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# ***Colloidal Silver***

## ***(An Analytical - Investigative Report & Theoretical Overview)***

### **Introduction**

As you may know the FDA ruled several years ago that, colloidal silver is not legal in OTC products. OTC meaning, over the counter use, meaning in essence that it is not to be used as a medicine. For more information about the legal aspects of colloidal silver, click on the "Research" link at the top of the main page, it is important reading for people interested in manufacturing colloidal silver for any kind of commercial purpose.

Welcome to one of the most important areas of research of this or any era. After years of personal research and contemplation on the subject of "colloidal silver". I have concluded that the disciplines involved are too numerous for my presentation to be all things to all people, but that is still my goal.

One of the main problems is that each area of expertise has a highly specialized system and jargon, which does not always translate well between other disciplines. Quantum mechanics, Physics, colloidal chemistry etc. each has within the general area of study, highly specialized areas of focus. For example "Electro-chemistry in colloids and dispersions" Is a specialized field of study within colloidal chemistry, though there many others examples.

Each discipline and area of focus in turn leads to a staggering number of potential applications.

My sincere belief is that the most needed research involves use of colloids in improving the human and planetary condition, the material will therefore reflect this conviction and area of focus.

My desire is to present this material in such a way that the broadest number of people, from the most varied number of backgrounds possible, may easily read and understand what it is that I want to convey. So that is how I intend to present this material.

There is no reason why scientific study cannot be alive, vibrant, interesting and relevant to anyone and everyone. I think you will find the material here more than just interesting and not just for scientists.

I have attempted to satisfy my need for a complete explanation of critical fundamental issues regarding the nature of colloids, and why they do the things they do. In my attempt to use existing orthodox scientific principles I have found them to be lacking in scope, inconclusive and biased toward the mechanistic.

A mechanistic approach may be provable and applicable where machines and mechanistic systems are concerned, but they falter and are rendered invalid where bio-systems are concerned. Looking at the state of the world today it does not take a genius to recognize that the mechanistic / technological status quo, is out of balance, and if left to continue unchallenged will lead to a self terminating end. There is no time to waste, in order to right this wrong.

Orthodox principles that are in vogue are not a sound approach where living systems are concerned. A very one-sided approach has been accepted as status quo, which is in dire need of some serious rethinking. They do not know as much as they would lead you to believe. Belief in a narrow view has caused many to overlook the overview. There are existing theorems already presented to academia since the early 1900"s. that are provable, valid and all encompassing, that could be embraced. Such valid theorems could create balanced harmonious, sustainable scientific technological approaches, and solutions.

Currently theorems that are accepted as irrefutable fact, when challenged with evidence that is contrary, and possibly invalidates its basic premise, are patently invalidated. Rather than rewriting the science books, and adjusting the theory, the evidence is patently admonished as invalid.

For example: Acceptance of the theory of relativity presupposes that a free energy device is not possible. Any device proclaimed to produce free energy supposedly violates the laws of energy conservation. What should happen instead is that, at the true presentation of a valid free energy device, the law of energy conservation should be found to be in violation of the laws of nature!

For example: A Patent was awarded for: Zero-Point Energy Extraction Device, on December 31, 1996. U.S. Patent Number 5,590,031 has been awarded to Franklin B. Mead Jr. and Jack Nachamkin. Their patent is for a system that converts electromagnetic radiation energy to electrical energy. Opening the door to the development of technologies that are in violation of the so-called "Law of Energy Conservation."

US patent here:

[http://patents.uspto.gov/cgi-bin/ifetch4"ENG+PATBIB-ALL+0+960878+0+4+121427+OF+1+1+1+PN%2f5590031](http://patents.uspto.gov/cgi-bin/ifetch4)

The point is being made, because it illustrates that there is plenty of room for changes in our perspective. Where colloids are concerned, in time, there will no doubt be found, principles and phenomena that are intertwined with many other seemingly unrelated fields of research and endeavor. There may be a correlation to free energy of or called "zero point energy." This could actually most easily relate to colloids and bio-systems, so is not only relevant, but also helps frame perspectives to help with an explanation and understanding of the underlying principles involved with this science as a whole.

If colloidal silver / silver mineral water proves effective in lab tests against pathogens, which it has, why wouldn't clinical testing follow? Why wouldn't formal testing be considered for use with humans. If silver water is effective against organisms that cause disease in humans in a lab, as it has been shown. Why then would it not be even considered for uses in medicine? Why would research for potential applications such as an antibiotic be abandoned before the research is started? Is it because the concept of such profound effects from simple mineral water are contrary to popular belief? With profound results from lab tests pointing the way, and justifying continued serious research, to do otherwise is testimony to an error in thinking on the part of researchers.

VICTOR SCHAUBERGER (1885 - 1958) will in time be found to be the founder of harmonious systems of thought. It is unfortunate that he is not widely recognized by all sciences and academia. It seems he suffered a similar fate as did Nicola Tesla. - Cheers Victor -

## **What is a colloid"**

Colloid n A particle in the size range  $10^{-10}$  -  $10^{-6}$  m, or, roughly in the range from molecular size to that visible under high magnification. The definition must be regarded as rather arbitrary. "colloidal adj. See Graham, Thomas.

Becher, Paul

Dictionary Of Colloid and Surface Science Copyright 1990 MARCEL DECKER, INC.  
ISBN 0 - 8247 - 8326 - 3

This definition is the most accurate I have found, because as you will see the term colloidal is used rather arbitrarily to describe the colloidal state of matter. Different substances have different physical attributes in different dispersion mediums, and different size particle clusters of the same element or substance often have completely different attributes to clusters of different sizes, even in the same dispersion medium.

Many things can be considered colloidal, human cells, plant cells, pathogens, clay used as casting slip in ceramics, polymer latex, nanoparticles, emulsions, micro-emulsions, liposomes, paints, inks, cosmetics, self leveling concrete just to name a few generalizations.

Many industries employ colloidal chemistry, such as paper mills, electronic component manufacturing, geology, pharmacology, medicine, food industry, water purification etc.

A generalization is that a colloidal particle ranges from as few as eight atoms in a cluster (a few nanometers) to particles as large as 30 microns.

Normally it is presumed the particles are ultimately only truly considered colloidal when they are in a liquid (dispersion medium). The dispersion medium that the particles are in can be anything from water, oils to organic solvents.

Colloidal particles, when they are in a liquid (dispersion medium), result in an interaction of the particle cluster surface charge, with ions of opposite charge (gegenions or counterions) in the dispersion medium, a double layer of ions are then formed.

Put another way an electrokinetic phenomena is manifest in the form of a charge on the surface of the particle cluster, that then attracts ions of the opposite charge, and pulls them close to the surface of the particle cluster, creating a double layer of oppositely charged ions.

The charge at the surface of the particle may be an inherent attribute of the particles in the cluster, or may result from an interaction between the particles and the dispersion medium.

Depending on the substance considered a colloid, the double layer may be divided into the Stern Layer (close to the particle) and the Gouy - Chapman layer, which extends into the dispersion medium.

The random repulsion of like charged ions at the surface of the double layer of a particle cluster, combined with random fluctuations in the density of the liquid, cause the particles to be dispersed, spinning around in what is known as "Brownian Motion" named after the discoverer of the phenomena. Originally observed in 1827 by Mr. Brownian, as a random, erratic oscillation of pollen grains in a liquid. An example could be likened to how dust particles appear when captured in a beam of light from the sun.

This phenomenon is really what is normally meant when the term colloid is used, primarily as a way to identify a sustainably suspended particle in a liquid. Ultimately, the animated attribute, gives colloids a lively quality. Though I could say much more, let this explanation suffice for the moment.

Now with that out of the way, let's move on...

## **What is Colloidal Silver"**

Everything living is naturally colloidal. There has been confusion regarding the use of the term colloidal, because it is normally associated with gels, glues and the like. The term colloidal was coined in the late 1800's by an English chemist named Thomas Graham. By "colloidal" he indicated the following attributes: Substances that diffused through water at an exceedingly low rate in comparison with crystalline substances such as sodium chloride, sugar, and glycerol; also that although crystalline substances easily passed through a parchment paper, the septum was practically impossible to get to pass the amorphous bodies of the material through the parchment paper. The amorphous bodies were designated as colloids [from the Greek word for glue], and he referred to their peculiar form of aggregation as the colloidal condition of matter.

The crystalline substances that easily diffused and were designated as crystalloids.

To clarify this point I would like to say that we are talking here about mineral waters. That is what the final result is of a properly prepared electro-colloid. Although Graham's publication of his memoir in 1861 and he was given the title "father of colloid chemistry" Faraday prepared and described "colloidal Gold" at least five years earlier to Graham's publication. They used the colloid to color glass ruby red. The process used was chemical, and does not have similar properties to colloidal gold as it is currently processed. The same holds true for colloidal silver, zinc, copper etc.

Minerals that are in a colloidal state are said to form the nucleus of a liquid crystal, the colloidal minerals would easily enter & exit membranes of animals, this attribute is likened to crystalloids not (amorphous) materials which are usually thought of when talking about a colloid. A colloid as usually thought of such as "colloidal silver gel" which was the FDA's focus that last few years, regarding over the counter products with colloidal silver. Electro colloidal silver is not a glue or gel which will not, or not easily pass through animal membranes, and therefore cannot be utilized by animals. Amorphous means not having definite form, or a distinct crystalline structure. That is where the confusion comes in. Please be clear, although the references by Dr. Farber's book speak of a "Mild Silver Protein" and is used for the value of the wonderful research results and anecdotal examples. The colloidal silver we have been doing our research with is electro-colloidally produced by the Colloid Master (R) series instrument that is also sold here. The we are gathering together years of research and findings and will be available as publications and descriptions of the information will be available here at the web site as they become available to the public.

## **We are colloidal !**

When a plant or animal consumes water, that water is then structured primarily into highly organized octagonal shaped liquid crystals, very few of the water molecules consumed remain unorganized. Living things accomplish this by using highly charged colloids, which form the nuclei around which the highly organized crystalline lattice forms.

In other words all the cells of the body or other living things use "charged colloidal minerals" to organize water molecules into a form that may set the stage for the basic building blocks of cells to form, as well as for other processes. The particles appear to form a foundation upon which to organize and build. We are mostly water by volume. Water is the greatest component from which cells form. We are made up of a multitude of various cells and cell types. Physically speaking, we are our cells! Our cells serve us and are replaced at an almost unimaginable rate every moment we are alive. In order to be healthy our cells need the ingredients to do their job. Our cells work tirelessly, and only ask that they be given what they need to do their job. Although this is a simplified explanation, you can easily speculate just how important positively charged colloidal minerals combined with water are to all living things.

## **A definition for colloidal silver**

Simply put, colloidal silver is pure elemental silver that is evenly distributed into a second substance, i.e.

water. The silver is not "dissolved" but "suspended" evenly throughout the solution as a result of the positive electrical charge that is attached to each particle of silver as it is electrically sintered off of the silver electrode into the water.

The charged [silver particles] (silver ions) form into aggregates of atoms (micro-clusters) of silver that interact with each other and create a synergistic effect, each electrically charged particle of the micro-cluster has a magnetic field, together the particles create a phenomena called the "Brownian movement", it is a sort of random oscillating motion. In other words the micro-clusters are in motion and repelling each other, the individual particles of the clusters have a positive charge and therefore repel each other, that is how they stay suspended and evenly distributed in the water. Other substances created during the electro-colloidal process such as oxides are not colloidal in nature and fall to the bottom of the container and are filtered out do to their larger particle size.

When making electro-colloidal silver the water appears to go through a molecular restructuring. Because the water is used as a conductor it creates an electromagnetic field. The electromagnetic field is part of the electro-colloidal process. The restructuring I mean here could be likened to reformatting and defragmenting a hard drive, in that the water molecules align into very small organized chains. The water is then in an optimum state that allows a myriad of geometric lattice structures be generated around the highly charged colloidal silver which forms the nucleus of a specific geometrically shaped liquid crystals. The importance of this factor cannot be over stated. This is a fascinating area of research.

When I mention colloidal silver it is electro-colloidal as I said I am referring to. Properly prepared electro-colloidal silver is basically the smallest form of elemental silver before losing it's identity as silver. The silver particles have a positive electrical charge and there is no other element or substance present.

In order to produce Electro-colloidal silver, at least 99.99% pure silver is placed into water, an electrical charge is induced into the silver, the current causes particles to migrate toward the opposite side as a result particles of silver are electrically sintered off of the metallic silver rods or wire into the water. In the water the silver forms into sub-microscopic clusters (atomic micro-clusters) optimally .01 to .001 microns which is 10 to 100 angstroms. An angstrom is a unit of measure, equal to one ten-billionth of a meter. This is what is referred to when identifying how small the particle size of colloidal silver is.

Parts per million is a way of expressing how much silver there is . The total amount or weight is identified as parts per million (PPM).

The capillaries of the body are approximately 4-9 microns, much larger than colloidal silver. In theory the body would not have problem eliminating properly prepared electro-colloidally silver, even if large quantities of common concentrations such as 10 ppm were used.

Silver micro-clusters, and water. i.e. mineral water, are larger than most molecules but smaller than cells. The silver is too small to be filtered out of the solution but not yet considered dissolved.

## **Colloidal Silver A Breif History**

The advent of ground breaking biomedical research by Dr. Robert O. Becker and other researchers in the 1970's, sparked a renewed interest in colloidal silver. Research results published in periodicals and books such as Dr. Robert O. Becker's "The Body Electric," which chronicles the exciting laboratory and real life results he observed & demonstrated regarding the practical health benefits of colloidal silver. Other information and research results about colloidal silver prior to the 1970's also began to circulate. Initially a privileged few had the knowledge to produce colloidal silver. These modern day alchemists & entrepreneurs who possessed the know-how, were able to make large batches of colloidal silver very inexpensively.

Word of mouth spread the excitement as person after person voluntarily shared their personal healing testimonials with others. If their experiences were simply a bunch of hype, the trend would surely have died out by now. With so many people convinced of profound healing and disease prevention due to their use of colloidal silver, as well as astounding laboratory test results, preliminary and ongoing "In Vivo clinical trials," the consequence is that the demand for access to colloidal silver and information about colloidal silver has become great.

As the demand increased, producers were able to sell the colloidal silver that they made for a few dollars a gallon to the general public for dollars an ounce! Initially it was marketed as a "natural antibiotic." The general understanding by the producers, was that colloidal silver was grandfathered in as a pre (FDA) substance that could be produced packaged and marketed without dealing with FDA regulations, if it was produced and used in the same manner as done before 1938.

With this in mind, there entered into the market numerous mom & pop operations, who also produced colloidal silver inexpensively and for a nice profit. This didn't please the other larger manufactures, who were realizing healthy profits. At first it wasn't a big problem because the demand kept escalating, even though there has

been very little coverage in the media.

Many of these well meaning present day alchemists were unable to get accurate information about how to produce the best colloidal silver. Informative instruction about proper production technique continues to be difficult to obtain. This situation became an opportunity for the big guys to discredit the few who didn't have a clue, as well as discourage all attempts to make it inexpensively at home in the process. The (AMA) provided fuel for the fire with their articles about Argyria. Which whether intentional or not, effectively scared people away from colloidal silver.

Information about colloidal silver was distributed even faster as the world wide web became popular. Instructions that outlined how to make it simply and inexpensively began to spread. The release of this not always accurate information also came with a price.

The lure of easy large profits, virtually no regulations for marketing or manufacturing, cheap and easy means of production and distribution, using perhaps insufficient data, coupled with high demand, created a scenario that was too tempting for some. These individuals proceeded to place profit above genuine caring. The price paid was people not getting what they needed or paid for, as products with little, questionable or negligible value began to find their way to the marketplace. This only served to illegitimate and discredit the emerging industry as a whole.

In 1992, Dr. J. Cardot, reportedly was frustrated by inconsistent results regarding the effectiveness of the colloidal silver that he was able to obtain and administer to patients in his practice. As a result he is said to have approached (DEDI) Discovery Experimental & Development, Inc. which is a pharmaceutical company. Though I have not confirmed the following, he reportedly asked (DEDI) to evaluate the product he was using for possible problems, and address the possibility of developing a superior product. Apparently a legitimate concern, in light of the situation.

The (DEDI) reportedly quickly found the problem, and are said to have contacted the manufacturer regarding the problem, the manufacturer of the colloidal silver product in question is said to have responded that they would address the problem. In the course of events it seems if an attempt to fix the problem was made, it was a poor one.

A few short months later, DEDI (the pharmaceutical company) announced that they had developed a "unique" process to produce an extremely stable silver solution. MSP (Mild Silver Protein) a process that infuses the silver into a particular type of protein, by their accounts it possesses enhanced antibacterial properties and stability. It was reportedly further tested and was said to be highly stable. The product was then sent to the (NIH) National Institute of Health, as well as doctors and universities for testing. Suddenly test results began to surface which clearly demonstrate the amazing potential of colloidal silver. The development of this product and it's subsequent submission to the NIH, universities and MDs appears to be the reason that the astounding test results regarding colloidal silver were conducted in the first place.

For a time people selling colloidal silver advertised in their sales literature, that; "the FDA has no control over colloidal silver because it is a pure mineral element". .

After several rulings, such as In 1997 on January 16, the FDA issued new guidelines regarding colloidal silver labeling that went into effect. It is no longer permissible to label colloidal silver as an antibiotic. For now it may be labeled as a mineral supplement.

How long do you think a situation like this will go on where too many individuals are making blatant unsubstantiated medical claims about colloidal silver with little or no supporting evidence, and pedaling inferior untested products that make their way into people's hands for internal consumption, with no existing standards, regulations or testing for quality etc."

It got somebody's attention, Who" That's right (WHO) the WORLD HEALTH ORGANIZATION, and the FDA. The following is an article in the public domain at The United Nations web site in the (WHO) World Health Organization section. "WHO Pharmaceuticals Newsletter (world Health Organization) Nos. 5&6, May&June 1997"

"Regulatory actions

Colloidal silver or silver salts - proposed rule : no longer acceptable in over-the-counter products United States of America. The Food and Drug Administration has proposed a rule establishing that over-the-counter products containing colloidal silver ingredients or silver salts for internal or external use are no longer acceptable.

The agency is issuing this proposal because colloidal silver ingredients or silver salts are being marketed for numerous serious disease conditions and the agency is not aware of any substantial scientific evidence that supports their use for these diseases, which include human immunodeficiency virus (HIV) and AIDS, cancer, and many infectious diseases.

The dosage form of these colloidal silver products is usually oral, but product labeling also contains directions for topical and, occasionally, intravenous use. Some products have been offered for sale by mail order.

Manufacturers are invited to submit any existing data and information that support the safety and effectiveness of colloidal silver ingredients or silver salts for use other than as an astringent (silver nitrate), a smoking deterrent (silver nitrate or silver acetate) or mild silver protein as an ophthalmic anti-infective, all of which have already been reviewed by the agency and found ineffective.

Reference: Federal Register 61(200): 53685-53688 (1996). " (End of quote)

The FDA went head on with the issue of Colloidal Silver, manufactures were given an opportunity to present to the FDA proof, that met their criteria, to them before they made a final ruling. A final ruling was made and use as a medicine, or medical claims associated with the "Grandfather Clause" were disallowed. See:

"[Federal Register: August 17, 1999 (Volume 64, Number 158)]

[Rules and Regulations]

[Page 44653-44658]

From the Federal Register Online via GPO Access [[www.access.gpo.gov](http://www.access.gpo.gov)]

Colloidal silver is still allowed as a dietary supplement. For detailed information about the ruling, and considerations for anyone considering any commercial use of colloidal silver should also read the Research pages by clicking the "Research" link on the top of the main page.

## **Colloidal Silver - Lab Test Results, the Reasons to Continue Research**

It may be true that a pure mineral element such as silver cannot be patented. However; if silver were to be combined with another substance in such a way that it would not ordinarily occur in nature, and such a combination proves to be therapeutic, such a process may then possibly be patented, as well as the resulting product. At the time of this writing it takes about ten years of FDA approved testing and costs approximately \$10 Million dollars to approve a new drug, in the USA.

Who then is in a position to accomplish this feat"

Dr. M. Paul Farber states in his book "The Micro Silver Bullet" on page XXVI the following: " I will let the scientific evidence speak for itself." -- "I was able to begin half a dozen pioneering patents on Mild Silver Protein about one month ago. I am pleased to inform you that it is working faster than I anticipated, and many of them are either symptom free or close to it, with no side effects."

Another quote from the same book qualifies the above statement, in a copy of a letter to Dr. Paul Farber, received from his associate Myer Rice, M.D., Ph.D. dated June 18, 1996 on page XXXI states: "Dr. Paul Farber, Enclosed are the results of the first three months of clinical trials of HIV infected patients using Collag-40. Anecdotally, all patients are feeling well with no clinical symptoms or active opportunistic infections. As the records indicate, CD-4 Cells are in general on the way up, all individuals that started with active P-24 antigenicity have reverted to negative."

Some of the developing research even if only potentially true is certainly worth follow up research. For instance, the title of his book: "AIDS STUDY Eight people recover from the Aids Virus in a scientifically documented study. An additional seven Aids Patients recover as verified by anecdotal reports. Testimonials Aids Virus Gulf War Syndrome."

Reference: Book cover and title: "The Micro Silver Bullet" "A Preliminary Scientifically Documented Answer to the Three Largest Epidemics in the World: Lyme Disease - Aids Virus - Yeast Infection - (and the Common Cold)"

Author - Dr. M. Paul Farber, B.A., B.S., M.A., M.S., N.D., Ph.D., D.C.

ISBN 1-887742-00-X-

It is my understanding that Dr. Farber met an untimely death before his clinical trials or patents were completed. My sincere condolences to his family, friends and associates.

You have no doubt heard about the so called drug cocktails devised to suppress Aids symptoms, don't you find it interesting that although the above is preliminary & anecdotal in context, you probably haven't seen so

much as a mention of the above anywhere in the media" Isn't that odd"

We had some lab tests done on our behalf. It is difficult to convey how astounding the results are unless one is in the medical field. Here is a link to an image file of the results:

#### MEDICAL TECHNOLOGIST, CLINICAL PATHOLOGIST REPORT RE:

What do the results mean" To frame it the way the person doing the tests explained it to me, the bacteria load was very high, something on the scale of what you might find at a sewer treatment plant. He said an ounce of the colloidal silver / silver mineral water prepared with our equipment would have been able to sterilize a gallon of water. Of course the bacterial load would matter, but the chart explains that.

The tests were done with some of the most feared pathogens, medically speaking.

Is this not reason enough to reproduce these tests, and consider the other possibilities" Of course they are! However; it cannot be assumed that lab tests will yield similar results if used on human subjects.

Until proper double blind clinical tests are done, issues regarding safety, effectiveness and toxicity is not known. This information should only be used for informational purposes, and not to be taken as an implication on our part as medical advice, or the replacement for medical advice.

## **Colloidal Silver Toxicology**

One of the most controversial areas of research regarding colloidal silver / silver mineral water, is regarding toxicity relative to biological systems. This is an area of research that should be given proper attention. To date this is an issue that does not seem to have been given the proper attention it is due. This article addresses this issue from a hypothetical / analytical / theoretical perspective.

Based on material from the historic record, and deductive reasoning, if one takes into account the number of people who allegedly have used various forms of silver mineral water, why aren't there significant numbers of reports of adverse effects if they commonly exist"

If large numbers of people have or may still be using colloidal silver / silver mineral water, and there is significant risk involved in such use, why aren't there many reported incidents of adverse effects / reactions resulting from use or overuse" Logic dictates that if millions of people have used such preparations for extended periods of time, perhaps since the 1970s, then there should be numerous documented reports of such incidents if they are common.

Common sense dictates that; proper research should include documentation regarding how a particular silver preparation being tested was manufactured. Comparisons should be done to establish differences between different forms, so that results regarding one form are not confused between it and another form. A form that is not bound with a protein (a mild silver protein) or other compound (s), should be recognized as different from other forms; such as silver self suspended in water in a colloidal like state, identified as: ( silver mineral water). Each form should be looked at separately from other forms of silver preparations without bias regarding professional research concerning this issue.

The reason "Silver Mineral Water", is also called "Colloidal Silver" even if it is a misnomer, most likely occurred simply because the name first used stuck. The term colloidal silver, is commonly applied to all solutions, gels, compounds etc. that are in a liquid or semi liquid state and containing some form of silver. Though this may not be scientifically accurate, the title colloidal silver is often used. The name colloidal silver apparently was applied to all forms of silver preparations in an effort to describe the reason why it stayed evenly suspended in the liquid without falling out of solution to the bottom of the container. Although the feature of silver being self suspended in an colloidal like state may be similar to other forms of silver preparations, that should be where the similarity to it and other forms of so called silver colloids ends, if proper consideration by the professional researcher is applied.

Silver self suspended in water would be expected to have attributes with regard to toxicity, that are quite different than other forms. Silver preparations that bind the silver to another substance, such as a colloidal gel or protein, silver compounds or silver salts, should be properly identified and isolated with regard to statements made in research conducted and documented.

Argyria is a condition described as a permanent Grey discoloration of the skin. Individuals who have reportedly been effected by this condition seem to represent a few unfortunate incidents. The most notable among such instances were reportedly caused by medical use of silver nitrate, compounds or protein mixtures. Nitrates, compounds and similar formulations would be expected to cause such a condition. For example it is known



that forms of silver nitrate will stain anything it comes into contact with, it would not be a surprise from a scientific perspective that such substances would cause argyria. What is hard to imagine is why such a substance would be used on people knowing it would likely cause such a condition.

At the time of this writing, I am not aware of incidents involving silver mineral water having been proved to cause argyria. That said, this does not mean that no such incidents have been alleged, reported or recorded. If you know of documented cases we are interested in knowing about them, and would appreciate getting a copy of such documented cases if available.

Recommended daily allowances have been established for other minerals. For example; safe and effective amounts have been established for Iron. It is also known that although when used in recommended amounts it is safe, exceeding these amounts can not only be harmful but even fatal. For example; "Iron supplement poisoning is the leading cause of poisoning death among children under the age of 6" as stated here: <http://jhhs.client.web-health.com/web-health/topics/ChildrensHealth/childrenshealth/iron.html>

Even though such severe health risks are in evidence regarding iron supplements, iron supplements are widely used and considered safe in recommended amounts. For example: the average daily allowance for iron is 15 mg a day for females between the ages of 11 and 50. There is 10 mg of silver present in a 10 PPM solution of silver, one would have to consume 1.5 liters of a 10 PPM silver solution in order to ingest 15 mg. That may explain why research considerations regarding the ingestion of teaspoon size amounts of 10 PPM silver mineral water are commonly relegated to the field of homeopathy, since the total intake in such cases amounts to fractions of a mg.

The point is that even for already identified safe and effective minerals, some also come with serious safety considerations. What is puzzling is that silver seems to be ostracized from consideration for an RDA. There does not seem to be interest in establishing potential benefit, even though there does not seem to be documentation of serious risk. Even though silver does not appear to be as serious a health risk as iron is, and in spite of the fact that many people seem to believe they derive benefit from its use, it seems that for reasons left to speculation, silver does not appear to be up for serious consideration as a potential health benefit. If current trends regarding silver are used as a gauge I would not expect an RDA to be established any time soon. But that does not mean that serious research that may prove benefit is not being conducted by qualified entities.

There are those who claim that any amount of so called colloidal silver is; risk without benefit. There are also those who believe that using any amount provides benefit without risk. Common sense dictates that the truth once established, is more likely to be found somewhere between these two diametrically opposed perspectives. Only proper research conducted by qualified entities, who address all issues concerned without bias may the truths of the matter be properly established .

The term Argyria, is identified as a condition of a bluish gray color of the skin, and Argyrosis the bluing of the eye white that is permanent.

There are some researchers who indicate that the risk regarding this issue is not properly understood nor presented. Dr. M. Paul Farber contended that the issue of Argyria was misrepresented and misunderstood, as evidenced by this quote from the book "The Micro Silver bullet" by Dr. M. Paul Farber 1996 page XII (ISBN 1-887742-00-X)

In reference to a "Journal of American Medical Association, article, October 18 1995, volume 274 # 15," where cases of Argyria were reportedly cited to have been caused by silver compounds (not colloidal silver).

"These Case history presentations represent biased and unprofessional writing. The author's apparent inability to understand the difference between a silver nitrate, sulfide, or other silver compound demonstrates their lack of understanding basic chemical properties. The matrix, substrate, and particle size are all critical to the varied functions and reactions with use of these products." (End quote)

(Further on the same page)

"That is why there has not been a single case of Argyria from a properly manufactured modern day colloidal silver product. The cases of Argyria reported in the 1920's and 1930's resulted because the technology of the day was unable to produce a colloidal silver product with a small enough particle size." (End Quote)

(additionally on the same page)

"The diameter of the capillary lumen is 4-9 microns. Therefore the body has no problem in excreting the silver particles." ( End quote)

Reference: "The Micro Silver bullet"" by Dr. M. Paul Farber 1996 page XII (ISBN 1-887742-00-X)

The reported cases of argyria usually referenced from the early 1900's that are commonly cited , generally involve extremely high and frequent doses of silver salts/compounds such as Silver sulfate, silver nitrate or silver chloride. Doses given in those times may have been hundreds or even thousands of times higher than the amounts consumed in current times. The attributes of older preparations were also quite different when compared to products produced using current technology. Therefore; It is important that these points are given proper consideration when doing a literary review of the subject.

Current technology applied to dispersing silver into water, ideally creates nano clusters of silver, a nano cluster is a group of atoms, much smaller than a micron. Not all processes are sensitive to keeping a consistently small nano cluster / particle size. In theory it is important to have consistently small particle size if consistent results are to be achieved. Small particle size is also expected to minimize the issue of toxicity.

During the last several years different approaches to dispersing silver into a colloidal like state have been developed, the preliminary testing of these new approaches has reportedly yielded very interesting results.

Are there practical applications for colloidal silver"

How about inexpensive water filtration" [POTTERS FOR PEACE](#)

Here are several links regarding research and toxicity in the public domain that may also be useful.

Chronic toxicity data by U.S. EPA.

The EPA regarding web site: "Reach for life colloidal silver information:

[http://reach-for-life.com/prodinfo/colsil\\_iris.htm](http://reach-for-life.com/prodinfo/colsil_iris.htm)

Toxicity Summary for SILVER

Risk Assessment Information System (RAIS)

[http://risk.lsd.ornl.gov/tox/profiles/silver\\_f\\_V1.shtml](http://risk.lsd.ornl.gov/tox/profiles/silver_f_V1.shtml)

Guidelines for drinking water quality

Extracted from: Guidelines for drinking-water quality, 2nd ed.  
Vol. 2. Health criteria and other supporting information.  
Geneva, World Health Organization, 1996. pp. 338-343.

[http://who.int/water\\_sanitation\\_health/GDWQ/Chemicals/silverfull.htm](http://who.int/water_sanitation_health/GDWQ/Chemicals/silverfull.htm)

In closing, all readers should note that this is a hypothetical / analytical / theoretical overview, it is presented for educational purposes only! No claims are made nor implied, with regard to the use of colloidal silver / silver mineral water for medical conditions. Colloidal silver is regulated by the FDA and is not approved as an OTC (over the counter) drug by the FDA. There is no RDA (Recommended Daily Allowance) established, nor is the need, role or safety regarding nutritional use established clinically / scientifically. Therefore; we are not implying nor recommending such use, nor, that anyone self diagnose and treat their own illness using silver or other minerals dispersed into water using the Colloid Master or by any other means. For information regarding potential uses, areas of interest, regulation and related documents please click the "Research" link at the top of this page.

## **Different Forms of Colloidal Silver**

At this point it is important to mention that there are many other forms of silver, sometimes also called colloidal, though it is questionable that such designation is accurate. There are basically six production techniques used in these silver preparations. An understanding is important because although these other preparations are referred to as colloidal silver, though in fact they are not necessarily.

There are major differences. Although there are microscopic particles of silver present in each of these

preparation types, they are not generally as small as electrically produced colloid. Though some forms display germicidal, antibiotic, and other effects, they are not always safe and without serious drawbacks when used in the body. Laboratory testing and the historical record show that some forms are noted for producing adverse reactions. For instance it is "silver salts" such as silver nitrate that are attributed to causing the bluing of the skin. Electro-colloidal silver, does not have the same historical bad rep, though it is often thrown into the same category and is then guilty by association.

### General Colloidal Production Techniques

Note: These are general processes used to create sols, not necessarily colloid of silver.

1. **Dissolution** Chemically created colloidal dispersions using a solvent. Solvent examples are gelatin, gum arabic, agar-agar, dextrans, starch, soap, bentonite in water. The process usually involves soaking and heating.
2. **Mechanical** This production is done using a "colloid Mill" this method is one of the old methods used and is no longer used with silver because the particle size is too large.
3. **Electrical and Thermal** The electro-colloidal process was first done by striking an electric arc under water, though first done by Guyton-Morveau in 1809 with gold. The use of metallic wires precipitated into water using the Bredig apparatus was coined the "Bredig method". Our discussion here with focus on low voltage electrical precipitation created in recent years.
4. **Oxidation-reduction** This process is the formation of sols by the use of reducing agents. This process has been used extensively to create gold sols / gold hydrosols. but not as often with silver sols. This process was used before colloids as a state of matter were known. Heat and reducing agents such as phosphorus were most commonly used. The preparation process may also involve hydrogen peroxide, formaldehyde, hydrazine and tannin which were used to create the hydrosol. These hydrosols were used for coloring fabric and glass and were initially also used in hospital tests on spinal fluid.
5. **Double decomposition** This production method uses double decomposition reactions to create sols. They fall into basically the following groups: oxide, sols, sulfide sols and salt sols. Hydrolysis focuses on pH as a focus and involves complicated chemical reactions by creating a base causing hydrolysis that creates a salt that can be either acid or alkaline. For example adding a small amount of a solution of a salt to boiling water. Another example is hydrous oxide is treated with with a small amount of acid or base or of a solution of a salt which is acidic or alkaline and is then dispersed. It is a complicated chemical process normally used to create salts & compounds.
6. **Simple precipitation** This process is a simple formula. When a solution of substance (A) in liquid (B) is poured into liquid (C) a sol generally arises, if (A) is insoluble in (C) and provided (B) and (C) are capable of being mixed in all proportions. Example: Sulfur dissolves in hydrazine hydrate forming a deep red stable solution, when poured into water the result is a clear bright yellow dispersion that is sensitive to carbon dioxide.

### Types of Silver

Electro-colloidally (described above)

**Mild silver Protein: (MSP)** This process chemically infuses or binds the silver to a protein. The parts per million vary from 20 PPM to 200 PPM and concentrated as high as 5000 PPM.

**Powdered Silver:** This production method was developed in Russia. It could be described as both a thermal and electrical process. A very high voltage is used to disintegrate" the silver, also known as water soluble silver.

**Ground Silver:** This process is just like it sounds, Silver is pulverized and ground into a fine powder. This process became obsolete in the 1920's, because it did not create a small enough silver particle.

**Silver salts:** These are silver compounds, that cannot truly be considered colloidal silver. They are produced chemically or electrochemically. They may possess a positive charge but are usually a silver compound. Below are some examples of these silver compounds, and their historical or present uses.

**Silver Sulfadiazine:** Bactericidal and anti fungal uses, particularly used in burn cases.

Silver Nitrate: Disinfectant used in podiatry, and placed in infants eyes at birth to prevent blindness. Ulcer treatment.

Silver Iodine: Disinfectant

Silver chloride: Disinfectant

Silver Lactate: Astringent & antiseptic.

Silver oxide: Previously used for chorea & epilepsy

Silver picrate: Uses, moniliasis & trichomoniasis.

## **Making Colloidal Silver Easily Consistently And Inexpensively**

Making and researching colloidal silver can involve a wide variety of disciplines, depending on the intended use or application, the process to create the colloid will be different.

For instance making a super conductor, CPU or other electrical device would require an approach that may or may not be entirely different from mineral water used for biomedical clinical trials and research by professionals with regard to dietary use.

One of the reasons research using colloidal silver has been inhibited, is that it has been cost exemplary. Historically the price range runs from about \$1.00 USD an ounce to \$9.00 USD an ounce, research using gallons at that price can get very expensive.

Our equipment solves this and several other problems in this regard: We have reduced the cost to produce an ounce of colloid to just pennies per ounce, the equipment makes a product that is stable and consistent, the process requires almost no labor since it is automated and has an automatic shut off when the process is completed.

One set of electrodes makes between 50 - 150 Gallons, the cost at the time of this writing for a pair of electrodes is under \$15.00 USD.

As you can imagine there is a multiplicity of possible applications for colloidal silver, for instance if one is making a product that can be used a cleaning substance, disinfectant, stain remover, sanitizer etc., may or may not be an entirely different approach than when making CPUs, electronics, bacteria proof buildings, water treatment equipment, dental waste water sterilization equipment etc.

Since our focus is on the form that is most accurately described as "mineral water", that is that process we have designed the equipment to produce. The resulting colloid could be used for: a cleaning substance, disinfectant, stain remover, sanitizer, plant growth stimulator, life extender for cut flowers, making CPUs, electronics, bacteria proof buildings, water treatment equipment, dental waste water sterilization equipment etc. However; we do not warrant the device for a particular purpose!

As mentioned before; many things can be considered colloidal, human cells, plant cells, pathogens, clay used as casting slip in ceramics, polymer latex, nanoparticles, emulsions, micro-emulsions, liposomes, paints, inks, cosmetics, self leveling concrete just to name a few generalizations.

Many industries employ colloidal chemistry, such as paper mills, electronic component manufacturing, geology, pharmacology, medicine, food industry, water purification etc.

Although the equipment has been designed so that it is so simple to operate that virtually no formal training is required to operate the equipment, it should not be assumed that the equipment is simplistic or inferior. In fact we back it up with a 30 day money back satisfaction guarantee and 1 year no fee to you parts and workmanship warranty, for details please read "Terms Of Use".

The Colloid Master (R) was designed with the professional in mind, and automated, so that the results are consistent. This also frees up time, so efforts can be focused on the use of the resulting product.

The development team designed the device for optimal economic efficiency. For instance, instead of needing a proprietary container for production, or lab glass, it works with a standard size 32 ounce canning jar with a 2 1/2 inch opening.

The equipment is designed to produce a consistent product, although there are variables to consider that

effect the process. The "Generators" link to your left and top discusses these and other perspectives to consider such as its adjustable PPM and other features, as well as more information about the use of the Colloid Master.

How hard is the equipment to use" Here is a list of required skills and equipment.

The required skills to produce colloidal silver using the Colloid Master are as follows:

(1) Needed 32 ounces of and a 32 ounce canning jar 2 1/" inch opening. Note: the jar can be a: (Mason , Kerr, Ball type canning jar).

(2) Pour 32 ounces of water into the jar.

(3) Bend the top of each 28 / 32 gauge 1/2 inch flat electrodes so that they hang opposite sides of the jar.

(4) Attach one of the two wires coming out of the back of the Colloid Master to each silver electrodes.

(5) Plug the wall transformer, then plug it into the Colloid Master (R) an led signifies proper function of the unit.

(6) Turn a dial, then press a button, a green led lights to signify it is processing and goes off at the end of the process while the other led red / orange lights brighter to signify the process is complete. There are details for handling the finished product that are in the instructions.

That doesn't sound too difficult does it"

Special note: If one is planning to make silver water / colloidal silver as a dietary supplement, the burden is solely upon the user to make sure they are compliant with established laws, we do not warrant the Colloid Master (R) for such use, it is intended for research and educational purposes only!

We are convinced that the colloid produced with the Colloid Master (R) is superior to or equal to the best most stable colloidal silver available via any process, (when one is meaning by colloidal silver: Silver self suspended in water and no additives!) we believe we have accomplished our initial goals, but it is a work in progress.

If you are not aware, colloidal silver has been regulated by the FDA, for links to information about the regulations and relevant documents you can visit the "Research" pages by clicking the link button at the top of this and the main page.

Make sure you have read and willingly agree to the "Terms Of Use" before you order. Thanks for your understanding and attention.... Thanks! Mgmt.