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----------STUDY REPORT----------

Att: ANDREA SMITH
SILVERLAB

Report Date: 23/03/2023

DISCLAIMER:

STUDY NAME: Efficacy of **18PPM Liquid against *Salmonella enterica* and *Vibrio cholerae* .**

TEST OUTLINE:

18ppm Liquid was submitted in as two variants (IM/Q610-419-01A and IM/Q610-419-18N)

The aim of the study was to determine the minimum contact time required to produce at least a 5 log reduction in viable bacteria.

The test was conducted in a suspension test loosely based on the method used for determination of bactericidal efficacy of chemical disinfectants EN1276. Certain deviations from the standard method had to be made to eliminate the presence of any traces of Salt (NaCl) which binds and inactivates the silver ions in the suspension.

Bacterial suspensions were prepared from overnight cultures on nutrient agar and standardised to 10^8cfu/ml in sterile distilled water. Suspensions were standardised by adjusting the optical density to between 0.08 and 0.1 at 625nM using a spectrophotometer.

The test suspension was prepared with a volume of 8ml of the Ionic silver product, 1ml 3g/L bovine serum albumin to give a concentration of 0.3g/L in the final test mixture, and 1 ml of the bacterial suspension.

The aim was to determine the minimum contact time to eliminate >5log of viable bacterial cells in the test suspension, therefor the test was carried out on a mixed bacterial suspension containing equal volumes of *Salmonella enterica* subs*. enterica* seroravar Abaetetuba and *Vibrio cholerae*.

A 1ml portion of the test mixture was removed at time intervals of 30 Seconds, 60 seconds, 3 minutes, 5 minutes, 10 minutes and 30 minutes. The test portion was placed in a petri dish and immediately overlaid with Plate count agar containing 5g/L NaCl to bind and neutralise the Ionic Silver.

A control sample containing only distilled water instead of the Ionic silver was included as a negative control sample.

Plates were incubated at 37°C for 48 hours before interpretation.

RESULTS:

Table 1: Results. (*ND = Not Detected)

	Growth recovered at each Time Interval (Cfu/ml) (*Salmonella* Abaetetuba)					
Sample	30s	60s	3m	5m	10m	30m
IM/Q610-419+01A	13	0	0	0	0	0
IM/Q610-419+18N	164	4	0	0	0	0
control	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$

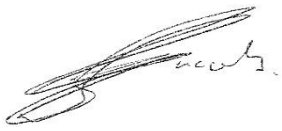
	Growth recovered at each Time Interval (Cfu/ml) (*Vibrio cholerae*)					
Sample	30s	60s	3m	5m	10m	30m
IM/Q610-419+01A	39	10	0	0	0	0
IM/Q610-419+18N	86	0	0	0	0	0
control	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$	$>3X10^5$

Conclusion:

The control sample consistently yielded >300cfu on a 10^{-3} dilution from the sample, indicating a good survival rate in the control sample.

Sample IM/Q610-419+01A eliminated all viable cells after a minimum contact time in 60 seconds
Sample IM/Q610-419+18N eliminated all viable cells after a minimum contact time in 3 minutes.

Both the samples IM/Q610-419+01A & IM/Q610-419+18N were successful in producing a >5Log reduction in viable *Salmonella* Abaetetuba and *Vibrio cholerae*



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