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Frequently Asked Questions

Colloidal Silver

Part One: Types of Silver

What does the term *colloid* mean and why is it used with so many types of silver products? What does the term "colloidal silver" mean?

A colloid refers to tiny *particles* suspended in any medium, usually a liquid or gel. Particles are usually sized between 1 - 1000 nanometers in diameter. Colloidal silver technically does not refer to any element or compound in ionic form. However, the term "colloidal silver" has truly lost any of its scientific meaning, and should be considered a generic term for health products containing silver in a fluid medium. A statement that a substance is "colloidal silver" is not nearly enough information to gauge the type of product being offered.

What is a silver compound? Are silver compounds safe to use?

A silver compound is metallic silver directly associated with another element or another compound. A compound will have completely different properties and effects than the two elements comprising the compound. For example, water is a compound created from two hydrogen atoms and one oxygen atom. Some silver compounds, such as silver oxide and silver chloride, are harmless in the human body (yet demonstrate little if any benefit). Other compounds, such as silver acetate, silver nitrate, silver arsenamine, and branded products such as Argyrol, Neosilvol and Collargol, can be extremely toxic in the human body. There is likely NO benefit from using a silver compound in place of an isolated silver product when the product is to be used internally. The risks to health have been very well documented. Most compounds available today contain an extraordinary amount of actual silver (as measured in grams or micrograms). Silver concentrations usually range from 500 ppm to 1500 ppm. A daily dose of two tablespoons of such products can possibly lead to a silver overdose.

What is mild silver protein?

Mild silver protein is a silver compound. It is called "protein" because the silver is bonded with organic compounds - specifically proteins. In the modern marketing world, it is called "mild" by virtue of a marketing gimmick widely used in such circles to lull the casual observer into a false sense of safety. There IS a chance that use of mild silver protein has a place in modern medicine. However, every lab comparison we've ever seen shows a quality electro-colloidal silver outperforms mild silver proteins in vitro ("in lab experiments "). After personally investigating a large handful of marketing companies, our reluctant conclusion is that these organizations are unscrupulous, and purposefully mislead their customers. We only found a few such companies that demonstrate any public responsibility whatsoever. Multilevel marketing is often used to perpetuate the ignorance, and we know of two cases of Argyria that have resulted in the misuse of silver proteins. We can only strongly recommend that one studies deeply before actually using silver proteins *in* the body. When dealing with an unknown silver substance, it is critical to know the actual amount of silver in grams/micrograms in the product (per dose).

What is colloidal silver created via the electrolysis method then?

There are three possible "states of silver" that are created purposefully via the electrolysis method: Ionic silver (Ag +), charged silver particles (AG -), and metallic silver particles (charged silver particles can agglomerate and drop out of the colloidal suspension). All three have benefits, although almost universally one attempts to minimize the size of silver particles in colloidal silver production. Thus a high quality isolated silver product would have no large silver particles, and therefore, no silver particles lacking a negative charge. Silver oxide is often created as a byproduct of the production process, to a varying degree. If a saline solution or other salt primer is used, silver chloride is formed in abundance (which, while not harmful, is less desirable). The best way to describe a good colloidal silver via the electrolysis method is the term "*isolated silver*".

I have seen some information that says silver ions are very toxic in the human body. These conflicting reports can be confusing!

These reports are derived from misquoting studies conducted by a researcher named Petering, who was very active in research in the 1970's. Sometimes this "bashing" method is used purposefully, sometimes through ignorance. Petering studied ionic silver through the use of silver acetate, not isolated silver, and used silver in quantities that FAR exceed the EPA standard for silver toxicity. Be VERY weary of any product that uses ion bashing in its literature and promotional material. The benefit of silver ions has been conclusively demonstrated by the most rigorous scientific requirements in the world.

If silver ions are so great, why do some highly reputable scientists and researchers claim that silver particles are so much better?

Even the best of us are still human. While these researchers have some points very worthy of examination, their perspective is often colored with a biased viewpoint toward their own avenue of research. There are very valid arguments concerning the biological transportation of silver ions. However, there are equally valid arguments about the transport of silver particles in the human body. Most processes that produce isolated silver produce both silver ions and silver particles. The future of isolated silver research really lies in learning how to harness ionic silver in the body, since in-vitro bacterial studies show that high quality ionic silver outperforms a high quality particulate silver by a wide margin. Learning when one type of silver CAN be beneficial over the other is a complex endeavor. There is no conclusive evidence that one type is superior over the other when used in the body. Ultimately, there is really no need to "slam the door" on either. A high quality particle silver solution certainly performs well. Determining what a "high quality" silver particle solution IS also presents a great challenge. There IS no simple answer to these questions, despite claims made otherwise. Independent and non-biased research is certainly called for, but standards are not as of yet present that make any such research truly worthwhile. Informal studies conducted by dedicated researchers are informative, but fall VERY short of addressing key variables in production and usage. Our best advice is to not put one's life in the hands of fanaticism, no matter how attractively worded and high-sounding the "material" being viewed may be. Find a product that works. Use it.

The Parts Per Million (PPM) issue is very confusing. Should one use a colloidal silver product with a high concentration or low one?

There are many technical considerations to address in making this determination. Generally speaking, a 3 - 5 PPM high quality colloidal silver

product is a sufficient concentration for effectiveness in the body. With extremely clean production methods, one can achieve a high quality colloidal silver at slightly greater concentrations, but any added benefit is questionable (currently, our opinion is that a 26 ppm is the cap on the highest quality isolated silver product, as determined by TEM, with the 26 ppm product being laboratory produced). For external use, greater concentrations may be desirable to increase the amount of actual silver exposed to the skin. We would not "offhand" recommend the use of silver products with high concentrations without fully disclosed laboratory analysis. Questions that need to be answered in such cases: 1) How much silver is actually in one standard dose? 2) What is the particle size range? 3) Are there any compounds or stabilizers in the product? 4) How are the particles dispersed in the solution? Most companies that market a high PPM colloidal silver (~ 100 - 1500 ppm) will not answer all of these questions. Many, we have found, will not give you the time of day if you ask these questions, and request to see the results of both a TEM and studies conducted via atomic adsorption (AAS). We see incredible value in both methods of analysis. The silence of these companies when faced with sincere and well-placed questions speaks for itself.

Part Two: Producing Colloidal Silver via the Low Voltage Direct Current Method

Does it really matter how many nine volt batteries are used in the nine volt battery generator?

Between two and four nine volt batteries are ideal. The four battery method is truly the most desirable configuration if there is no other "circuitry" involved. As low as 1.5 volts can be used, but generation time is increased drastically. If one is interested in improving the design, the next step would be to limit or control the actual current involved in the process (between .7 and 1 milliamp). The second step is to increase the water circulation via thermal heating or mechanical stirring.

What kind of silver should be used in the generator? Silver Wire? Flat electrodes?

One is selling oneself short if one uses anything less than 14 gauge silver wire. The increased surface area (wetted depth) provided by actual electrodes yields a far cleaner result. Flat electrodes appear ideal at first glance since the surface area of the electrodes is far greater with the flat ends facing each other. However, the truth is that any physical change in the surface of the silver electrode changes the draw of silver, and misplacement of the electrodes rapidly degrades the process. The end result? A great increase in flaking and the deposit of large silver particles into the distilled water. The surface of the silver used, ideally, should be smooth with no jagged edges or "corners". Greater consideration for flat electrodes may be given with high capacity generator designs with superior engineering. There is a link for affordable silver on our products page.

Many people recommend removing the silver during the process and wiping down the silver rods. Is this really good advice?

At best it should be considered a necessary evil. For a 5 PPM colloidal silver batch, there is NO need to do this if one follows the exact instructions in our tutorial. Use larger electrodes (14 gauge minimum) rather than thin silver wire. Every time the electrodes are removed, tiny flakes of metallic silver are deposited directly to the surface of the water. These flakes or "sparklies" will not change the conductivity of the water or effect the rest of the batch, but the end result is still a lower quality product. To minimize this effect, cut the power and wait about two minutes for oxidation to set in whenever removing the silver from the water. Then, gently remove the silver. When producing a batch exactly as shown in the tutorial, there is never any need to remove and reinsert the silver.

Part Three: General Questions Regarding Colloidal Silver Production

How can one tell if a batch of colloidal silver (isolated silver) is highly particle or highly ionic?

Almost all production methods available for home use produce both ions and particles in the colloidal silver generation process. In order to really understand the quality of the finished product, one needs to have a TEM done (see our products page for an example) and tests done through atomic adsorption. However, one can get a general idea of the composition of the colloidal silver by using two drops of 35% H2O2 per eight ounces of colloidal silver. If a thick cloud immediately appears, and spreads throughout the colloidal silver, then the colloidal silver has a high particle content - and most likely (because of the methods available for home brewing) very large particles. If the colloidal silver remains clear, then one MOST LIKELY has a high ionic content with smaller actual particles. Most home generators will produce AT LEAST 20% particles in a 5 PPM + batch. The idea is to be certain, as much as possible, that the particles that ARE in the colloidal silver are small. When the particle percentage increases in a home brew situation, it is usually LARGER particles being produced.

The colloidal silver from a current controlled generator being used is producing large particles. 14 gauge + silver is being used, as well as high quality distilled water, and the batches are being run for less than one hour. What is going on?

Even when one VERY carefully maintains the cleanliness of equipment, silver can plate onto the bottom of the glass container being used. Scrubbing the glass container with a nylon scotchbrite pad helps, but often does not remove the plating. The solution is to scrub down the glass being used RIGHT AFTER a batch has completed using a separate nylon pad with a small amount distilled white vinegar added. Rinse the glass thoroughly with tap water. Dry the glass, then scrub the glass container again with a clean, dry nylon scrub pad. Then, wipe down the container and rinse with a bit of distilled water before use. Use friction rather than pressure when cleaning the silver electrodes. Light pressure with fast agitation helps keep the surface of the silver smooth. Make certain to use a high quality distilled water, such as Walgreens brand distilled water. Position the silver electrodes as parallel to each other as possible. Use a heat lamp or a very gentle heat source underneath the generator to create a slight upward current to help prevent silver plating.