Homemade lead acetate
made from an old lead battery and vinegar

1. Principle

Since lead acetate is very poisonous, in most countries it's sale is restricted, according to local poison laws. Usually we can't simply walk into a drug store and buy this chemical.

But luckily there is a simple method for making lead acetate at home with nothing more than an old lead battery from a car and vinegar, commonly used as a household cleaning agent such as for windows or as descaler for coffee machines.

In the middle ages lead acetate was made from litharge (yellow PbO, which was mined naturally) plus vinegar.

The chemical reaction is:

$PbO + 2\ CH_3COOH \rightarrow Pb(CH_3COO)_2 + H_2O$

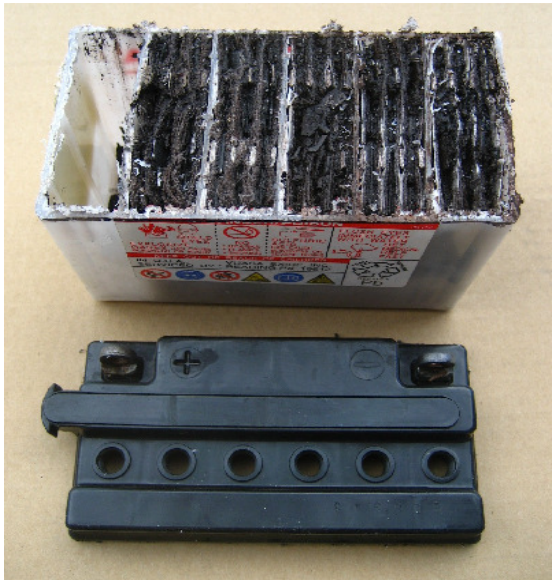

Fig. 1: The decapitated battery, exposing electrodes.

2. Lead oxide from a car battery

In a lead battery there is an anode from metallic lead (Pb) and cathode from black lead dioxide (PbO_2). The electrolyte is sulfuric acid (ca.15%).

First, unscrew the plugs from the battery and pour the acid in a plastic container. Don't discard it in sewers or waters. Discard it according to the law of your country. In case of contact and contamination of the acid on your skin or clothes, rinse them immediately!

Then drill some holes into the bottom of the battery, at least one to each chamber. Afterwards rinse the battery for about an hour under running water.

Next, saw off the top of the battery. You will find exposed an alternating array of lead and lead-dioxide electrodes.

Scratch off the crumbly lead dioxide and put it in a steel can. After this black meal has dried, put the steel can on a fire and heat it until the steel is red-hot, about 700 degrees centigrade. After a few minutes the black lead dioxide (PbO_2) has turned to yellow lead oxide (PbO).

Note: Never heat lead oxide in a porcelain container, since lead oxide is soluble in glass and ceramics.

Fig. 2: Electrodes from top to bottom: Lead dioxide comb, Diaphragm, Metallic lead plate.

Fig. 3: Yellow lead oxide, 35 grams, enough for making 700 ml of 5% lead acetate solution for impregnating many meters of match cord.

Disclaimer

Lead acetate is extremely poisonous when swallowed.

Keep it out of reach of children

and mark the storage bottle carefully.

Be aware, you make this lead acetate at your own risk.

3. Making a 5% solution of lead acetate

For making 700 ml of 5% Acetate solution take

35 g yellow lead oxide

380 ml vinegar containing 10% acetic acid.

The vinegar may be of higher concentration. Then use less accordingly.

Put both ingredients in a beaker glass and heat until boiling. Then let it stand for 24 hours and stir or shake occasionally.

After this about 95% of the lead oxide will be dissolved. Filter off the insoluble oxide, e.g. using a coffee filter. If the filtrate remains a bit turbid that won't matter.

Then fill up to 700 ml with tap water.

Here you go. Proceed with this solution as described on my slow-match page.

Cut out this label and attach it to the storage bottle →

Lead acetate

5% solution