

Water Treatment Microbes

AOS 2008 Alternate Oxygen Source



AOS 2008 provides a safe and easily applied nitrate based electron acceptor for use in controlling odorous and potentially dangerous chemicals such as hydrogen sulfide, along with mercaptans and volatile organic acids including volatile fatty acids (VFA). Odors are often caused by anaerobic conditions in wastewater treatment and collection systems.

The typical **AOS 2008** dose during start up is 2.3 gallons per pound of total sulfide (19.2L/kg total sulfide). Following the initial dosing period, a maintenance dose of 0.76 gallons per pound of total sulfide (4.2 L/kg total sulfide) is recommended. **AOS 2008** should be fed directly from the shipping tote using a chemical feed pump set for continuous dosing. Some situations however, may require a timed dose to accommodate daily flow variations. IFM can assist you with specific dosage recommendations.

AOS 2008 is most effectively used in combination with **OCM 2020**, IFM's Odor Control Microbes. **OCM 202** is a microbial product for wastewater odor control applications. The microorganisms in **OCM 2020** have the ability to biologically oxidize common odor causing compounds such as hydrogen sulfide, mercaptans and short chain organic acids. These microorganisms can use either oxygen or nitrate as an electron acceptor in their metabolic processes. **AOS 2008** with **OCM 2020** is effective in controlling sulfide and odor generation in industrial wastewater treatment systems and municipal wastewater treatment systems including collection and conveyance infrastructure. It can also be used to treat "hot spots" in those applications.

Benefits of AOS 2008

- Provides rapid and effective relief from the odor, corrosion and safety problems associated with the generation of hydrogen sulfide by preventing its formation.
- Practical alternative to ferrous sulfate when anaerobic conditions exist downstream of the dose point.
- Provides an excellent emergency response tool for nearly immediate odor relief for severe sulfide odor problems in industrial municipal wastewater treatment and collection.

Control of Hydrogen Sulfide

Strategic application of **AOS 2008** ahead of key areas of sulfide generation in collection systems effectively inhibits the activities of sulfate-reducing aqueous bacteria in pipe biofilms and prevents the formation of H₂S.

Effective dose rate ranges from 0.2 -1.1 gallons **AOS 2008** per pound of aqueous sulfide, depending on hydraulic retention time and temperature. Most applications fall in the range of 0.3 - 0.7 gallons per pound of aqueous sulfide.

Dosing must be semi-continuous to continuous for effective control and may be required at multiple sites to solve a given problem. The best results may be achieved by tying dosing pumps into station pumps such that the wastewater is continually dosed as it enters the force main.

In a similar manner, sulfide generation in equalization basins and anaerobic or facultative lagoons can be rapidly inhibited through application of **AOS 2008** to the influent or to strategic "hot spots" in large basins.

Mechanism of Action

The species content and behavior of bacterial populations are determined in large part by the terminal electron acceptor available for use during the oxidation of food for energy and growth. It is an accepted practice to identify wastewater environments based on the nature of the predominant electron acceptor: aerobic for oxygen, anoxic for nitrate and anaerobic for sulfate and organic compounds. The preference of one acceptor over another is dictated by the amount of energy available to an organism as it uses the acceptor during growth and follows a strict order, from the highest energy yield to the lowest of: oxygen, nitrate, sulfate and organic compounds (fermentation). The degree of completeness of organic oxidation and the rate of biomass growth follow the same order. Given the availability of any mixture of acceptors, the mechanism that offers the greatest yield of energy to the organism will determine the nature of the bacterial populations that dominate. In anaerobic environments containing sulfate, the activities of sulfate reducing bacteria (SRBs) are important and are responsible for the generation of hydrogen sulfide and its associated odor, corrosion, and safety problems. However, if **ASO 2008** or oxygen is introduced to an anaerobic environment, sulfate reduction is rapidly inhibited as the dominant bacterial activities shift to those populations able to best exploit the new environment. By the same mechanism, addition of **AOS 2008** to anaerobic environments will allow a greater degree of completeness of organic degradation to occur. With the simultaneous addition of grease-degrading bacteria, the rate of FOG degradation is increased providing a significant impact on the quality of accumulated FOG.

AOS 2008 Product Characteristics

pH Range	8.4 - 8.8 S.U.
Specific Gravity	Approximately 1.25
Freezing Point	-15°C (5° F)
Appearance	Clear Liquid
Shelf Life	Indefinite

Available Packaging

- 55 gallon drum
- 250 gallon tote
- Bulk on request

AOS 2008 Plus

Add extra punch to grease cap remediation with 380 billion cells of a proven facultative spore blend per gallon of product. Recommended for use in conjunction with **IFP 1003**.

pH Range	8.4 - 8.8 S.U.
Specific Gravity	Approximately 1.25
Freezing Point	15°C (5°F)
Appearance	Clear Liquid
Shelf Life	Indefinite
Cell Count	100 million / L (380 billion / gal.)

Storage and Handling

Store in a cool, dry place. Avoid excessive inhalation. Avoid eye contact. Wash hands thoroughly with warm, soapy water after handling.

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