

**WellREADY™ 012 is a U.S. EPA registered Pesticide (DBNPA 20 %) and must be used in accordance with the EPA approved label. Fast and economical antimicrobial performance in a broad array of applications.**

WellREADY™ 012 antimicrobial is effective, fast-acting, non-oxidizing, formaldehyde-free biocide compatible with many applications.

- Offers effective performance against many types of organisms encountered in Oil & Gas operations, particularly against anaerobic sulfate-reducing bacteria (SRB).
- Well suited for top-hole and lower temperature down-hole applications due to its fast acting short half-life in anaerobic environments and has capability to control microbiological activity responsible for initiating and propagating Microbiological Influenced Corrosion (MIC).
- 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
- Extremely fast antimicrobial action under normal conditions, WellREADY™ 012 Antimicrobial is added to systems already containing microorganisms, so killing is extremely rapid and effective. In contrast, slower-acting biocides may take 10 to 12 hours to achieve the antimicrobial results attained by in WellREADY™ 012 within 30 minutes of treatment.
- No odor.
- Does not cause foaming.
- Effective at alkaline pH levels
- Limited tolerance by microbes.
- Use as a 'knockdown' biocide treatment.
- Primary reduction of bio-burden.
- Low persistency in the environment
- Unaffected by hard water or salts & tolerant of high organic loads
- Enhances efficacy of commonly-used preservatives.
- Not compatible with bisulfite oxygen scavenging systems.
- Best if used in top-hole moderate to low temperature environments.
- WellREADY™ 012 Antimicrobial is available in 5-gallon pails, 55-gallon drums and one-way 275-gallon tote bins (IBCs).

#### WellREADY™ 011 Product Properties

(Not to be considered product specifications)

Actives: 2,2-dibromo-3-nitropropionamide (DBNPA)  
**20 % solution**

Appearance: ..... Colorless to brown  
 Density ..... 1.22 (10.17 #/gal)  
 Viscosity (25°C/77°F): ..... 20 cps (Brookfield Viscosity) @ 100 rpm, #0 spindle  
 pH (as supplied): . 1.5 to 5.0  
 Solubility: ..... Totally miscible with water and most polar and non-polar organic solvents  
 Freezing point: ..... ~-50°C/-58°F  
 Boiling point: ..... > 70°C/158°F  
 Flash point: ..... >182°C (>360°F) *Cleveland Open Cup*  
 Thermal stability: ..... Significant decomposition begins above 70°C/158°F  
 DBNPA (active) vapor pressure (25°C/77°F): ..... 189 mmHg @ 25°C *Estimated*  
 Recommended use at pH: ..... 2.0 – 4.0  
 Recommended storage temperature: ... Below 60°C/140°F

#### Example Application in Oil & Gas water treatment application:

WellREADY™ 012 is highly compatible with other chemistries. It can be used in combination with other biocides, such as Glutaraldehyde, WellREADY™ 009 (Dazomet), and WellREADY™ 008 as part of broad-spectrum antimicrobial programs to mitigate the risk of bacteria developing a tolerance to the treatment. Frac water treatments using a combination of WellREADY™ 012 and WellREADY™ 009 are ideal in that WellREADY™ 012's quick kill speed and effectiveness against aerobic bacteria complement WellREADY™ 009's long lasting effects against anaerobic bacteria. A model treatment would involve using approximately 90 ppm of 20% WellREADY™ 012 solution 12-24 hours prior to adding the friction reducer. WellREADY™ 012 must be added 12-24 hours before any oxygen scavenger is applied due to incompatibility of oxygen scavengers with any halogenated product, then add approximately 500ppm (dosages may vary based on bacteria levels) of 24% WellREADY™ 009 solution down hole at the very beginning of the frac job.