commitments and arrangements with local communities.

Although management considers these assumptions to be reasonable based on information currently available to it, they may prove to be incorrect. Many forward-looking statements are made assuming the correctness of other forward looking statements, such as statements of net present value and internal rates of return, which are based on most of the other forward-looking statements and assumptions herein. The cost information is also prepared using current values, but the time for incurring the costs will be in the future and it is assumed costs will remain stable over the relevant period.

By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and

specific, and risks exist that estimates, forecasts, projections and other forward-looking statements will not be achieved or that assumptions do not reflect future experience. We caution readers not to place undue reliance on these forward-looking statements as a number of important factors could cause the actual outcomes to differ materially from the beliefs, plans, objectives, expectations, anticipations, estimates assumptions and intentions expressed in such forward-looking statements. These risk factors may be generally stated as the risk that the assumptions and estimates expressed above do not occur as forecast, but specifically include, without limitation: risks relating to variations in the mineral content within the material identified as Mineral Resources and Mineral Reserves from that predicted; variations in rates of recovery and extraction; the geotechnical characteristics of the rock mined or through which infrastructure is built differing from that predicted, the quantity of water that will need to be diverted or treated during mining operations being different from what is expected to be encountered during mining operations or post closure, or the rate of flow of the water being different; developments in world metals markets; risks relating to fluctuations in the Brazilian Real relative to the Canadian dollar; increases in the estimated capital and operating costs or unanticipated costs; difficulties attracting the necessary work force; increases in financing costs or adverse changes to the terms of available financing, if any; tax rates or royalties being greater than assumed; changes in development or mining plans due to changes in logistical, technical or other factors; changes in project parameters as plans continue to be refined; risks relating to receipt of regulatory approvals; delays in stakeholder negotiations; changes in regulations applying to the development, operation, and closure of mining operations from what currently exists; the effects of competition in the markets in which Verde operates; operational and infrastructure risks and the additional risks described in Verde's Annual Information Form filed with SEDAR in Canada (available at [www.sedar.com](http://www.sedar.com)) for the year ended December 31, 2021. Verde cautions that the foregoing list of factors that may affect future results is not exhaustive.

When relying on our forward-looking statements to make decisions with respect to Verde, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. Verde does not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by Verde or on our behalf, except as required by law.

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<sup>1</sup> For further information on Verde's NI 43-101 Pre-Feasibility Technical Report, see the press release at: <https://investor.verde.ag/wp-content/uploads/2022/05/Verde-AgriTech-Press-Release-Pre-Feasibility-Results-May-16-2022.pdf>

<sup>2</sup> See, generally: <https://www.scopus.com/authid/detail.uri?authorId=7201460937>

<sup>3</sup> Source: Times Higher Education (THE). "Impact Rankings 2023". Available at: <https://www.timeshighereducation.com/impactrankings>

<sup>4</sup> RENFORTH, P. "The negative emission potential of alkaline materials". Nature Communications, 10:1401, 2019. Available at: <https://www.nature.com/articles/s41467-019-09475-5>.

<sup>5</sup> As per the National Instrument 43-101 Standards of Disclosure for Mineral Projects within Canada ("NI 43-101"), filed on SEDAR in 2022. See the Pre-Feasibility Study at:

<https://investor.verde.ag/wp-content/uploads/2022/05/NI-43-101-Pre-Feasibility-Technical-Report-for-the-Cerrado-Verde.pdf>

<sup>6</sup> Source: Brazilian Fertilizer Mixers Association (from "*Associação Misturadores de Adubo do Brasil*", in Portuguese).

<sup>7</sup> Verde's mineral resources consist of a combined measured and indicated mineral resource of 1.47 billion tonnes, along with an inferred mineral resource of 1.85 billion tonnes. In total, Verde possesses 3.32 billion tonnes of rock. Notably, the CO<sub>2</sub> extraction ratio for this resource is estimated at 120kg of CO<sub>2</sub> per tonne, totalling 398 million tonnes of CO<sub>2</sub> removal potential.

<sup>8</sup> VERMA, S.; CHESTNEY, N. "Global carbon markets value hit record \$909 bln last year". Reuters, 2023. Available at:

<https://www.reuters.com/business/sustainable-business/global-carbon-markets-value-hit-record-909-bln-last-year-2023-01-12/>

<sup>9</sup> Verde's Product is a salinity and chloride-free replacement for KCl fertilizers. 1 tonne of Product (10% K<sub>2</sub>O) has 0.1 tonnes of K<sub>2</sub>O, which is equivalent to 0.17 tonnes of potassium chloride (60% K<sub>2</sub>O), containing 0.08 tonnes of chloride. Potassium chloride is composed of approximately 46% of chloride, which can have

biocidal effects when excessively applied to soils.

According to Heide Hermary (Effects of some synthetic fertilizers on the soil ecosystem, 2007), applying 1 pound of potassium chloride to the soil is equivalent to applying 1 gallon of Clorox bleach, regarding killing soil microorganisms. Soil microorganisms play a crucial role in agriculture by capturing and storing carbon in the soil, making a significant contribution to the global fight against climate change.

<sup>10</sup> 1 tonne of Product (10% K<sub>2</sub>O) has 0.1 tonnes of K<sub>2</sub>O, which is equivalent to 0.17 tonnes of potassium chloride (60% K<sub>2</sub>O), containing 0.08 tonnes of chloride.

<sup>11</sup> Based on the 50Mtpy production scenario of the NI 43-101 Pre-Feasibility Technical Report. See the PFS for further

information: <https://investor.verde.ag/wp-content/uploads/2022/05/NI-43-101-Pre-Feasibility-Technical-Report-for-the-C>

<sup>12</sup> See the press release at:

<https://investor.verde.ag/verdes-n-keeper-technology-to-boost-agricultural-productivity-and-help-fight-climate-change/>

<sup>13</sup> See the press release at: <https://investor.verde.ag/verde-launches-bio-revolution/>

<sup>14</sup> See the press release at:

<https://investor.verde.ag/verdes-shareholders-to-vote-on-proposal-to-ban-sales-to-amazon-rainforest-regions-in-a-com>

<sup>15</sup> Learn more about our technologies: <https://verde.docsend.com/view/yvthnpuv8jx6g4r9>

<sup>16</sup> See the release at:

<https://investor.verde.ag/verde-starts-ramp-up-of-plant-2s-second-stage-to-reach-production-of-2-4mtpy/>

<sup>17</sup> As per the National Instrument 43-101 Standards of Disclosure for Mineral Projects within Canada ("NI 43-101"), filed on SEDAR in 2017. See the Pre-Feasibility Study at:

<https://investor.verde.ag/wp-content/uploads/2021/01/NI-43-101-Pre-Feasibility-Technical-Report-Cerrado-Verde-Proje>

<sup>18</sup> Source: Brazilian Fertilizer Mixers Association (from "*Associação Misturadores de Adubo do Brasil*", in Portuguese).

<sup>19</sup> Source: Brazilian Comex Stat, available at: <http://comexstat.mdic.gov.br/en/geral>

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