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## Certificate of Analysis

**Client:** Purest Colloids, Inc.

**Contact:** Francis S. Key

**Product:** Mesosilver<sup>®</sup>

**Project:** Phase II: *Escherichia coli*

**EMSL Reference:** 030317990

### Experimental Design Summary:

Test survival of *Escherichia coli* American Type Culture Collection Strain No. 8739 in two silver colloid products (Mesosilver<sup>®</sup> and ASAP) using 2 (1 and 10%) concentrations of product as supplied. The organism was tested for survival at 4 (0, 2, 5, and 24 h) time points. A negative control (no product) was included for comparison. All tests were performed in triplicate and plated in duplicate.

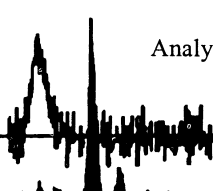
### Experimental Results Summary:

*Escherichia coli* at  $\sim 10^6$  cells ml<sup>-1</sup> was used to determine the effect of Mesosilver<sup>®</sup> and ASAP on bacterial survival. The results show that both products have a negative impact on the survival of *E. coli* (Tables 1 and 2). Specifically, both concentrations of each product were successful in reducing the numbers of cells to below the level of detection within 24 hours.

Analyst

Date

10/10/03





*Purest Colloids, Inc. Product Efficacy Phase II – p. 2*

**Table 1.** Survival of *Escherichia coli* ATCC 8739 inoculated at  $4.8 \times 10^5$  cells ml<sup>-1</sup> in the presence of 1 and 10% Mesosilver<sup>®</sup> colloidal silver.

Mesosilver (%)	CFU ml <sup>-1</sup>		
	2 h	5 h	24 h
0	$1.2 \times 10^6 \pm 1.4 \times 10^5$	$1.2 \times 10^6 \pm 8.7 \times 10^4$	$1.6 \times 10^6 \pm 5.8 \times 10^4$
1.0	$3.6 \times 10^5 \pm 5.1 \times 10^4$	$7.8 \times 10^3 \pm 8.3 \times 10^2$	<1
10.0	$5.5 \times 10^3 \pm 4.2 \times 10^2$	$1.2 \times 10^2 \pm 1.7 \times 10^1$	<1

All treatments performed in triplicate in 0.35% NaCl incubated without continuous mixing at 35°C. All plate counts performed in duplicate using nutrient agar incubated at 35°C for 72 hours. Results reported as mean  $\pm$  standard deviation. Media sterility controls showed no growth.





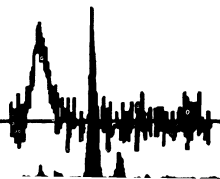
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*Purest Colloids, Inc. Product Efficacy Phase II – p. 3*

**Table 2.** Survival of *Escherichia coli* ATCC 8739 inoculated at  $4.8 \times 10^5$  cells ml<sup>-1</sup> in the presence of 1 and 10% ASAP PLUS colloidal silver.

ASAP (%)	CFU ml <sup>-1</sup>		
	2 h	5 h	24 h
0	$1.2 \times 10^6 \pm 1.4 \times 10^5$	$1.2 \times 10^6 \pm 8.7 \times 10^4$	$1.6 \times 10^6 \pm 5.8 \times 10^4$
1.0	$1.9 \times 10^4 \pm 3.5 \times 10^3$	$1.4 \times 10^3 \pm 3.0 \times 10^1$	<1
10.0	$5.6 \times 10^3 \pm 1.6 \times 10^3$	$4.2 \times 10^2 \pm 2.3 \times 10^2$	<1

All treatments performed in triplicate in 0.35% NaCl incubated without continuous mixing at 35°C. All plate counts performed in duplicate using nutrient agar incubated at 35°C for 72 hours. Results reported as mean  $\pm$  standard deviation. Media sterility controls showed no growth.





*Purest Colloids, Inc. Product Efficacy Phase II – p. 4 (Raw Data)*

Treatment	Time Point (hours)					
	2		5		24	
	Colony Count	Dilution Factor	Colony Count	Dilution Factor	Colony Count	Dilution Factor
0.35% Saline-1	99/105	10,000	123/102	10,000	173/160	10,000
0.35% Saline-2	117/137	10,000	127/130	10,000	170/143	10,000
0.35% Saline-3	130/121	10,000	125/128	10,000	156/177	10,000
1.0 % Mesosilver-1	43/38	10,000	97/76	100	0/0	1
1.0 % Mesosilver-2	29/32	10,000	75/65	100	0/0	1
1.0 % Mesosilver-3	45/30	10,000	83/72	100	0/0	1
10% Mesosilver-1	50/57	100	120/125	1	0/0	1
10% Mesosilver-2	47/56	100	128/130	1	0/0	1
10% Mesosilver-3	58/61	100	98/96	1	0/0	1
1.0% ASAP-1	23/22	1000	145/132	10	0/0	1
1.0% ASAP-2	13/27	1000	160/120	10	0/0	1
1.0% ASAP-3	18/13	1000	135/153	10	0/0	1
10% ASAP-1	68/44	100	50/53	10	0/0	1
10% ASAP-2	61/84	100	44/74	10	0/0	1
10% ASAP-3	45/35	100	13/19	10	0/0	1

average colony count x dilution factor = colony forming units per ml

