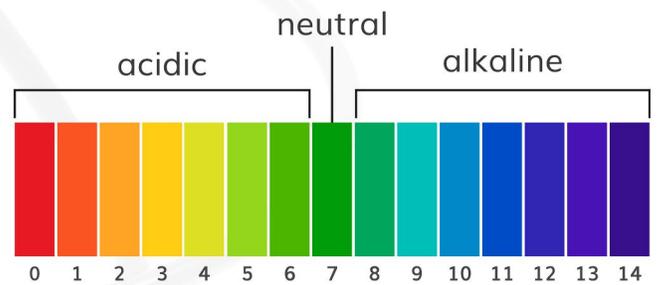
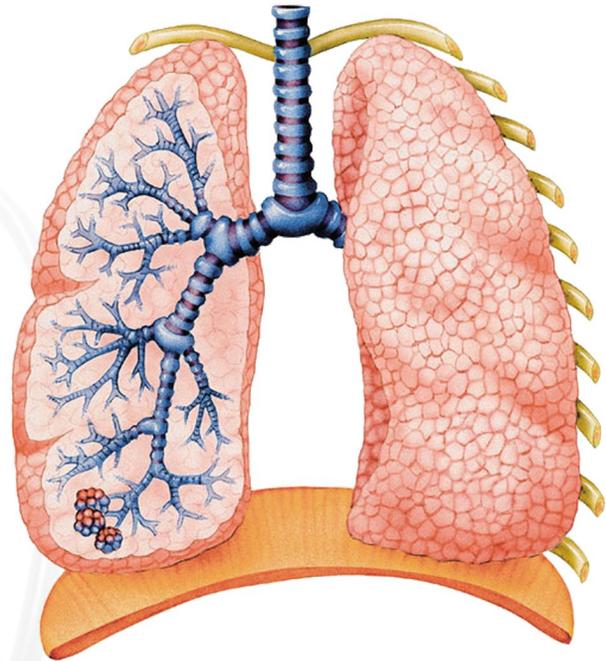


# SilverLungs<sup>pH</sup>

## SYSTEM



User Manual

## Welcome!

The secret to success with this product depends on your adherence to the documentation. It is vital to read the information (in its entirety) and make sure not to skip ahead. Each step is well-detailed to ensure success and proper results. Follow the "Step by Step Guide" accurately as this is a controlled process where proper protocol is required to produce a very high quality silver solution.

## Distilled Water Only!

Never use well water, spring water or water labeled as filtered drinking water. Filtered water from a "Berkey" type system is not distilled water and cannot be used. Atmospheric water generators cannot be used either as these do not achieve a water purity low enough for this process. Distilled water means there is nothing in the water (except for) water itself. Reverse osmosis water cannot be used unless it has measured no higher than 1 PPM with a water test meter. It is most recommended that you purchase a quality brand of distilled water from a grocery store, pharmacy or health food store and to always ensure that the water (actually tests) at no more than 1 PPM on your water test meter. **2 PPM is not close enough.** Higher than 1 PPM will produce a cloudy solution.

**Water distillers** | **If using a water distiller, make sure to remove any charcoal or carbon post filters.** These will leech trace amounts of charcoal/carbon into the distilled water and this can react with the silver during production. Many home water distillers do not produce 1 PPM of water purity and this will need to be tested ahead of time to ensure that these high purity levels can be achieved. If a first pass of distilling produces a reading higher than 1 PPM, simply re-distill the same water until the proper purity is achieved.

**Salt or saline solutions** | **Never add anything to the distilled water such as salt or saline solutions!** This is vital to ensuring a pure and safe silver solution and to prevent the formation of undesirable silver compounds such as silver chloride (AgCl).

## The Silver Generator (World Compatible)

The power adapter provided is a universal power adapter that will work automatically on 90V-240V power standards. Although this is a world-compatible power adapter, you may need to change the "socket" type to adapt to your particular region.

Additional power sockets can be purchased through SilverLungs to allow you to plug the SilverLungs power adapter anywhere in the world.

**NOTE!** The SilverLungs Generator must be plugged directly into to a wall socket. Absolutely no power strips, power inverters, extension cords, power blocks or intermediate devices can be used. These devices will cause a voltage "slump" across the power adapter and will cause a premature shut-off. This will lead to low PPM measurements at the end of production.

## The Nebulizer (World Compatible)

The power adapter provided with the nebulizer is also a universal power adapter that will work automatically on 90V-240V power standards. Although this is also a world-compatible power adapter, you may need to adapt the socket to your particular region with a simple socket changer. **There is no need for a step-up or step-down transformer.**

## Water Test Meter

**Your water test meter has been pre-calibrated** to measure (most importantly) water purity and can also be used to give an accurate measurement of the ionic silver content dissolved at the end of a new production. The water meter calibration is hard-locked and will never need to be recalibrated even if the batteries die or are replaced.

**Do not attempt to recalibrate this meter! It has been specifically calibrated with the proper correction factor for measuring silver.**

**NOTE:** Silver has a different correction factor than all other ions in water. Recalibrating the meter to factory standards will cause a 25% reduction in the screen reading which will falsely report your silver measurements too low.

## Not Waterproof!

Be cautious not to drop the water test meter into the flask of water as the meter is not waterproof. **SilverLungs cannot warranty a water-damaged test meter.**

## Measuring Silver Concentration

Always remember that only the concentration of silver ions (ionic silver) can be measured with a water test meter. The colloidal portion (silver particles) cannot be detected by a water test meter. Further information on this is provided on **Page 11** of the user manual in the section called "*Understanding PPM Measurements.*"

## Time Sensitive!

The only time an accurate measurement of ionic silver can be made is **within 60 minutes after production** of a new silver solution. The water meter reading will decline over time from the slow formation of silver oxide ( $\text{Ag}_2\text{O}$ ) that begins after a new batch of ionic silver is completed. Silver oxide is a non-measurable form of silver that hides a portion of the previously-measurable silver content. **No actual silver has been lost in this conversion.**



## Glassware (Cleaning)

Make sure the glassware is pre-rinsed thoroughly with distilled water. Ionic silver is reactive and will combine with other elements and create unwanted forms of silver. Distilled water is void of chemically reactive elements and is the only water type we recommend using to pre-clean the glassware. Do not use spring water, reverse osmosis, "Berkey" filtered water or atmospheric water generated water for cleaning.

**Never use detergents or chemicals to clean the storage glassware!**

When done pre-rinsing the glassware with distilled water, perform an additional wipe-down of the internal components of the glass applicators with distilled water and a new/clean paper towel or napkin. To explain further, each of the glass applicators have plastic or glass tubes inside that need to be wiped-down with distilled water as well. **Do not touch any of the internal tubes or plastic with your fingers as salt or other contaminants can be deposited onto these surfaces.** This will contaminate and degrade a solution over time.

## Glassware (Color Types)

If you chose colored glass bottles and applicators with your generator kit, these are UV protective to shield the sensitive silver content from sunlight. The UV rays from direct sunlight can slowly "photo reduce" the highly reactive ions which removes their positive charge and changes them into silver atoms and particles rather than preserving the ions. If you chose clear glassware with your generator kit in order to monitor the crucial yellow color of colloidal silver solutions, these yellow solutions are also UV sensitive to sunlight and you will need to keep these yellow solutions in a dark place such as a cabinet. Again, the yellow color of a colloidal silver solution needs to be monitored before administering.

**Never use a colloidal silver solution if it has lost its original yellow color or if an ionic silver solution has become cloudy.**

**Proper use of the glassware** | **Never drink from a storage bottle** as saliva and/or salts from the mouth can degrade the ionic silver content or impact the stability of a colloidal silver solution. Make sure that the glass tubing within the eye/ear dropper does not touch or contact the eyes or ears during use as this can also pick up contamination.

**Signs of contamination** | If an ionic silver solution becomes cloudy or if a yellow colloidal silver solution changes to another color or turns clear, this is a sure sign of contamination and the solution should be discarded. **Ensure a clean working environment and proper handling during setup and production.**



## Silver Concentration (10 PPM or 20 PPM?)

The only difference in the silver produced between these two power levels is a higher concentration of total silver. We have found that 10 PPM is a perfectly suitable concentration for lung nebulization (although 20 PPM is fine as well.) Again, 20 PPM is simply double the concentration of the exact same silver produced in a 10 PPM solution. For example, 1/2 teaspoon of a 20 PPM solution is equivalent to 1 full teaspoon of a 10 PPM solution. Keep in mind that there is no wrong setting to choose from. 10 PPM or 20 PPM solutions only equate to the total concentration of silver produced and production time involved. If choosing the "true colloidal silver protocol" from **Page 11**, this will require the 20 PPM setting. The pH of the 10 PPM setting is not high enough to work properly with the included reducing agent.

## Ionic vs. Colloidal (Which to use and where?)

We have found that the ionic solutions produced without the colloidal protocol on **Page 11** are suggested in the eyes, ears, and topically. The lungs can also be targeted with ionic silver. When creating colloidal solutions, we have found these solutions to be better suited for oral and nasal administration as silver particles do not form silver chloride (AgCl) when swallowed or delivered nasally. True colloidal silver can also be used in the lungs for direct bloodstream delivery. **Tip:** 50/50 blended solutions are many times the best overall type to administer as both silver ions and silver particles are present.

### Ionic

eyes, ears, lungs, topically

### Colloidal

oral, nasal, lungs, rectally, vaginally

## Suggested Use (Dosage)

Due to Federal laws that govern "*dietary supplements*", we can only provide a series of general suggestions concerning the administration of the silver solutions produced.

**Topically** | Dosage is not a concern for the eyes, ears and when dressing wounds, cuts, scrapes, abrasions, etc.

**Orally** | We suggest a daily oral "maintenance dose" of 1 tablespoon of a 20 PPM solution for adults and 1 teaspoon of a 20 PPM solution for children or infants. Oral consumption should incorporate the colloidal protocol on **Page 11** and this is best optimized on an empty stomach. Many common foods in the stomach will rapidly degrade the colloidal silver quality and increase the size of the particles, thus we highly suggest an empty stomach when administering orally.

**Nebulizing** | Breathing the silver solution across 24-48 inhalations (per session) is suggested every 1-3 days for a simple maintenance regimen. Nebulizing is by far the most optimized and effective way to deliver the best silver integrity into the bloodstream as breathing entirely avoids the harsh and unpredictable environment of the stomach. Oral administration cannot match the lung delivery method even in a best-case scenario. **The vaporizer is highly suggested for systemic delivery into the bloodstream and is also the only method for successfully targeting the respiratory system.**

**Nasal** | We suggest 2-4 sprays per nostril every 1-3 days with a nasal sprayer if you wish to target the upper respiratory system. You can also choose to use the vaporizer for nasal delivery and both 10 PPM and 20 PPM concentrations are suitable.



### Step 1 | Locate the Generator

It is important to place the generator in an undisturbed area to prevent any bumping of the unit during the production process. During the electrolysis process, the silver electrodes will accumulate a coating of excess silver hydroxide which is very loosely collected to the electrodes. If the unit is bumped or moved suddenly, the silver hydroxide excess will be released making it less than ideal for consumption.

**Important!** Do not locate the generator in a cold room such as an unfinished basement, work shed, garage, etc. If the water temperature is below 70°F, the unit will not stop automatically and will produce a messy solution.



### Step 2 | Turn OFF the Generator

At the rear of the generator, set the slide switch to the OFF position and ensure that the (correct) 48V DC power adapter is plugged in to the generator as well as a power outlet on the wall. Plugging a different power adapter voltage into the generator will compromise its function and reliable operation.

The generator should now be "power-ready" but set to the OFF position.

Once the unit receives power from the wall outlet you should see a solid BLUE light on the generator indicating an idle but ready state.



### Step 3 | Clean the Production Flask

Fill the production flask with a small amount of distilled water and use the provided cleaning brush to thoroughly clean the inside of the flask. After thoroughly cleaning the flask with distilled water, dump and discard the water.

Add another small amount of distilled water to the flask and again, one more final swirling rinse and then discard.

**IMPORTANT!** | Always work with clean hands and fingertips when preparing a new silver solution. Salt and or other contaminants on fingertips and hands can potentially contaminate a new silver solution causing it to become cloudy.

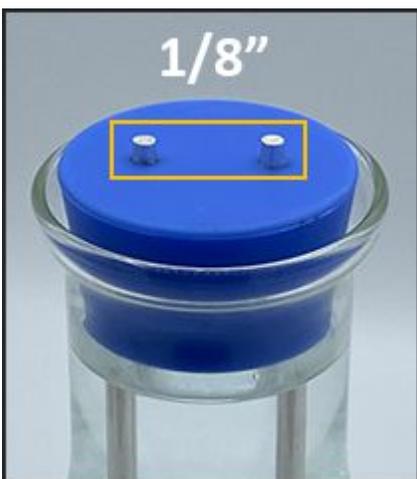


#### Step 4 | Polish the electrodes

Using the provided 100% copper scouring pad, gently polish the electrodes to a mirror finish under running tap water.

**Never polish the electrodes without water and never use anything but 100% pure copper. "Scotch-Brite" pot scrubbers should never be used as an alternative.**

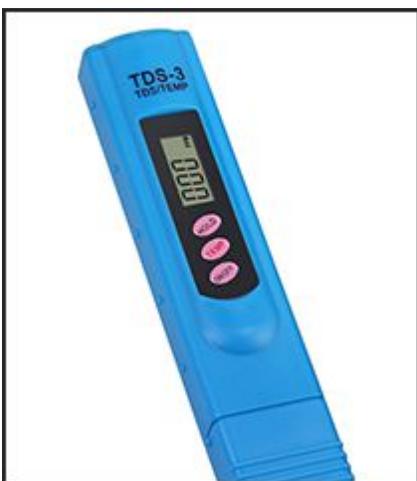
Perform a final wipe-down of the polished silver electrodes thoroughly with distilled water and a new paper towel or paper napkin until there is no visible trace of black lines on the cleaning towel or napkin. When polishing the electrodes, pay close attention to the "tips" as these often go overlooked.



#### Step 5 | Prepare the electrode/stopper assembly

Once the electrodes have been verified as straight, polished and wiped clean, insert the rough ends of each electrode into the bottom of the stopper while being careful to **leave no more than 1/8-inch protruding**. Again, the rounded/smooth end of each electrode should be the end that is submerged in the distilled water rather than the rough shaped end.

Once the electrodes have been inserted into the stopper, check again to ensure they are **aligned parallel to each other**. If not, twisting very slightly on either electrode will often correct the alignment. Be sure to perform a final wipe-down of the polished electrodes with distilled water before finally inserting.



#### Step 6 | Check your water!

A proper solution first begins with **absolutely pure water**. Do not waste time and effort with un-tested water that you assume or hope is pure. Even if buying water labeled as distilled water or if you distill your own, this does not ensure that the water is actually pure enough. It must be tested with a water test meter to ensure it measures no higher than 1 PPM on the meter.

**Important!** | Never add any type of catalyst (such as salt or saline) to the production water in an attempt to decrease the time involved for the electrolysis process. Adding anything to the water will produce silver compounds rather than pure ionic silver. **This will not produce the desired result.**



### Step 7 | Add water

Fill the flask about 1 inch from the top of the opening and temporarily insert the stopper and electrode assembly to check that the bottom of the stopper has about **1/8-inch of air gap** as pictured. Remove the stopper and electrode assembly and place it on a clean surface before proceeding to the next step. A good choice for a clean surface would be a new paper towel or paper napkin.

**Important!** | The water level is crucial for the proper function of the generator. Using a larger air gap will disable the automatic shutoff feature and will produce a cloudy/messy over-run in the final product.



### Step 8 | Position the magnetic stirring bar

At this point, the production flask should be placed on top of the generator as shown in Step 9. After ensuring that the stirring bar has been wiped clean with distilled water, drop the magnetic stirring bar into the flask. Try not to touch the stirring bar at any time with your fingertips. You can use a new paper towel or napkin to pick up the stirring bar before dropping it into the flask as a precaution.

After dropping the cleaned stirring bar into the flask, look to see that it has been magnetically centered at the bottom. If the stirring bar is off to the side, gently move the flask around to help the stirring bar find the magnetic center.



### Step 9 | Insert the electrode/stopper assembly

Place the electrode/stopper assembly with only a slight pressure into the water-filled flask allowing the assembly to make a gentle seal. Do not firmly press the assembly into place as this will require an abrupt and forceful extraction later which will release the excess silver collected on the electrodes into the solution making for a messy batch.

**Reminder** | The water temperature must remain **70°F or higher**. The generator will not function properly if the water temperature is below 70°F which will cause the automatic shut-off feature to fail.



### Step 10 | Attach the electrode clamps

Because the generator features automated polarity-reversal technology to help reduce the excess silver accumulation on the electrodes, you can clamp the electrical leads to either silver electrode in any order.

As shown in the image, **leave only 1/8-inch of silver protruding from the rubber stopper** so there is as much silver as possible inserted down into the flask of water.

**Important!** | The 1/8-inch air gap and no more than 1/8-inch protruding silver is crucial for the proper function of the generator. Using a larger air gap or too much protruding silver will disable the automatic shutoff feature and will produce a cloudy/messy over-run in the final product.



### Step 11 | Select a power level and begin!

The generator has two power levels to choose from. HIGH creates solutions in the 20 PPM range while the LOW setting creates solutions in 10 PPM range. The LOW setting will produce a 10 PPM solution in 2-3 hours depending on initial water purity. The HIGH setting will produce a 20 PPM solution in 3-5 hours – also depending on initial water purity.

Once you have selected the desired power level, you will notice the magnetic stirring bar begin to spin in place and the front panel light will change to either green or red depending on the power level chosen. Make sure the magnetic stirring bar stays centered in the bottom of the flask during operation.

When the concentration reaches the pre-selected 10 or 20 PPM concentration, the unit will automatically shut off. You will see the magnetic stirring bar stop spinning and the front panel light will revert to a **blinking** blue light indicating completion.

**Important!** | The generator does not operate on a timer in order to automatically stop production. Rather, there is intelligent circuitry built into the generator that measures the actual silver content and turns off when the preset 10 or 20 PPM concentration is reached. Remember not to pull or yank the rubber stopper straight up once a batch completes. Simply work the stopper in a circular/spiral motion while easing the stopper out slowly.

**Note** | If you are producing a new batch of silver using untested water, keep a close watch for cloudiness that might form as this is a sure indicator of water that was not pure enough for production. There is no point in allowing the process to complete if it becomes cloudy.



## Step 12 | Analyze, measure and finish up!

**Analyze** | Using a red laser pointer, aim the laser beam through the flask from side to side to verify there are very few large bright spots in the solution. Many times, large bright spots are simply air-borne particles (such as dust or lint) and a few can be expected. This step is just to make sure there are only a few scattered bright spots that are visible with the laser.

When creating a 10 PPM solution, the laser beam will appear very slightly through the water, while a 20 PPM solution will show a more noticeable laser beam as the 20 PPM solution contains a portion of silver oxide particles.

**Using the laser provides a simple visual check to confirm that the solution does not contain an abundance of large silver excess.**

You can now power on the water test meter and insert it into the solution to verify the silver concentration. Make sure the water test meter has also been wiped clean to avoid contaminating the new silver solution when it is inserted.

**Measure** | When measuring a solution produced with the 10 PPM setting, you should measure right at 10 PPM.

When measuring a solution produced with the 20 PPM setting, the expected measurement is right at 17 PPM as we are also accounting for approximately 3 PPM of **additional silver** in the form of **non-measurable** silver oxide particles.

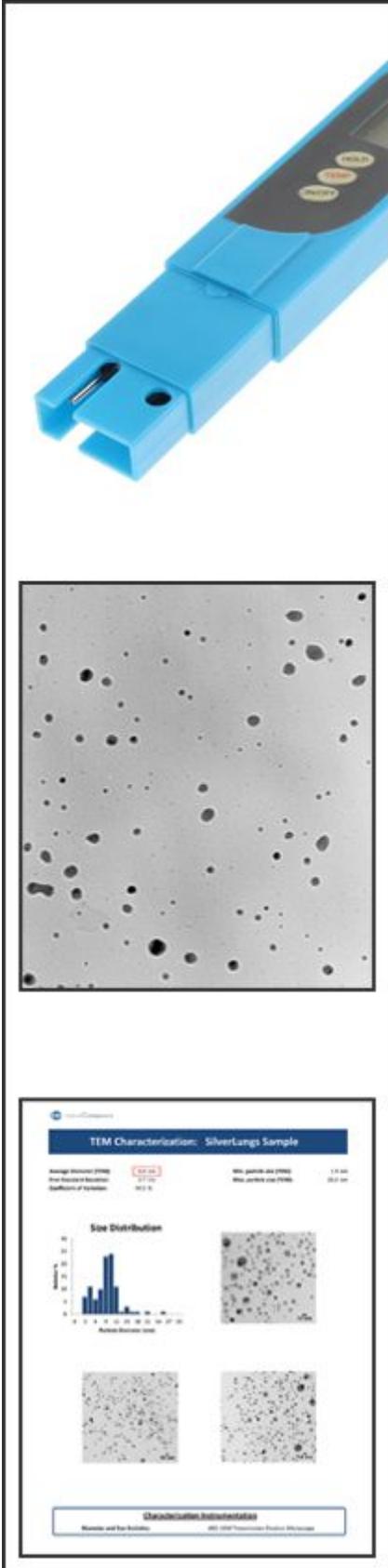
**The measurable ionic portion plus the non-measurable silver oxide portion equates to 20 PPM of total silver in solution.**

**Finishing up** | If your solution reveals very few large bright spots with the red laser and the target silver concentration has been verified by the water test meter, you have successfully completed the production of a new ionic silver solution!

**Suggestion** | After taking your final silver measurement, do not reinsert the rubber stopper/electrode assembly into the newly created solution. Instead, you should dispense the silver solution into your pre-rinsed storage bottles or move ahead to the colloidal protocol on **Page 11**.

When your production session is entirely complete, reinsert the rubber stopper/electrode assembly into the flask for later use and it is good practice to leave the magnetic stirring bar in the flask to avoid being lost.

**Silver solution storage?** | Make certain that your storage bottles have been thoroughly pre-cleaned with distilled water (**Page 3**) to ensure there are no contaminants present. Signs of contamination will be revealed later by a cloudy solution or a solution that has lost its original yellow color if colloidal.



## Understanding PPM Measurements

When taking measurements of your silver solutions, always remember that **ions are the only form of silver that can be measured** with a water test meter. Remember again there is a small concentration of silver that will be in the form of silver oxide (Ag<sub>2</sub>O) that cannot be detected by a water test meter.

Using the LOW power level, you should measure right at 10 PPM immediately measured after completing a LOW stage.

At the end of the HIGH power level you should measure right at 17 PPM while remembering that only the ionic portion of the solution can be measured and there is an additional amount of non-measurable silver in the solution in the form of silver oxide particles.

**The measurable ionic portion plus the non-measurable silver oxide portion equates to 20 PPM of total silver in solution.**

**PPM drop over time?** | When producing a new silver solution without choosing the colloidal protocol on **Page 11**, you can expect a 25-40% drop in measurable PPM over the course of one week as much of the ionic silver content will continue combining with free oxygen in the water (converting them into non-measurable silver oxide.) Remember that **no silver is actually lost** when the PPM measurement drops, but rather a percentage of the silver ions are converted into non-measurable silver oxide particles. This is why the PPM will always drop slowly over time using a water test meter before finally settling on a stable reading.

**Time sensitive measurements?** | The most accurate measurement of total silver concentration is when measuring **right at the end of production** rather than many hours later.

**What particle sizes are produced?** | When implementing the true colloidal protocol found on **Page 11**, the average particle sizes produced are 8-9 nanometers in diameter as verified by TEM (Transmission Electron Microscopy) analysis.

**What is the shelf life?** | Assuming that your self-produced silver solutions are kept in a dark environment (away from long-exposure to UV rays from the sun) and that the storage container used is contamination-free, your silver solutions will hold in suspension for 2-3 years.

The only change that will happen over time with the clear ionic silver solutions is "plating" of some of the ionic silver content against the walls of glass containers as well as the formation of silver oxide (Ag<sub>2</sub>O). This can be seen as a slight residue on the walls of the storage container. This is normal.

# The True Colloidal and "50/50" (Protocol)

**Described** | True colloidal silver is defined as a silver solution consisting of a majority of silver particles vs. silver ions.

**NOTE:** You will notice a considerable reduction in the water test meter reading after converting from an ionic solution into a colloidal solution (up to 80% over time).

## Step-by-Step

**1** - Complete a new solution using (only) the **HIGH** setting. LOW will not yield proper results for a conversion of silver ions into silver particles.

**2** - Unclamp the alligator clips from the electrodes and remove the rubber stopper and electrode assembly from the flask (leaving the stirring bar at the bottom.) **The silver electrodes and rubber stopper are no longer used at this point.**

**3** - With the flask still resting on the top of the generator, set the switch to LOW or HIGH so the solution begins stirring. Do not allow the disconnected alligator clips to touch.

**4a (colloidal)** - For a full colloidal silver solution, **add six drops** of the liquid reducing agent into the silver solution while it is stirring.

**4b (50/50)** - For a 50/50 blended solution of colloidal and ionic silver, **add only one drop** of the liquid reducing agent into the silver solution while it is stirring.

**Conversion** | After 30 seconds, you will begin to notice the solution slowly shifting from clear and colorless into deepening shades of yellow. If using six drops of reducing agent, the solution will become a deeper yellow in color than if only one drop of reducing agent is used. After a few minutes, **manually stop the generator** to complete the stirring process.

**pH Levels** | During the process of converting the ions into particles, the original 10 pH of the ionic solution (as it was before adding the drops) will decline to 7 pH over the course of 12-24 hours. **Only the original ionic silver solutions produced are highly alkaline.**

**The importance of yellow!** | The yellow color is what should always be verified before consuming in the future. If there is a contamination in the storage bottle, the solution will change into varying other colors over time such as red, green, blue, pink or gray and may eventually lose all color. **Once a yellow solution loses color, it is entirely degraded and should be discarded. Always remember to use clear (not dark colored) containers for yellow colloidal solutions to monitor the crucial yellow color.**

**Never freeze!** | Be careful not to leave a yellow colloidal silver solution in your vehicle or outside during the cold times of year. Freezing will destroy a colloidal solution and will turn it colorless once it has thawed. A loss in color means the silver solution is now comprised of aggregated silver excess that carries no potential for use in any way.

**Sunlight and clear storage bottles** | The yellow colloidal silver solutions are sensitive to UV rays from direct sunlight and should be kept indoors in low or no ambient light levels. Always use clear storage containers to monitor your silver solutions for color and clarity which is not otherwise possible in dark colored glassware.

## Generator Shut-off (Troubleshooting)

Below is a troubleshooting checklist if you experience a failed automatic shut-off. A failed shut-off is usually indicated by a run-time exceeding 4-5 hours which yields a cloudy or messy silver solution. Please allow the generator up to 5 hours to automatically shut-off before assuming the shut-off has failed. The production time (on the HIGH setting) can vary considerably depending on the initial water purity.

**NOTE:** The SilverLungs Generator does not operate on a timer but rather features intelligent circuitry which measures the actual amount of dissolved ionic silver during production and knows exactly when the target PPM concentration has been achieved.

### Troubleshooting Steps

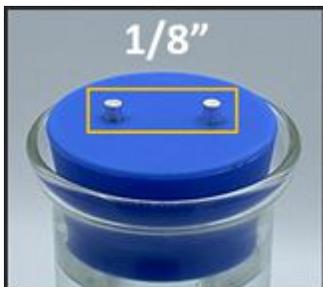
**1 - Water too cold** | The water temperature must be **above 70°F** in order to properly shut-off. The generator cannot be located outside during the cold times of the year. Areas such as an unheated garage, unfinished basement or work shed cannot accommodate the warmer temperatures required.

**2 - Too little water in the flask** | The air gap between the top of the water line and the bottom of the blue rubber stopper cannot be greater than 1/8 inch. If the air gap exceeds 1/8 of an inch, there is a high probability of a failed automatic shut-off or at minimum an over-run before finally shutting off, leading to a cloudy/messy solution which should be discarded.

**3 - Bent electrodes** | The silver electrodes must always be straight so they can be parallel to each other during production. If they have become bent, this will either cause the generator to shut-off too soon or not shut-off at all. **The electrodes must be straight enough so they will roll freely on a flat surface.** If your electrodes are bent beyond repair, please contact us for support: [info@silverlungs.com](mailto:info@silverlungs.com) | **1-888-444-1620**

**4 - Wasted silver** | If there is too much silver protruding from the top of the blue rubber stopper (where the alligator clips attach), this will create the same issue as not enough water in the flask and will cause the generator to fail the automatic shut-off. No more than 1/8 inch of silver should be protruding from the top of the blue rubber stopper.

**5 - Untested water** | In some cases with water that was not tested at 1 PPM or less of purity, the impure contaminants in the water will bind-up the dissolving silver ions and prolong the shut-off. This will be quickly revealed by a cloudy/messy solution during production. **Testing the water purity is not optional but absolutely required.** The initial water purity cannot exceed 1 PPM on a water test meter.



## Silver Solutions (Notes & Precautions)

- Never refrigerate or allow a silver solution to freeze!
- Never drink from a silver solution bottle as this will contaminate the solution.
- Avoid extended exposure to direct sunlight and UV rays.
- Drink on an empty stomach when consuming orally.
- Never place a paper towel, cotton ball or anything else on the opening of a silver solution as a way to apply the silver. Pour a solution out onto your applicators or surfaces instead.

### Ionic Silver

If possible, inspect the ionic silver solution before administration for any sign of cloudiness. If an ionic solution becomes contaminated, it will form a cloudy solution.

### Colloidal Silver

Always ensure that the yellow color of a colloidal or 50/50 blended solution is still present before use. Never consume a color-shifted or cloudy silver solution as this is a sure sign of contamination and instability. When a yellow colloidal silver solution becomes red, green, blue, pink or gray, this is a sign of particle growth (agglomeration) and is not recommended for internal administration.

### Blended Silver

Always ensure that the light yellow color of a blended solution is still present before use. Never consume a color-shifted or cloudy colloidal silver solution as this is a sure sign of contamination and instability of the colloid. When a yellow colloidal silver solution becomes red, green, blue, pink or gray, this is a sign of particle growth (agglomeration) and is not recommended for internal administration.

### Why is true colloidal silver yellow?

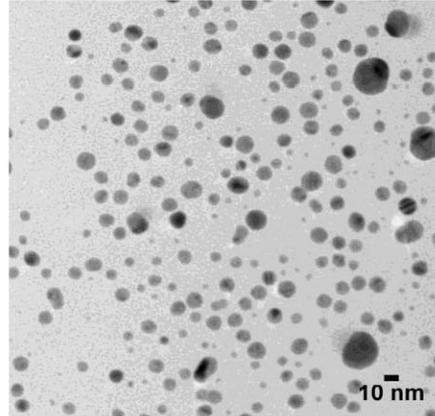
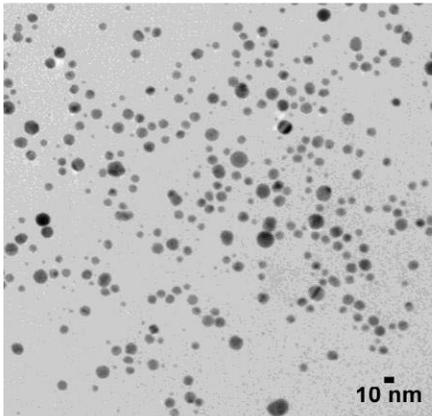
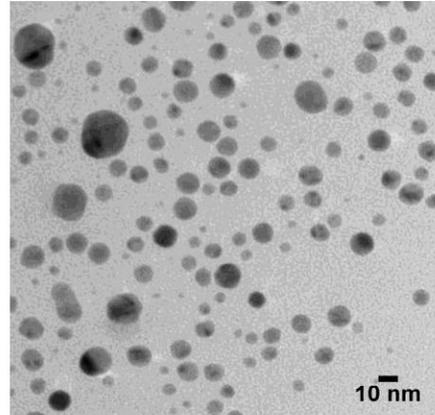
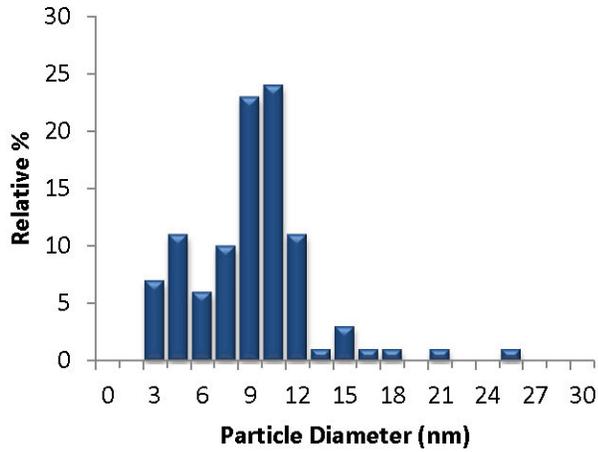
The yellow color happens when silver nanoparticles selectively absorb the purple color spectrum of white light and in-turn the particles reflect back all other colors. Yellow is the resulting color of white light in the absence of purple and there is simply no way around the yellow color of a true colloidal silver solution. This phenomenon of physics is called "plasmon absorption resonance" which is not a theory, but rather a well understood characteristic of silver nanoparticles in solution. Common claims that colloidal silver solutions should be colorless come from those that are simply unable to produce a "true" colloidal product.



# TEM Characterization: Sample4 SL-TA Silver

|                                  |        |                                  |         |
|----------------------------------|--------|----------------------------------|---------|
| <b>Diameter (TEM):</b>           | 8.4 nm | <b>Min. particle size (TEM):</b> | 1.9 nm  |
| <b>First Standard Deviation:</b> | 3.7 nm | <b>Max. particle size (TEM):</b> | 25.4 nm |
| <b>Coefficient of Variation:</b> | 44.5 % |                                  |         |

## Size Distribution



## Characterization Instrumentation

**Diameter and Size Statistics:**

JEOL 1010 Transmission Electron Microscope

# SilverLungs (FAQ)

**Why silver?** | Spanning well over 100 years of research, countless laboratory tests have shown silver to kill disease-causing pathogens, viruses and bacteria typically within minutes of contact. Silver has been shown to be a powerful anti-fungal, anti-germicidal, anti-bacterial and anti-viral substance. Silver is still used readily in hospital burn wards to effectively prevent scar tissue through the use of silver-infused bandages. Ionic silver has been shown to regenerate skin tissue by allowing the restructuring of wounded cells into new cells with no differentiation. Silver assists these wounded cells by allowing them to turn into any type of cell that's needed for optimal healing.

**What is colloidal silver?** | Colloidal silver has been "loosely defined" as a suspension of very small silver particles and silver ions evenly dispersed in a water-based solution. To be more correct, colloidal silver is properly defined as a solution comprised of silver particles rather than silver ions. Alternately, ionic silver is a solution comprised of silver ions rather than silver particles.

The unit of measure used when referring to these ions and particles is the "nanometer" and this is where we derive the popular term "nanosilver." Keep in mind that "nano" refers only to size and not to a type of silver. This is just a popular marketing term in recent years to imply this to be a completely new type of silver solution which is simply not true.

To understand just how small these particles and ions are, imagine that we magnify the diameter (not length) of a single human hair to represent the distance of one mile. Now, imagine that these tiny silver species would be seen as green peas within that very long one mile stretch.

**What is nanosilver?** | With all of the recent hype about "nanosilver", many may be surprised to find that this is nothing more than the latest marketing term for colloidal silver.

**What is PPM?** | The term "parts per million" or (PPM) is a way of expressing very diluted concentrations of one substance dispersed in another substance. Silver PPM refers to a quantity rather than a type or size of silver. Many will confuse 10 PPM and 20 PPM by thinking this is referring to the type or particle size of silver, when the only difference is the total amount of silver. This would be like thinking a 500 mg aspirin is different than a 1000 mg aspirin when the only difference is the quantity of the exact same compound. For example, if you had a bottle of 500 mg strength aspirin but needed a total dose of 1000 mg, the obvious solution is to ingest (2) of the 500 mg aspirins to achieve the same total dosage. Let's apply the same analogy to silver by saying you can administer one ounce of a 20 PPM solution or two ounces of a 10 PPM solution.

## What kind of silver is produced?

- **Silver Ions** | A single silver atom missing one of its negatively charged electrons. By removing an electron from an electrically neutral silver atom, there is now more positive force within the atom. The (countering) positive force in an atom comes from the fact that there are always an equal number of positively charged protons as negatively charged electrons.
- **Silver Atoms** | The smallest individual piece of silver that can exist in its complete state. Silver atoms will always combine with other silver atoms to form particles of silver through "agglomeration" and are properly termed as "colloids."
- **Silver Particles (Colloids)** | Silver particles are two or more silver atoms metallically bonded together. Particles (colloids) can range in size from ultra-small to considerably large. The smaller a particle is, the better. This is where such close attention to detail and design has been incorporated into The SilverLungs Generator as to ensure only the smallest and highest quality particles are produced.
- **Silver Oxide Particles (Ag<sub>2</sub>O)** | A compound of silver that is formed during the electrolysis process that slowly dissociates over time after the process completes. This silver compound is formed by two atoms of silver and one atom of free oxygen. Silver oxide will decompose slowly over time to form a diatomic particle of silver and the oxygen is released as free gas. We simply consider silver oxide to be ionic silver when administered orally.

**Is colloidal silver supposed to be clear or yellow?** | The yellow color happens when silver nanoparticles selectively absorb *just* the purple color spectrum of white light and in-turn the particles reflect back *all other* colors. Yellow is the resulting color of white light in the absence of purple and there is simply no way around the yellow color of a true colloidal silver solution. This phenomenon of physics is called "plasmon absorption resonance" which is not a theory, but rather a very well understood characteristic of silver nanoparticles in solution. Claims that colloidal silver solutions should always be colorless come from those that are simply unable to produce a "true" colloidal product.

**What really happened to "The Blue Man?"** | Paul Karason made the mistake of adding common table salt (sodium chloride) to his distilled water as a catalyst to speed the production time of his homemade silver solutions. Paul was unaware that salt or other additives should never be incorporated into the "electrolysis" process when creating a proper silver solution.

While adding salt reduced Paul's production time, it actually created a completely different silver compound called silver chloride. This compound has been shown to cause a skin discoloration condition called "Argyria." Silver chloride is by no means pure ionic or colloidal silver. No cases of Argyria have ever been linked to properly produced ionic or colloidal silver solutions.

**Does SilverLungs use constant current?** | One of the most misreported features of some colloidal silver generators is something marketed as "constant-current." The name is also an absolute misnomer by implying that the current through the water is constant, when in fact this is only true for about 15% of the total time involved in the electrolysis process. The correct terminology should be "current limiting" as this is the only functional truth to how it works.

The SilverLungs Generator will produce solutions faster than constant current generators while never reaching a critical point in the production that will begin to promote large particulate creation through secondary electro-chemical processes. The SilverLungs Generator addresses the worry of large particulate creation through its massive **7-gauge** silver electrodes, magnetic stirring system, dynamic polarity reversal technology™ and an automatic shut-off feature. All of these features account for keeping the ever-rising current flow below a threshold that would eventually lead to large particulate creation.

**What is the shelf-life?** | Assuming that your silver solutions are kept in a dark environment and that the storage container you've selected is contamination-free, your solutions will hold in suspension for at least a year and often much longer.

**How fast is the generator?** | The SilverLungs Generator produces a 10 PPM solution in 2-3 hours and a 20 PPM solution in 4-5 hours.

**Which PPM is best?** | The choice is yours. The only difference in the silver produced between these two power levels is simply a difference in total silver concentration. The time difference involved in producing a 10 PPM solution and a 20 PPM solution is about one hour. Silver PPM is a measure of concentration and not a type of silver nor refers to particle sizes.

**How long do the silver electrodes last?** | The original SilverLungs electrodes should last almost indefinitely even with constant and extended use. Always remember to use the provided copper polishing pad to ensure that the electrodes are polished rather than ground down when using the highly-abrasive "Scotch Brite" type scrubbers that come with other generators. Scotch Brite scrubbers are extremely abrasive and remove far more silver during the scrubbing process than during silver production.

**Are the electrodes pure?** | The SilverLungs Generator utilizes electrodes based on 99.99% pure elemental silver. The 4th "9" of purity ensures that you are producing the highest quality solutions possible. Each SilverLungs electrode comes polished and straight with no sharp edges ensuring an even electrical flow between the two. The large diameter and length of the silver electrodes (*combined with a very large silver-to-water contact area*) allows for a near-infinite life-span.

**Why use a laser pointer?** | A high-powered red laser pointer is an indispensable tool for checking the quality of your silver solutions. The presence of large and undesirable silver complexes will reveal themselves easily with a red laser pointer.

While The SilverLungs Generator has been carefully engineered to create clean and consistent silver solutions that are free of large and undesirable silver complexes, there is still nothing more reassuring than a quick visual inspection of your product.

**What is magnetic stirring?** | The SilverLungs Generator features a magnetic stirring system that does not require the flask to be un-sealed during silver production. Many competing silver generators do not even include a stirring mechanism, while the ones that do are not the sealed type. This leaves the solution exposed to air-borne contaminants.

Other stirring methods like "bubblers" are very turbulent and tend to loosen the excess silver hydroxide build-up which inherently collects. This build-up gets deposited into the final solution and can create a messy end-result.

**Dynamic polarity reversal?** | Standard polarity reversal is already a very useful and functional feature in a silver generator as it spreads the wear and load of the dissolving silver evenly across both electrodes.

Dynamic polarity reversal technology™ uses very specific and ever-changing timing intervals as an advancement to standard "fixed timing" methods. This greatly reduces the total amount of silver hydroxide that inherently collects on the electrodes during production.

**Why use a water tester?** | Our digital water test meter is vital for testing the initial quality of your production water before you begin and also allows for accurate measurement of the total amount of silver dissolved. The water test meter comes pre-calibrated specifically for silver.

**Why only distilled water?** | Water that is not properly distilled or deionized is essentially not pure and may contain undesirable elements that can interfere with the final quality and effectiveness of a new silver solution. It is also imperative that no "additives" be incorporated in the electrolysis process to ensure that only pure silver is present within pure water.

# Contact SilverLungs

Please feel free to contact us at any time! We are here to help!

## Hours of Operation

9:00 a.m. to 5:00 p.m. (EST)  
Monday to Friday

## Mailing Address

SilverLungs, Inc  
P.O. Box 1840  
Burnsville, NC 28714

## Toll Free

+1 888-444-1620

## E-Mail

[info@silverlungs.com](mailto:info@silverlungs.com)



**Copyright © 2020 SilverLungs. All Rights Reserved.** These statements have not been evaluated by the FDA. We do not seek to diagnose or treat any medical condition. Our goal is to provide the highest quality silver dissolving devices and accessories to meet your interests. No medical claims or health benefits should be implied from our literature in order to clearly meet the guidelines set forth by the FDA, EPA and The Department of Public Health.