WellREADY™ 009

TECHNICAL DATA SHEET

Antimicrobial Agent for Oilfield Applications

WellREADY™ 009 is a U.S. EPA registered Pesticide (AQUACAR 50 Glutaraldehyde) and must be used in accordance with the EPA approved label.

An effective, broad spectrum antimicrobial agent in liquid form ideally suited for many oilfield applications. It is designed for extremely rapid microbial kill, limits biofilm formation, and re-inoculated microbial activity that leads to Microbial Influenced Corrosion (MIC), reservoir souring, and conductivity losses among others.

- Offers effective performance against many types of organisms encountered in Oil & Gas operations, particularly against anaerobic sulfate- reducing bacteria (SRB).
- Well suited for down-hole applications due to its long half-life in anaerobic environments and has capability to control microbiological activity responsible for initiating and propagating Microbiological Influenced Corrosion (MIC).
- Compatible with bisulfite oxygen scavenging systems.
- Works especially well with fracturing chemistries, as exhibits synergies with many cationic and anionic friction reducers in fresh water or light brines with respect to ultimate friction reducer performance and inversion rate. Chemically compatible with most common scale and corrosion inhibitors and dispersants
- WellREADY™ 009 Water Treatment is a type of Microbiocide which kill microorganisms by reacting with the cell wall, have many important features:
  - Ability to remove established biofilm and to inhibit regrowth
  - Broad spectrum of activity - kill aerobic and anaerobic microorganisms and algae
  - Reduce populations of sessile microorganisms known to cause corrosion
  - Effective over a broad pH and temperature range
  - Effective against organisms that produce H2S, which causes corrosion and foul odors
  - Active concentrations as low as 1 ppm can be measured using the Alden, Glutatect field test kit

The evaluation of antimicrobial compounds has traditionally relied on measurements of performance efficacy against free-floating (planktonic) microorganisms. However, attention in recent years has begun to focus on the effects of microorganisms which adhere to surfaces, giving rise to types of deposits known as bio-fouling. These deposits contain not only colonies of microorganisms, but also a combination of cellular by-products, entrained debris, and inorganic materials. Biofilms can cause significant energy losses in water distribution systems as a result of increased fluid frictional resistance. In heat transfer equipment, biofilms can decrease heat transfer efficiency. Microbial fouling can occur under both Anaerobic and Aerobic conditions.

- Can be transported and stored in bulk
- Compatible with chlorine
- Non-corrosive at end use concentrations
- Non-halogenated material

WellREADY™ 009 Product Properties	
Active, % Glutaraldehyde (w/w)...	AQUACAR 50
pH at 25°C:	3.1 to 4.5
Solubility in Water, 20°C:	Miscible
Boiling Point	100.5°C / 213°F
Freezing Point:	-21°C / -6°F
Specific Gravity, at 20/20°C: . . .	1.129
Vapor Pressure at 20°C:	0.2 mm Hg based on glutaraldehyde (0.27 hPa)

- Does not contain heavy metals

Application

- Drilling muds
- Preserves guars & polymers vs microbes
- Effective vs bio-fouling + oilfield additives spoilage
- Workover and completion fluids
- Water treatment
- Water floods
- Oil and gas pipeline and tank maintenance

Delivery

WellREADY™ 009 avail 5 gal pails (50 lb. net), 55 gal drums (525 lb. net) 275 gal tote bins (2,589 lb. net) and bulk tanker trucks (45,000 lb. net).

Product Safety

Please refer to the Material Safety Data Sheet (MSDS) for more information.

Storage

WellREADY™ 009 has been shown to be stable at ambient conditions. The active ingredient remains within EPA certified limits for two (2) years when stored at ambient conditions in original container.

Do not store in direct sunlight. Keep away from acids and oxidizing agents. Keep container closed when not in use. Store in a well-ventilated area.

Do not contaminate water, food, or feed by storage or disposal. If contents are spilled or leaked due to container damage, collect liquid with absorbent material and dispose of in accordance with local, state, and federal pesticide disposal regulations.

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or concentrate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.