

# ute decker

sculptural jewellery in ethical silver

## Greener Chemicals for your Studio – Non-Toxic Pickle

By Ute Decker

Chemicals used in jewellery making can be extremely toxic and a hassle to dispose of safely. One of the simplest things you can do to lessen the negative health and environmental impact is to reduce chemical use in the studio and select less-toxic alternatives for those that can't be avoided, according to Christine Dhein, a sustainable jewellery educator and editor of the Green Jewelry newsletter.



The most commonly used studio chemical is pickle and many jewellers have already made the change back to traditional pickles such as citric acid or a vinegar and salt solution as non-toxic alternatives.

With increasing interest in green and ethical jewellery, there have been many requests for concrete tips and advice. In response, I have compiled this fact sheet on non-toxic pickle with information on suppliers, preparation, application and disposal - downloadable from the resources page of [utedecker.com](http://utedecker.com). There you can also find advice on 10 simple steps to green your jewellery business, plus many more links on the subject.

### Download non-toxic pickle fact sheet on [utedecker.com](http://utedecker.com) – resources page

([http://www.utedecker.com/jewellery/jewelery\\_ethical\\_jewellery\\_links.html](http://www.utedecker.com/jewellery/jewelery_ethical_jewellery_links.html))

## Citric Acid Pickle

**Component:** Citric acid,  $C_6H_8O_7$ , occurs in the metabolism of virtually all living things, particularly rich in citric acid are citrus fruits such as lemons, limes and oranges. It is a fairly common preservative and flavouring agent used in food and beverages as well as an environmentally benign cleaning agent.

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**Supplier:** It's relatively cheap and easy to find. In the USA many jewellery suppliers offer citric acid, in the UK however most suppliers are still only promoting the toxic variety, including "Safety pickle" which is a misnomer as it is both toxic and corrosive. Luckily, in the UK you can buy a 500 gram bag of citric acid powder online for just under £4. Your local pharmacy can order it overnight; Indian grocers and most supermarkets may also stock it in their canning section.

**Preparation:** Mix 1 part citric acid powder with 5 – 7 parts of water, depending on the strength required. Always add the citric acid to the water, not the water to the acid. Ideally, use distilled water, alternatively bottled spring water, to prevent the growth of micro-organisms. As water evaporates from the solution, simply add more water. If the pickle is weak, add more acid.

**Application:** Should be used warm for best results in removing flux, oxides and firescale on silver, gold, brass and copper after soldering. It takes slightly longer than other types of pickle, but citric pickle is still equally effective, and many jewellers prefer it. It has several advantages over the traditional pickles; it is bio-degradable, gentler to your own health and does not burn holes into your clothes.

Do not overheat or put a hot piece of metal into any pickle to quench it. The steam that rises from doing so will be acidic and may irritate the lining of your lungs. This health hazard is considerably greater when using a toxic pickle variety. Borax flux and glass reacts with citric acid and may cause foaming for a few seconds. This is not a problem as long as the pickle container is not overfilled as the frothing will subside quickly.

**Disposal:** A citric acid pickle solution will work effectively for many months. Citric acid itself is non-toxic and biodegradable and could be poured down the drain, however any pickling solution becomes saturated with copper which can cause major problems for sewer treatment facilities.

Copper (as well as gold, silver and platinum) is a heavy metal. Pernicious effects may result from long-term exposure through inhalation of dust, fumes or vapours in the workplace. Therefore, pickle should only ever be used warm and never overheated to produce excessive evaporation you may then inhale.

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In general, collect all hazardous materials in clearly labelled plastic containers with tight lids for storage in the studio and during transportation when collected by your council, preferably with their original labels.

Many councils in the UK will pick up hazardous waste free of charge 3 times a year. To find out more about hazardous waste collections in your area go to [www.direct.gov.uk](http://www.direct.gov.uk).

### **Vinegar and Salt Pickle**

Many jewellers report excellent result with a mixture of vinegar and salt. It is a simple, cheap and eco-friendly pickle for jewellers. This is also my personal preferred option.

**Component:** White wine vinegar plus iodized or kosher salt is recommended by many, even though ordinary table salt works effectively, too.

**Preparation:** About one cup of vinegar to one teaspoon of salt or slightly more, if required.

**Application:** Should be used warm for best results. It works quicker than citric acid and good results have been reported for both silver and gold. It does tend to evaporate with beautiful salt crystals forming around the edge of the pot. You can just top up the solution with vinegar and salt. Leave the lid askew when you cool the solution, or the salt crystals may seal it on.

Vinegar is also used effectively to wash away investment when cleaning off castings. (Keep separate from pickling solution not to introduce unnecessary dirt into your pickle).

**Disposal:** Same applies as to the disposal of citric acid.

For further updates and information on sustainable jewellery making sign up to my newsletter on the resource page of [www.utedecker.com](http://www.utedecker.com).

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