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Home science laboratory. do it yourself

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Lead styphnate

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Lead styphate (lead salt of styphnic acid) is the most frequently used initiating explosive in the arms industry. It is highly sensitive to mechanical stimuli, sparks, heat, shock, and electrostatic discharges of the human body (!). Therefore, before handling siphnian, touch the unpainted part of a radiator, lightning rod or other grounded metal part. Lead styphnate explodes at a temperature of 275°C. Its detonation velocity is 4900 m/s. The maximum density is 2.6 g/cm³. When using amounts of 10 g, it is necessary to protect your ears and eyes (ear muffs and tinted glasses) and be as careful as possible. Lead styphate works best as a primer for other explosives or percussion caps. Because it does not react with metals, it can be used in metal housings.

Receiving

Reagents

- Styphnic acid (C₆H₃N₃O₈)
- Lead oxide (lead) (PbO)
- Methanol (CH₃OH)

Alternatively:

- Styphnic acid (C₆H₃N₃)₈
- Magnesium oxide (magnesia) (MgO)
- Lead acetate (lead sugar) (Pb(CH₃COO)₂)

Where to get it?

You can't get styphnic acid anywhere, you have to make it yourself - see the link. We can get lead oxide (rarely in paint stores. We can definitely get it in a chemical store, we can also get methanol there (it's cheap - about PLN 9 per liter; lastly, we can replace methanol with demineralized water, but the efficiency will then be lower. We can also get magnesium oxide and lead oxide). in a chemical store, I recommend POCh because they have a price list on their website (www.poch.com.pl).

Equipment

- Any beaker
- Gas or electric stove
- Baguette

The synthesis is very simple. We prepare a concentrated solution of styphnic acid in methanol. We add lead to it. Heat the whole thing, stirring, until only the precipitate remains in the beaker (all the rest will evaporate). The theoretical proportions are those resulting from the equation, i.e. 22.3 g of oxide for 24.5 g of acid. Alternatively, we can first prepare styphnate magnesium oxide + styphnic acid, the proportions of 4 g of oxide to 24.5 g of acid can be prepared in water. Then the magnesium styphate solution is poured into the lead acetate solution. An insoluble precipitate of lead styphate forms. After receiving the product, you can wash it with a small amount of water, although this is not necessary if the raw materials were at least clean. This dry product is best stored moist to prevent accidental explosion. The compound is durable and significantly superior to HMTD - despite its higher price.

Safety Lead oxide
is highly poisonous. During the final phase of heating, be careful not to overheat the styphate and thus cause an explosion. The abundant methanol vapors are highly toxic and, if inhaled, can cause poisoning or even death, so the work should be carried out outdoors. The synthesis product itself is extremely dangerous and should be handled with extreme caution. It is not HMTD - it EXPLODES in quantities of several hundred milligrams and is not contained. Synthesis should only be performed by people with chemical experience.

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