

# DECONTAMINATION OVERVIEW

Alexandros, Inc. (ALEXANDROS) utilizes **PATENTED CHEMICALS** and a **PATENT PENDING MECHANICAL APPLICATION** with **NO HEAT** or **DISSOLUTION OF FEEDSTOCK** to **COMPLETELY DECONTAMINATE ANY HEAVY FUEL OIL, WATER, & GAS** to a **ZERO (0)** level of **ANY CONTAMINANTS** including, but not limited to, **ZERO (0)** levels of **SULPHUR, H<sub>2</sub>S**, and/or **C<sub>02</sub>** whilst **ENHANCING API** to a minimum of thirty-two (**32**).

Oil and gas drilling sites can be some of the most challenging environments for both the equipment in use and the operators who run them. It is critical to run a well as efficiently as possible and to reduce Environmental, Health and Safety (EH&S) risks to the greatest extent possible. There are many elements that can adversely affect a pump's operations and the quality of oil and gas produced, both of which have direct impacts on the profitability of an operation. Products exist in the market today that attempt to address such challenges, though often they can be costly and add to EH&S risk factors due to the nature of the products.

Alexandros, Inc. supplies products that address some of the most challenging elements at drill sites more effectively, simply, safely, and at lower cost.

A particularly challenging problem at drill sites is bacteria; they make Hydrogen Sulfide (H<sub>2</sub>S) and create biofilms. H<sub>2</sub>S is a significant problem for producers as it is poisonous, it can corrode the precious metals in wells and surface equipment and is a product contaminant which needs to be removed but is currently difficult and expensive to do so with products that pose their own EH&S hazards. Ever growing biofilms are also problematic due to their corrosive nature and adverse impact on productivity as they increase system pressure requirements and decrease line throughputs.

Historically, dealing with bacteria and the H<sub>2</sub>S they produce has been an arduous battle for well operators. Current remediation products present their own challenges; they are toxic liquids that require HAZMAT to transport and use. Moreover, due to the nature of their mechanism, bacteria are often able to develop an immunity to them over time making the effectiveness of such products dubious across different locations and times.

Our patented formula is a water-soluble powder that when added to any compatible solution provides one of the most effective, and economical solutions to H<sub>2</sub>S control in well maintenance, pipelines, surface equipment, fluid transportation, and water disposal on the market today. Our patented formula is safe to use, and because of its neutral pH, our patented formula can be used in down-hole application, pipeline cleaning, or in tanks without the corrosion of other comparable products. Our patented formula is most used as a batch treatment but can easily be used in a drip or injection systems.

Our patented formula is a proprietary blend of engineered chemistry, uniquely designed to attack H<sub>2</sub>S at its source, by removing its food source, and stripping the biofilm H<sub>2</sub>S relies on for survival. With this unique chemistry Our patented formula is unlike other H<sub>2</sub>S scavengers designed to mask the H<sub>2</sub>S, it is designed to neutralize the H<sub>2</sub>S by stripping the two elements apart making them inert. By making the elements inert the H<sub>2</sub>S is less

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likely to form or regain strength later in the production, processing, or disposal process making Our patented formula the most efficient, reliable, and economical scavengers on the market today.

Due to its unique chemistry, it can easily be added to any compatible solution in the field including production water, or wastewater. This will cut down on costly HAZMAT transportation, and spending money on fillers, stabilizers, and byproducts that are not needed, and because it is a water-soluble product Our patented formula can be added to production tanks, treaters, dumps, ponds, gun barrels, transports, or any other production process without, adding additional fluid to dispose of.

This makes Our patented formula the best choice in H<sub>2</sub>S, Sulphur and CO<sub>2</sub> elimination.

Our patented formula is also designed to remove bacteria, fungus, mold, and other harmful pathogens from water and other fluids where these harmful agents live and multiply. This biocide has the unique ability to strip and remove the harmful biofilm where bacteria grow and matures. Other commonly used biocides try to suffocate the bacteria spore by covering it until dead. This process allows stronger bacteria to become immune to these biocides, which creates super bugs that are very difficult to remove.

Prior to Treatment



After Treatment



Our patented formula with its natural chemistry explodes the bacteria spore wall on contact and does not allow any bacteria to become immune or turn into a super bug.













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Our patented formula is an oxidizer but because of its unique design and its neutral pH it is one of the strongest biocides on the planet with the safest application. With a pH of 6.8 to 7.2 it is no more corrosive than a contact solution but has a 99.99 log kill compared to a 99.9 of common bleach, which is far too corrosive to use in similar application. The biocide is very safe to the user and does not require HAZMAT to transport or use. With its effective ability to kill bacteria, and its safe application it is the strongest, safest, and most economical EPA approved biocides on the market today. It is FDA registered, NSF approved, and OMRI exempt.

## COMPETITIVE DIFFERENTIATORS

- **DESTROYS MORE CONTAMINANTS:** Although seemingly analogous to chlorine, our patented formula is unique and clearly superior to sodium hypochlorite in the destruction of spores, bacteria, viruses, and other pathogen organisms on an equal residual base. Sodium hypochlorite in concentration of 5% is effective only in disinfection, but not sterilization. Sodium hypochlorite is effective against cysts (Guardia, Cryptosporidium).
- **NON-RESISTANT:** Most of the pathogens, particularly water born, develop resistance to sodium hypochlorite over time. Our patented formula application, as water disinfectant daily for more than ten years, demonstrated that microorganisms do not develop resistance against our patented formula over time.
- **LESS CONTACT REQUIRED:** The required contact time for our patented formula is lower.
- **SAFER STORAGE:** Sodium hypochlorite loses its activity during long-term storage and poses potential danger of gaseous chlorine emission during storage.
- **MORE SOLUABLE:** Our patented formula is more soluble.
- **MORE EFFICIENT:** The bactericidal efficiency remains in pH values between 4 and 9.
- **LESS CORROSIVE:** Our patented formula is minimally corrosive primarily due it's low concentrations and, also due, to the elimination of the caustic element normally found in Sodium and Calcium Hypochlorite.
- **LESS TOXIC:** The reaction of our patented formula and organic materials produces about half (1/2) of the trihalomethanes as does chlorine.
- **ENHANCED SCALE REDUCTION:** Our patented formula eliminates existing scale and pathogens harbored in scale and blocks dissolved solids in supplied water from forming new scale. Biofilm is eliminated. Sections of a building are not required to be closed to normal use during treatment.

## Products comparison

	Gas Chlorine	Delivered Hypo	Hypo Calcium	Chlorination Chlorine Dioxide	Well Optimizer	
Effective						
Safety						

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Chlorine Residual	✓	✓	✓	✓	✗	✓
TTHM / HAA5 Reduction	✗	✗	✗	✓	✓	✓
Chlorine / Bromate Reduction	✓	✓	✓	✓	✗	✓
Biofilm Removal	✗	✗	✗	✗	✓	✓
Algae Elimination	✗	✗	✗	✗	✓	✓
Micro Flocculation	✗	✗	✗	✗	✓	✓
Eliminate T. & O.	✗	✗	✗	✗	✗	✓
Easy to Maintain	✓	✗	✗	✗	✗	✓
Lifecycle Costs Low	✗	✗	✗	✗	✗	✓

ALEXANDROS' Well Optimizer products are shipped as a dry powder and have a neutral PH. This eliminates HAZMAT requirements and dramatically reduces the cost of shipping and use. It also makes them much safer to use, and gentler on equipment and the environment.

Our patented formula is available in bulk, pre-measured pouches, and tablets. Because it is a dry powder it is easier and less expensive to ship and store than traditional liquid disinfectants. Prior to mixing, our patented formula has a shelf life of 3 years as a dry powder. Once mixed into water it will maintain its cleaning efficacy for 30 days. Our patented formula is simple to prepare for use: simply mix it with any fresh water.

## ALEXANDROS also offers Well Optimizer products to:

- Inhibit scale build up
- Strip, degrease, and clean down hole and surface equipment
- Treat water for reuse or disposal
- Create tailored acid solutions

## Product packaging and shipping

- 10 Lb. Re-Sealable bags
- 10 Lb. Dissolvable bags (Tank, Pond, and Transport Treatment)
- 40 Lb. bucket
- Time release tablets for slow dissolve and continuous treatment