

How to Clean the coins

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Introduction

The present article has been written upon personal experiences, but also with the help of many documents and news found over internet. It is very difficult to mention every written source, since, some times, only few words were taken from a document. If reading these lines, somebody recognize an article or a document written by himself, please notice it to me, and I will be very glad to include the Author's name in the bibliography of the article.

Cleaning a coin: Is it the right thing to do?

If you ask to some experienced Coin collector, which is the best way to clean up a dirty coin, most probably he will answer *"the best way is NOT to clean it!"*

In the matter of facts, a coin should be never cleaned, since doing this operation you may damage its surface, and therefore, reduce its numismatic value.

Especially if the coin is ancient, or simply it has one hundred of years, it gathers a "patina" on its surface that in some cases could increase its interest for collectors.

Usually a collector prefers the "natural look" of a coins, even if it is not perfectly bright and shining.

The patina of an ancient coin has taken literally centuries to form and has helped to protect the metal of the coin from the elements and further corrosion. An ancient's coins patina can appear as green, brown, black and many shades in between. It is part of a coins history and as such, should be left as intact as possible.

For any coins that may be worth more than face value that you plan to sell or that may need to be sold someday, set these aside and have them cleaned by a professional.

Notwithstanding this, may be you get some coin that cannot be considered ancient or very valuable, and that their look is not attractive, just because they are dirty.

Evaluating the grade of a coin before to decide whether if clean it or not, is also important. Take your time and think a lot, before to clean a badly worn coin of any kind. In the first place it is a waste of time, and secondly, cleaning a coin in condition inferior to Very Fine (VF) probably would not enhance the piece.

In the case you decide to proceed with a cleaning, and taking in account that you are going to do an operation that could reduce the future value of your coin, you can try to carefully clean up the surface, either using a simple soft tissue, or polishing the coin using some kind of natural or chemical product.

Professional Coins Polishers

Once more, the safest way is to ask to some experienced collector or coin dealer, those can suggest which kind of "professional" coin polisher you can use for a particular type of coin.

Appropriate liquids can be purchased in some coin shop, and the coin dealer can explain you exactly how you can safely use them.

Generally, this solution is almost never cheap, since professional coin polishing products tend to be very expensive.

If, differently, you want to experience something “home made”, so you have some different chances to try.

Paying attention to the metals

Before to choose how to clean up a coin, you must consider the metal of the coin you are going to polish. Different kind of metals and alloys should be cleaned up using different – and appropriate – chemical or natural products.

Basically, you must choose a product that “hurts” as less as possible the surface, since particularly aggressive liquids or pastes may scratch it.

The most delicate metals are surely copper, brass, bronze, and alloys that contain them. Copper is among the most chemically active of all coinage metals.

Aluminum and Iron coins are a bit less delicate. Nickel coins are definitively the less delicate ones.

Silver coins, are very difficult to polish, since their surface can really change color and aspect, just rubbing them with a tissue.

Test before act!

Cleaning coin using every-days home products is always a challenge. If you don't use care, you risk to damage the coins without remedy.

The best way to make your choice about polishing method or products, is to make some test before.

You should gather a certain number of little metallic objects – even better extremely worn or damaged coins, or coins that you are not willing to include in your collection – then perform on them all the possible tests you have in mind.

Obviously metallic objects must have their composition as similar as possible to the coin you want to test...

Choosing the right tools

Magnifier Lens: This is a tool almost indispensable in these cases. In the matter of facts, polishing may produce some unwilling effects on the surface, that in some cases is not immediately noticeable at naked eyes.

Tissues or Cloths: Although a towel of tissue is a very simple object, it can became very important during cleaning. The tissue or cloth must be very soft, and must be lint free. A good choice can be the cloth used by the photographer to clean the lens of the camera, or simple the lens cleaner, for sight-glasses or sunglasses.

Cotton swabs are very useful for working on small areas of a coin.



Choosing the right tools is very important

A strong directional light: A lamp with a strong directional beam, used with the magnifier lens, can result very useful for deeply inspecting a coin for scratches and imperfections.

Sharp tip tools: After the first cleaning, most probably you will notice that some dirt is still in place, especially around the encriptions or parts in relief. A classic example, is the dirt that remains close to the date, the border of the figures, and on the reeded edges as well. A way to remove this little residuals of dirt, is by using something sharp. Using a little nail, a pin or a needle must be very dangerous, since most probably you will produce scratches on the metal.

Basically you must choose some tool made by a material softer than the coin's metal. Toothpicks or dried rose thorns could be the right tools for picking out bits of dirt.

Distilled Water: Always rinse the coins with distilled water, after cleaning. Tap water should not be used as it contains minerals which may create spots on the surface of the coin.

The gentlest way to polish a coin

You first trying should be to try to polish your coins simply using a soft tissue, and nothing more. Rub gently the coins with your fingers. A light dirt patina should be easily removed with this simple method.

It is very difficult to damage the surface in this way, unless the dirt itself scratches the coins. May happen that during rubbing, some hard dirt particles or grits are detached from the surface and moved with the fingers all around. This could product also scratches visible at naked eyes. So, you must pay attention to the kind of dirt you are going to remove.

Try just washing

For coins that have a clay or mud build up simply soak them in a solution of warm water and a little dish soap (even better if the dish soap is creamy and not in powder).

A light scrubbing with a soft tooth brush will clean them up nicely.

Also household soap, detergents, and shampoos are effective in cleaning many items that are lightly encrusted.

Simply Vaseline

Dirt and grime that accumulates on coins can often be safely removed by applying a layer of Vaseline to both surfaces of the coin and then gently rubbing these surfaces clean with a very soft lint free cloth.

Tooth paste: delicate abrasive product

The most common coin polisher you can find at home, is surely the tooth paste. This every-day-use paste can be employed to clean your dirty coins without damage them too much. The only hint is not to use a tooth brush for cleaning... Differently from the previous case, now you are working with an abrasive product, and brushings over abrasive particles can easily produce micro-scratches.

The tooth paste is usually a little bit abrasive, but its abrasive particles are very tiny.

To clean the coin, you must put a little of tooth paste on the coins and gently rubbing with the fingers, using a soft tissue. The operation should be repeated several times, until the coin looks clean and shining enough.

After finishing your cleaning, rinse the coins using distilled water. Dry the coins using a soft cloth, trying to avoid to rub the coin too roughly.

If you think to use a tooth brush just to fasten the cleaning operation, probably you will get a lot of tiny but fastidious scratches on the surface, those will compromise the final look of the cleaned coins, giving a very poor brilliance especially on brass/copper coins or similar alloys.

The cutlery & furniture cleaner

From your local hardware or paint shop, you can buy some cheap liquids or pastes, intended for home cutlery, jewelry or furniture parts cleaning.

Be aware that these kind of products are generally the most disliked from whom try to clean up a coin, since they are considered too harsh and they anyway modify the coin's surface and affect the natural colors and aspect. So, this technique should be used only as last resort.

Usually these products are specialized for different kinds of metals, and it is very important to use the right product on a particular metal.

In example, you can find the "*silver polisher*", usually used to polish silver knives, forks, spoons or trays. This product obviously is the right one for your silver coins.

Door handles or furniture decorations (usually in bronze or similar alloys) are cleaned with another product that is specialized for "*red metals*", the metals or alloys that usually contain copper.

These products can be 100% liquid, or can have abrasive particles.

100% liquids are usually acid-based and their polishing action is based on superficial corrosion. Using this kind of solution over coins those have only a dark or opaque patina due to aging or dust, you can obtain good results. The coin must be immersed in the liquid and left there for the proper time, that can vary from few seconds, if the liquid has a very aggressive action, up to some days, in the case of a very weak liquid. Usually you don't need to rub the coin during the immersion. The best solution is to wait the end of the acid effect with immersion, then take off the coin and shaking it, in order to remove the little drops of acid still on the coin. Rinse the coin with distilled water to leave definitively any trace of acid. Then you can dry it with a soft tissue, possibly without rubbing. After cleaning, the coin will look bright and no scratches or micro-imperfections will be added to the original state.



The lower part of this coin has been immersed for five minutes into an aggressive 100% liquid domestic polisher

The tiny brown patina has been easily removed, but the overall color is changed as well

In the abrasive products, most of the times the abrasive particles are bigger and harder than the ones you can find in a standard tooth paste (definitively they must act on a metal surface, not simply on the ivory of a tooth...).

Due to this, it is very simple to scratch the coin, if you don't pay attention in rubbing.

This kind of polisher must be applied on the coin and rubbed without waiting long time for slow corrosion effects. As already warned, rubbing must be done using a lot of care.

Also at the end of these operation, the cleaned coins must be rinsed with distilled water and carefully dried.



Before



After

This coin has been immersed in the same liquid of the previous picture. The aging is different. Here, the patina is at least 100 years old, while the 5 EUROCent considered before is not older than a couple of years.

Due to this, the present coins has been left soaking in the solution overnight. After taking off from the liquid, it has been washed in warm soapy water and rinsed in distilled water.

As you can notice, most of the encrustations and the dark patina have been removed. The acid also started corroding part of the coin, especially on the edge (Arrow 1), and on the encryption on the right (Arrow 2)

Red metals coins are the hardest ones to polish. This kind of metals are very soft, and it is very easy to fill up the surface of tiny micro-scratches. These scratches are noticeable using a magnifier tool. At naked eyes, they give an overall effect of opacity.

Some “corrosion” techniques to clean up.

A relatively fast technique for a little light cleaning, is to use some lemon juice. In your local grocery you should be able to find a concentrate lemon juice, that works much better than the juice squeezed directly by the lemon.

Simply take some juice and allow the coin to soak for a few minutes.

After about five minutes take the coin out, dry and examine it. If the coin is clean to your satisfaction, rinse it in distilled water to remove any trace remains of the juice.

Repeat as necessary, but if the coin does not 'come clean' within a few cycles then it is not likely too.

Note that as the lemon juice becomes exhausted it will turn an interesting shade of green.

This technique works quite well with silver, steel, nickel or similar metals/alloys coins. You would obtain more scarce or unpleasant results with red metal coins.

A more corrosive technique than lemon juice can be tried using ammonia.

Prepare a mixture composed by ammonia diluted 3 to 1 with distilled water. This mixture have to be used simply following the same steps you used for the lemon juice soak. But be prepared to check the coin frequently, just to avoid damages or unwilling corrosions.

This technique successfully works mainly for nickel coins, while aluminum reacts badly with ammonia.



An hard challenge: To polish a Silver Coin

My personal opinion is: A silver coin must not be cleaned at all.

Anyway, silver is not a metal that remains brilliant and clear for long time, especially if it is not accurately protected against humidity, air or similar kind of contamination.

If you are lucky, an aged silver coin can achieve such kind of “toning”, that is a very particular multi-color aspect. Toned silver coins may have a lot of very amazing blue, green, brown, dark yellow, red reflections those give a very cool aspect to the coin itself. Well... why to clean a so amazing rainbow?

But not even you can be lucky with silver.

In most of the cases, the silver coin becomes extremely dark, assuming a unpleasant dark gray color.

Also using some polishing products, like the “Silver polisher”, or “silver tarnish remover” mentioned above, very rarely you will get the original color of the coin, as it will adversely affect a coin's natural toning.

A silver coin in perfect conditions (we could say in UNCirculated grade) has a perfect brilliance. But who collects “circulated coins” is used to see silver coins with a sort of minimum aging, that – for the best coins – doesn't compromise the beauty, but anyway gives a sort of particular look. This coin is usually less bright, and its surface assumes a very light opacity (or tarnish), and its color tone tends to become a very very light yellow/gray.



Uncleaned



**After 10 minutes in
Lemon soak**



**After 10 minutes in
Ammonia soak**

A trying to clean up a silver coin.

Picture on the left shows the coin before any cleaning. You can notice a dark gray opaque patina. Picture in the center shows the same coin after 10 minutes of soaking in concentrate lemon juice. Aspect is better than before. Most of opacity has gone, and details begin to be clear and shining. Picture on the right shows the coins after a further immersion of 10 minutes in pure ammonia. Now the coin is completely clean and shining

This is the classic aspect of a circulated silver coin.

By polishing such coin, you can achieve a very good brightness, but it cannot be compared to the brightness of the same coin when it was in UNC condition.

So, you can think to apply polish product only over coins those really look bad, having in mind that probably you will get good results with them, but forget the chance to renew them totally. A polished silver coin will be anyway a polished silver coin.



**Not
Cleaned**



Cleaned

Comparing the coin cleaned before to a coin that has not been cleaned.

The not cleaned coin has a different toning and color

Clean up without haste

A very gentle, but slow polishing technique, is the olive oil soak. This method very rarely can ruin a coin, but one cleaning cycle may take weeks, sometime months.

Olive oil soaking works well on particularly encrusted coins or on other substances adhering to a coin.

Use the least expensive oil, not extra virgin. The results will be the same.

Simply place the coin in the olive oil and let it soak without haste. Check it every 3-4 days. If the oil has changed its color, then change the oil if needed, and continue to soak. The olive oil will slowly penetrate the dirt and soften it.

After 10-12 days or so you can take the coins out. By rubbing very gently with fingers, you should help the incrustations – softened by long soaking – to be removed. Rinse now the coin with distilled water until all the oil residues are gone, and pat them dry with a cloth.

Somebody makes an additional treatment after the olive oil soaking, by using Tri-Sodium Phosphate (TSP). The TSP is a cleaner available in most home repair or paint shops.

Mix a batch of TSP with one teaspoon in warm water. Put the coin in the TSP solution for 5-10 minutes. This will remove the olive oil and some of the dirt.

After that, rinse the coin with distilled water. Make 3-4 washings, to be sure to remove completely any trace of TSP.

If the coin now looks still dirty, or the soaking removed almost nothing or just a little bit of dirt, then you must repeat the soak technique from the beginning. To achieve good results, you may take also two or three months of soakings.

An important note: do not mix coin types or have coins touching one another during these soaking and cleaning.

Two ways with baking soda

Baking soda can also be used for cleaning purposes. You can employ this chemical product in different ways, but the two most commonly known (and working) are the two described here below.

The following methods work well with almost any kind of metals. Brass, copper, nickel, silver are ok with them. Unfortunately they don't work on anything iron or zinc.

Because these cleaning methods remove all corrosion, they will strip off any pleasant, attractive green patina from copper objects. Patina is, after all, a form of corrosion, so if you want to retain any of it, use the olive oil soak.

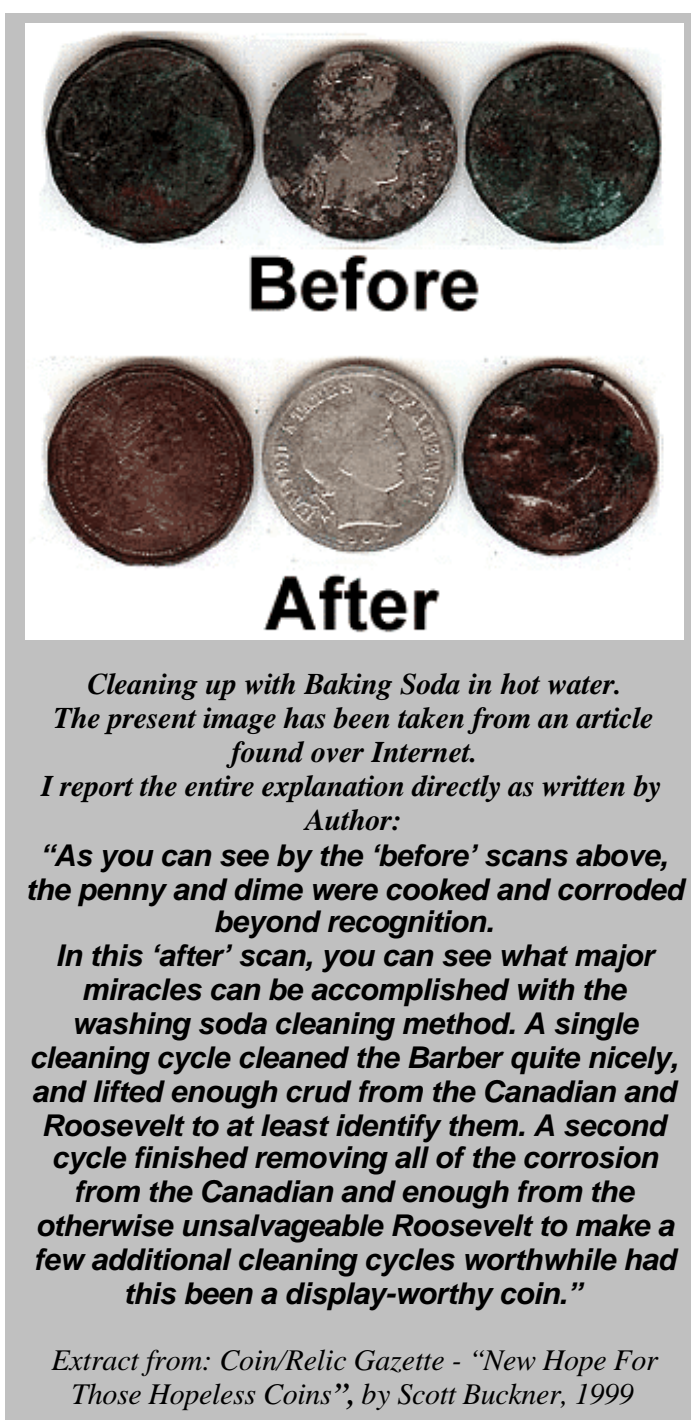
Baking Soda and Vinegar:

A combination of vinegar and baking soda will clean some lightly dirty coins. The chemical reaction between the vinegar and baking soda will lift much of the dirt off. The coin should be immersed for no more than 30 seconds at a time. More than that and the acidic reaction may start working on the coin itself. Make sure you rinse the coins in distilled water, making several water changes, after finishing. The object is to be sure the reaction has stopped.

A drawback to the vinegar/baking soda combination is that the patina on some coins may be lightened. Particularly coins with a green patina.

Baking soda in hot water:

Take a heat-resistant glass container and fill it with about 2 inch's of water in the bottom, then put it into the microwave oven, or over the kitchen fire, and heat to a boil. This can be vary hot, so use a pot holder to handle



the glass container. Using a pencil or a little wooden pole, place a precut piece of tin foil at the bottom of the hot water container. Make sure that the tin foil doesn't get any wrinkle or fold in it. If a coin should lay on one of these wrinkles or folds, it will cause a stain on the coin. If this should happen the stain can be easily removed by another cleaning.

If you get a wrinkle, smooth it out with the pencil. Put in a couple of tea spoons of baking soda, and drop the coins on the tin foil, paying attention that they don't touch one to each other.

The reaction starts with backing soda foaming and frizzing, and the water color turns in light gray/brown. Let it set until solution is returned at room temp.

Now you can take off the coins and inspect them. If you are not satisfied about the result yet, you have to repeat the cleaning up.

Replace every time water and soda, and the tin foil at the bottom as well, since the baking soda reaction deteriorates it very quickly.

To increase the effectiveness of the method, you can try to keep the water almost boiling for few minutes, after adding soda and coins.

When cleaning is done, rinse the coins with distilled water and dry them up.

Do not mix copper with silver, or mix any other type of metal.

Electrolysis

Electrolytic Cleaning is the technique of reducing the patina and encrustations on the surface of an object back to metal, by suspending the object as a pole in a electrolyte solution and running a charge through it.

Electrolysis is ideal for anything metallic, especially for iron artifacts. It can be also quite successfully with Silver coins.

You can build your home Electrolysis machine quite easily, by using a common 6V battery charger, or an AC adapter for a small electrical appliance (like a cassette tape player). You can try with a motorcycle battery charger, but try to avoid 12V version, since a such voltage some times may damage the coins during cleaning. Using a such home made electric equipment, it is safe and recommended to never walk off and leave this process unattended, since the battery charger tends to heat up quickly, and in extreme heating conditions it may starting on fire.

System preparation: Slice off the end of the 6V battery charger's (or AC adapter) cable, and attach alligator clips.

Prepare The cleaning solution dropping one teaspoon of salt, and one teaspoon of lemon juice into a cup of warm water. Instead of the salt, you can also use backing soda, for a stronger result.



A simple home made Electrolysis machine. It consists in an AC adapter having alligator clips on 6V cable ends. One old spoon has been attached to the positive alligator clip, while the coin is attached on the negative one.

On the alligator clip connected to positive lead of battery charger, attach a stainless steel spoon and place that into the solution. Attach the coin to be cleaned to the negative cable alligator clip and place it into the solution too. After the connections have been made and immersed, then turn the power on.

Extremely important note: negative and positive leads should never touch while power is on.

You will probably see small bubbles frizzing in the water. This means that the electrolysis process is working.

Cleaning time varies depending on the mA (milliampère) rating of the adapter or charger. Anyway, with coins it should only take few minutes.

After the process is finished turn off the power before removing or touching the leads, wash your coin in distilled water, then dry them up.

If you are cleaning a silver coin, probably you will notice that the silver will form a pure silver deposit on the surface, that must then be removed. If it is very light coating it will probably rub off easily with your fingers, but often it is heavier (forming a bumpy surface) and more difficult to remove. A short soak in diluted ammonia will help loosen it.

Some methods to be avoided

If you spend some time browsing Internet, you probably will find several more methods or hints about how to clean a coin. Most of them, in my personal opinion, are not really tested, and can be dangerous both for coins and for whom attempt to do the cleaning. Here some of them:

Torch Method: I recently read somewhere that you can simply use a torch to heat a coin to remove tarnish from silver coins. This method is untried and untested. Don't heat the coin until it's red hot, you only use the torch until you see the bright look of silver appear. This method has been reported to take off corrosion as well.

Pencil eraser: You can shine a coin with a pencil eraser! Yes, but...

- 1) rubbing a coin using such eraser, probably several dirt particles will suddenly detach from surface, and will be drag around with the eraser itself, causing scratches.
- 2) After cleaning, you will have removed the dirt particles, but now on the surface will be plenty of rubber residuals released by the eraser, and melted to the surface by action of the little heating caused by the contact between coin and eraser.

Always coca cola: I read somewhere: "Any coin left in Coca Cola overnight will come out shiny". My feeling is that after this trying, you will obtain just a sticky coin, dirty like before, and you will have wasted one glass of your favourite drink...

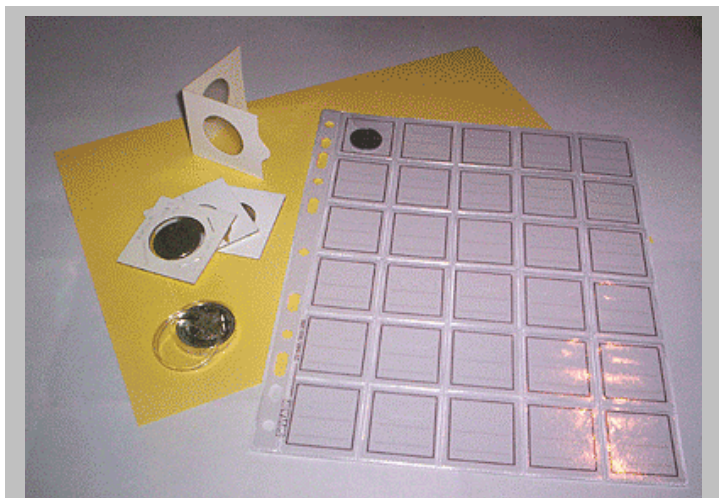
Extremely strong acids: Experts make use of formic acid, sulfuric acid, and silver nitrate but in the hands of a beginner these chemicals can ruin coins and cause injury.

Electronic hobbyst remedy: Electronic hobbysts use some "contact cleaner", to clean electric contacts from oxide. You can think to use this product to clean your copper coins. But at the end, you will increase only the conductivity of the coin.

Clean up with glue: Somebody suggest to use glue to remove dirt. Take some epoxy glue or some silica gel, and squeeze it on the coin. Wait until the glue is dried, then remove it from the coin. This kind of glues are not suitable for metals, so they should be took off

quite easily. The dirt will remain on the glue, and it will be removed from the coins, even in the little slots between letters and on reeded edges.

What to do, when I've got my coin clean?



Some types of Coin Holders:

- Cartonbox coin holders with transparent window
- Plastic bags for folder albums
- Plastic cylindrical holders

Now you've cleaned up your dirty coins, and you've hopefully got some shining and amazing objects. If carelessly handled, they will return in the original condition pretty soon.

What to do?

Fingertips: Don't put your fingers on the coin's surface, or your skin will release some substance those will react with the cleaned metal and will form a dark patina. Handle the coin grasping it just by the edge, or – even better – use a cloth when touching it.

Protect the coin: The cleaned coin can be protected against elements by using cartonbox or plastic bags coin holders.

Keep coins separate: If possible, don't put all the coins in a heap. By touching one to each other, the coins may get scratched. You should store them one by one.

Final conclusions

All the above disquisition leads us to the Obligatory Disclaimer: The material shown here is for research purposes only. The information remains "as is" and "with all faults." The user assumes all risk of use, damage, or injury. You agree that we have no liability for any damages nor are we liable for any consequential, incidental, indirect, or special damages. You indemnify us for claims caused by you.

I will not, and am not, responsible for the out come of the cleaning methods suggested here