Laboratory Tests of *Ionic~Colloidal Silver* Made Using the Silver Pulser

Lab Tests using Ionic~Colloidal Silver on four pathogens:

We sent two samples of Ionic~Colloidal Silver in dark glass bottles to the NOVA laboratory in Texas in February and March 2005 for testing on four pathogens: E. coli (Escherichia coli), Pseudomonas aeruginosa, Staphylococcus aureus, and Candida albicans.

Strength:

We used a Hanna TDS (Total Dissolved Solids) meter to measure the parts per million (PPM) of silver. We later compared the TDS with a PWT (Pure Water Tester) and discovered TDS readings tend to be higher than the more accurate PWT.

We labeled the PPM of the solutions we sent to the lab as 6 PPM and 5 PPM so these are the concentrations they use in their report. If measured more accurately, we suspect the strength of the Ionic~Colloidal Silver would be somewhat lower. Laboratory analysis would have given a more accurate PPM reading.

Test:

The lab performed "Antimicrobial Effectiveness" tests. This determines whether the solution is an effective disinfectant for sanitizing precleaned, nonporous food contact surfaces. To be considered "effective," the solution must kill 99.99% of the pathogens within ***30 seconds.***

Results:

The Ionic~Colloidal Silver solution reduced the E. coli (Escherichia coli) and Pseudomonas aeruginosa by 99.99% within 30 seconds. The solutions were deemed an effective "germicidal and detergent sanitizing agent" for E. coli or more specifically for Escherichia coli ATCC 8739 and Pseudomonas aeruginosa.

For Staphylococcus aureus, the solution reduced the organisms by 92.20% in 30 seconds and by 99.27% in 60 seconds. The Ionic~Colloidal Silver was obviously effective but not fast enough to meet the antimicrobial effectiveness test for Staphylococcus aureus.

For Candida albicans, the solution reduced the organisms by only 5.69% in 30 seconds and by 27.2% in 60 seconds. Again it did not meet the test requirements for effectiveness for Candida albicans. The results do show, however, that the Ionic~Colloidal Silver was reducing the organisms, albeit more slowly.

Conclusion:

Ionic~Colloidal Silver passed the effectiveness testing in killing E. coli and Pseudomonas aeruginosa. It also reduced the number of pathogenic organisms of Staphylococcus aureus and Candida albicans.

It is important to keep in mind our Ionic~Colloidal Silver was tested on a prepared surface in a laboratory.

Test Results February 2005

Test Results March 2005

Summary of Laboratory Tests on Four Pathogens

NOVA Laboratory, Texas

Ionic~Colloidal Silver in the Range of 4–5 PPM

Pathogen	30 Seconds	60 Seconds
E. coli (Escherichia coli)	Reduced 99.99% within 30 seconds. An effective antimicrobial for food contact surfaces.	n/a
Pseudomonas aeruginosa	Reduced 99.99% within 30 seconds. An effective antimicrobial for food contact surfaces.	n/a
Staphylococcus areus	Reduced 99.20%	Reduced 99.27%
Candida albicans	Reduced 5.69%	Reduced 27.2%

Lab Tests on water from toilet

Back in 1998, with the help of our friend Randy whom we dubbed our mad scientist, we tested the ability of Ionic~Colloidal Silver to sterilize water—water that had been standing for a considerable time in a toilet bowl that had not been recently cleaned.

"OUR MAD SCIENTIST"

We also wanted to know the keeping quality of homemade Ionic~Colloidal Silver. Could it be stored for weeks and months and still be effective?

Randy sent 3 tablespoons (50 ml) samples of water from the toilet to CanTest labs in British Columbia, Canada:

1. Water that had been standing in a toilet bowl to measure the degree of contamination.

2. Adding 1 tablespoon (15 ml) of Ionic~Colloidal Silver, that had been stored for 2 weeks, to the second sample of toilet water.

3. Adding 1 tablespoon (15 ml) of Ionic~Colloidal Silver, that had been stored for 7 months, to the third sample of toilet water.

Strength:

The samples would be in the range of 5 PPM of silver, based on our earlier lab tests for strength using a timed-method to produce Ionic~Colloidal Silver.

Test:

The lab measured the contamination of the toilet water at 2,400 Colony Forming Units (CFU) per mL of bacteria.

Time:

The Ionic~Colloidal Silver had many hours to act on the contaminated water as the samples were not tested immediately when received by the lab.

Results:

The lab found no detectable CFU in either of the samples containing Ionic~Colloidal Silver. The toilet water had been sanitized by both samples. The Ionic~Colloidal Silver that had been stored in a dark glass bottle for 7 months was as effective in clearing the water of contaminants as the Ionic~Colloidal Silver that was only weeks old.

Lab tests to sterilize water with specified ratio

Next we asked Randy to test the effectiveness of 3 Tablespoons (50 ml) of Ionic~Colloidal Silver added to one gallon (4L) of water. This is the amount often recommended to purify

water for drinking. The equivalent was to add 1/8 teaspoon (0.6 ml) of Ionic~Colloidal Silver to a 3 tablespoons (50 ml) vial of water. Again 3 samples were sent to the lab:

1. Water that had been standing in a toilet bowl to measure the degree of contamination.
2. Adding 1/8 teaspoon (0.6 ml) of Ionic~Colloidal Silver, that was freshly made, to a 2 ounce bottle of the second sample of toilet water. (Lab tested the Ionic~Colloidal Silver used at 4.3 PPM of silver.)
3. Adding 1/8 teaspoon (0.6 ml) of Ionic~Colloidal Silver, that had been stored for about 7 months, to a 2 ounce bottle of the third sample of toilet water. (Ionic~Colloidal Silver of approx 5 PPM of silver.)

Test:

The lab measured the contamination of the toilet water at 420 Colony Forming Units (CFU) per mL of bacteria—still a high degree of contamination.

Time:

The Ionic~Colloidal Silver had many hours to act on the contaminated water as the samples were not tested immediately when received by the lab.

Results:

The lab found no detectable CFU in either of the samples treated with Ionic~Colloidal Silver. The toilet water had been sanitized in both samples.

Conclusion:

While the ratio of Ionic~Colloidal Silver to water was enough to sterilize the water, it is also important to remember that the time needed for the silver to kill bacteria and other pathogens will vary depending on the degree of water contamination. If planning to drink the water, it would be important to allow the silver to act for a long enough period of time.