Metastable Hypochlorous Acid (HOCl) As An Oilfield Biocide

**ABSTRACT**

A metastable form of hypochlorous acid (HOCl) has been registered with the USEPA as a biocide suitable for use in oilfield applications. It is registered for use in 49 states, and is pending registration in the 50th (California). More than 500,000 gallons of the biocide have been used to treat water for hydraulic fracturing treatments in Pennsylvania, Louisiana, Oklahoma, and Texas. The USEPA registered product is trademarked by Integrated Environmental Technology, Ltd., the entity which manufactures the EcaFlo® devices to make the USEPA registered biocide, as EcaFlo® Anolyte. For oilfield applications, the biocide is sub-registered as Excelyte® and is patent pending for this application. The metastable form of hypochlorous acid, hereinafter referred to as ms-HOCl, is up to 100 times more effective as a biocide than hypochlorites (i.e., bleach, NaOCl), and is not DOT Corrosive, as is the case with bleach.

**OVERVIEW**

A metastable form of hypochlorous acid (HOCl) has been registered with the U.S. Environmental Protection Agency and most US States as a biocide suitable for use in treating water for oilfield applications. Registration in California is pending. The biocide provides an effective “double-edged” weapon against oilfield bacteria, combining both oxidation/reduction potential and chlorination to achieve an easily and quickly measured effectiveness. More than 500,000 gallons of the biocide have been used to treat water for hydraulic fracturing treatments in Pennsylvania, Louisiana, Oklahoma, and Texas. The USEPA registered product is trademarked by Integrated Environmental Technology, Ltd. (IET), the entity which manufactures the EcaFlo® devices to make the registered biocide, as EcaFlo® Anolyte. For oilfield applications, the biocide is sub-registered as Excelyte® and is patent pending for use in fracturing.

**CONCLUSIONS**

1. The metastable form of hypochlorous acid (ms-HOCl) is an effective and environmentally-acceptable biocide.
2. Metastable hypochlorous acid is available to most drill-site, well-site, and other field locations, as a USEPA registered biocide. (California pending)
3. Metastable hypochlorous acid is not DOT regulated.
4. An FAC-Demand Test is available to quickly determine ms-HOCl dosage for any quality water.
5. Metastable hypochlorous acid is compatible with additives such as polymers, crosslinkers, and friction reducers, typically used in well fracturing applications.
6. As a fast acting biocide, ms-HOCl is suitable for use in wells with BHST’s from 85F to 450F.

**REFERENCES**

1. The author would like to thank Benchmark Performance Group management for the permission to publish this work.
2. The author would also like to thank Dustin Brown with out whose assistance this poster would not exist.

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This article is confined to discussing the use and benefits of metastable-hypochlorous acid (ms-HOCl) in well fracturing applications.