



CLAAS ECO

WATER

# PRESENTATION DOCUMENT



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CLAASECO



# Introduction

Building a Greater, Greener Future.

ClaasEco is a Consulting service delivery company that specialises in Water Quality Solutions and Implementation, Agricultural consulting with sustainable agricultural solutions, Water Technology and related equipment supply, Property Development services, Construction Management, and the implementation of ecologically friendly commercial, industrial and residential real estate. Building on over 40 years' experience in the construction and water industry, our main goal is to source, develop and integrate new and exciting ecologically supportive technologies and products to make sustainable living more affordable, attainable and practical to clients in South Africa and abroad.

Sustainability is not just another buzzword for us – it's the foundation of all our projects and undertakings. Our passion for developing and implementing eco-friendly solutions, buildings and projects is rooted in a deep connection with nature, and the belief that we have a responsibility towards the earth, ourselves and our future generations to preserve our natural resources.

Our biggest strength is meticulous time and budget management, and we pride ourselves on delivering original and unconventional solutions to today's industry challenges.





# Why ClaasEco

In the current global environmental and especially with the water quality crisis, the world needs solutions that will conserve our resources and ensure a sustainable future for the next generations. Water is one of our most precious resources. ClaasEco with our associate companies and specialists, are pioneers in natural water treatment. Through our innovative and world-renowned technology, we resolve water treatment challenges like no other company can. We host the latest technology available within the water industry. This include the largest variety of Ultra Fine Bubble (UFB) equipment, Ultrasonic, Cyclone filters, Quantum Disinfection technology and Specialist remote monitoring equipment. Our range of UFB equipment are between 70% and 95% more efficient than existing aeration technologies available in South Africa. The result of our solutions is a sustainable and cost-efficient alternative in the form of recycled and recovered water.

We have been striving to provide services that offer an ethical and global water solution, securing the future of our environment for future generations. Our solutions are scientifically based on nearly a decade of research. The outcomes are phenomenal results in the treatment of water, wastewater and severely contaminated water. Our Ultra Fine Bubble (nano) technology are revolutionising the water industry with a natural cleaning process that is **CHEMICAL FREE**.



# Vision

Our innovative thinking at ClaasEco has led to new and improved water treatment products, ensuring clean water worldwide. Through our disruptive technology, we seek to grow our reputation as a one-of-a-kind business in the different water treatment industries. Founded in our commitment to superior product design and performance, we aim to grow a loyal customer base. Combining quality products with attentive support and exceptional customer services we are confident in our ability to attract and retain customers. Above all, we strive to impact the well-being of current and future generations with our green and environmentally friendly water treatment solutions.

# Values

## 1. Communication:

We have a direct and open communication culture, where no subject or topic is taboo. We encourage all our employees, customers and suppliers to feel free to talk about and discuss all their expectations and goals, as well as share their daily experience working with and in the company.

## 2. Integrity:

All decisions taken are done with honesty, transparency, common sense and to the benefit of the client and the company.

## 3. Accountability:

We take 100% responsibility for every decision we take and the outcome thereof.

## 4. Accuracy:

Every task that is approached, is done so with pinpoint accuracy.

## 5. Efficiency:

All tasks and challenges we encounter, we execute with the utmost efficiency through dedicated planning, focus and constant communication.

## 6. Excellence:

Everything we do, from start to finish, from the biggest to smallest task, from the morning we wake up to when we go to bed, is done with excellence in mind.



# What makes us different

## Ultra Fine Bubbles (UFB)

Tiny Nano Size Bubbles Solving Large Problems

Ultra Fine Bubbles are extremely small gas bubbles that have several unique physical properties that make them very different from normal bubbles. These properties make UFB-Ultra Fine Bubbles a superior aeration method for a number of applications around the world.

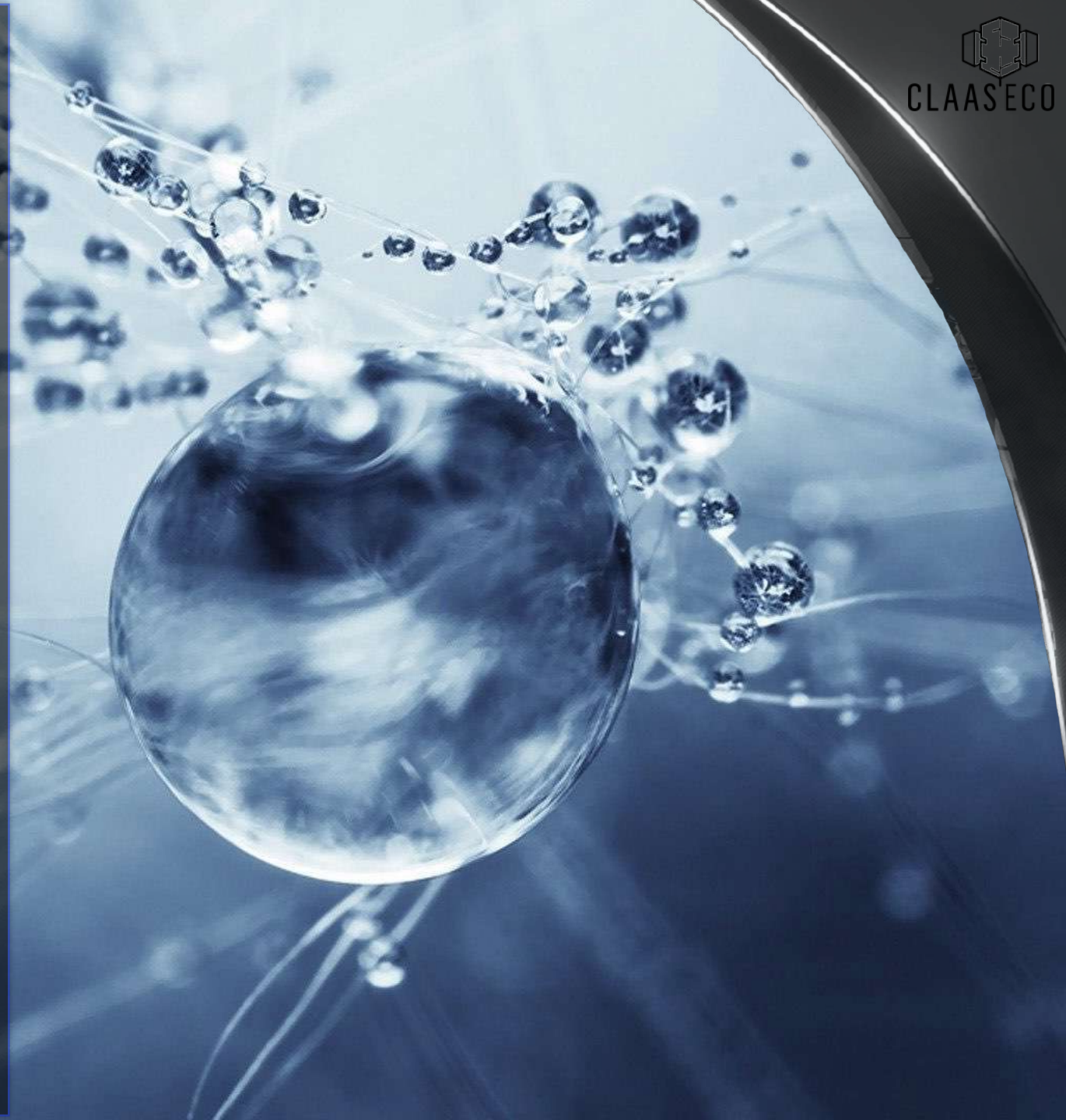
The foremost aeration industry experts agree that UFB generators provide the highest oxygen transfer efficiency of any aeration technology in the world. ClaasEco Water, proudly hosts the largest variety of UFB equipment in the world, this backed up with services and support by professionals within the water and Agricultural sectors around the globe.

ClaasEco Water support the technical committees ISO/TC 281 – Fine bubble technology under the management of Dr Nobuhiro Aya,

<https://www.iso.org/committee/4856666.html>

and follow the STANDARDS BY ISO/TC 281

<https://www.iso.org/committee/4856666/x/catalogue/p/1/u/0/w/0/d/0>





# Our Customers Industries and our Solutions Explained

## WATER & WASTE MANAGEMENT

Aeration is used in water and wastewater treatment processes to deliver oxygen to microorganisms responsible for the biological oxidation of carbonaceous material and ammonia. Aerobic processes are used to degrade biological oxygen demand (BOD), chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN), and ammonia from water. One of the fundamental control parameters in aerobic processes is dissolved oxygen (DO).

Many treatment processes lack sufficient DO due to excess loading, under-performing aeration systems or antiquated designs. Low DO levels encourage the growth of filamentous bacteria that can cause process upsets related to sludge bulking and foaming. Furthermore, low DO levels can result in poor treatment efficiency and lead to potential discharge violations. Adding additional aeration capacity can be complex and costly; however, the addition of ClaasEco Water UFB (Ultra Fine Bubbles) can be used to supplement under-performing aeration systems by applying biologically available DO exactly where it is needed to support the biological process in quick, cost-effective and modular fashion.



# AGRICULTURE

Oxygen is an essential macro and micro element required for healthy plant and animal growth. Dissolved oxygen (DO) allows plants and animals to develop healthier and more robust living conditions, leading to increased nutrient uptake, improved yield and reduced growth cycles. ClaasEco Water UFB generators efficiently deliver oxygen to plant roots by saturating the water. Learn more about the benefits of UFB technology and how it is helping farmers around the world be more efficient and productive.

# ALGAE CONTROL

Maintaining adequate dissolved oxygen (DO) levels in water is a critical component to sustaining healthy ecosystems in lakes and ponds. Low DO levels and the presence of excess nutrients such as nitrogen and phosphorus give rise to unhealthy water bodies. Low oxygen at the bottom of water bodies can cause additional releases of nutrients from the sediment, further degrading water quality. Sustaining DO levels across the entire water column increases ecosystem health and helps reduce the recycling rate of nutrients into the water from the sediment layer. However, effectively aerating the entire water column with conventional aeration systems pose difficulties as conventional aeration relies on oxygen transfer as bubbles quickly rise to the surface, becoming even more challenging in warm and shallow water bodies. Harnessing the power of Ultra Fine Bubbles, ClaasEco Water UFB equipment has proven that it can effectively aerate the entire water column independent of depth or temperature.



# MINING

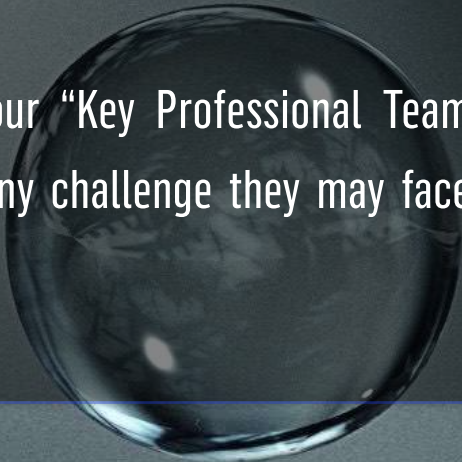
A number of Mining processes are highly dependent of the use of various gases. In wastewater, tailing ponds or recycling water from acid mine drainage often require simple aeration to maintain proper dissolved oxygen (DO) to allow Mines to reuse water or meet discharge requirements. In separation processes, such as froth flotation or heap leaching. Mines rely on air or oxygen to float matter or enable the chemical separation of metals such as copper or gold from ore. Regardless of the application, ClaasECO Water UFB-nanobubble generators bring a new form of gas-to-liquid injection to the mining industry that is more efficient than previous methods. Learn how ClaasECO Water UFB-nanobubble technology is maximising efficiency in heap leaching and froth flotation.

# OIL & GAS

Oil extraction and processing methods can vary greatly by region or application, and oil companies are constantly seeking ways to improve any process to maximise efficiency. ClaasECO Water UFB-nanobubble technology has proven to increase efficiency in oil-water separation and hydrogen sulfide ( $H_2S$ ) reduction. By harnessing the unique properties of Ultra Fine Bubbles, ClaasECO Water UFB equipment is making oil companies more efficient and improving their bottom line.



# ClaasEco Water – Professional Team



ClaasEco Water proudly share our “Key Professional Team” available to our national and international clients, to tackle any challenge they may face relating to “Water Quality” and related challenges.





## Frederik G. H. van Zyl (Ferdinand van Zyl)

### Position:

ClaasEco Water and Agri - Professional Environmental Scientist – ClaasEco Managing Associate

### Qualification:

B. Sc. (Hons.) Microbiology (US), M. Sc. Microbiology (US). Registered at South African Council for Natural Scientific Professions (SACNASP) Pr. Sci. Nat 400047/92

### Responsibility:

Manage all related tasks and services as Plant Pathologist, Microbiologist, Botanist, Naturalist, and as Water Impact Specialist.

Experience: +43 years' experience as Professional Environmental Scientist in the Agricultural and Water industry. +21 Published scientific articles.



## Mrs. Philisa Conradie (Lisa)

### Position:

ClaasEco Water and Agri – Research and development Process Engineer – ClaasEco R&D Associate

### Qualification:

Bachelor of Engineering – B. Eng - (Chemical/Process)

### Responsibility:

Manage all related tasks and services as Research and Development Process Engineer in support of the ClaasEco Water and Agri - Professional Environmental Scientist – ClaasEco Managing Associate with more than 25 years experience.



## Cristian Vasile CHIS

### Position:

ClaasEco Water – External Managing Associate specialising in water disinfection. Main product: Quantum Disinfection™

### Qualification:

Ph. D in Chemistry, Research Engineer, Master's Degree in Waste Science and Techniques, Engineer Degree in Environmental Sciences, Bachelor's degree in Informatics.

### Responsibility:

ClaasEco International Specialist support for clients on water disinfection challenges,

### Experience:

15 years of experience in the field of conceptualisation, development and manufacturing of nano-composite materials with active surfaces; Fundamental knowledge of the electrical-chemical properties of semiconductor oxides and their interaction at nano level; Industrialisation for mass production of the CDV-ML nanotechnology; 5 granted patents & 10 published scientific articles.





## MEYER DE VILLIERS

**Position:**

Alveo Water - Managing Director

**Qualification:**

B. Eng. (Civil), Pr. Eng, MBA.

**Responsibility:**

Company Management, Business Development, Project Overview

**Experience:**

22 years of Civil Engineering, mostly water related infrastructure. 11 Years of water and wastewater treatment at the helm of SEC/Alveo.



## Jordache Fortuin

**Position:**

Alveo Water - Projects Director

**Qualification:**

M. Eng (water quality), B. Eng (Chem).

**Responsibility:**

Oversight of company projects, management of project resources and systems, project management and process design.

Experience: 5 years' experience in process engineering and project management in the water and waste-water industry.



## TIM BERTRAND

**Position:**

Alveo Water - Operations Director

**Qualification:**

M.Sc Eng (Mechanical)

**Responsibility:**

Company Procedures, Regulatory Compliance, Project Management.

**Experience:**

9 years of Mechanical Engineering consulting and management experience. Involvement in proposals, project delivery, installation and commissioning, and client servicing.



# WE INVITE YOU

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As specialists in effective value engineering, cost management to deliver goal orientated results, and very practical and economical solutions to Water and Agri related challenges, we formally invite you to experience our innovative services in support of your specific needs, and finding the best solutions and methodology for your project. Our value added to your business will provide you with significant tangible results.

Please see CLIENT ENGAGEMENT REQUEST for your perusal. We kindly ask that you complete and return this back to us as soon as possible. This will allow us to open a file for your project and to engage with you formally. This to set up an “Identification of Works” meeting to establish the needs and solutions of your project.