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# Mercury fulminate



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Mercury(II) fulminate, Hg(ONC)2 , Fulminant mercury, Fulminant acid salt. Mercury fulminate is an inorganic compound, sparingly soluble in water, but soluble in concentrated ammonia. Classified as primary explosives. It is more sensitive to mechanical stimuli than HMTD, it explodes by impact, friction, spark, puncture, heating etc. it ranges from white through gray to slightly brown (or beige if you prefer :)), crystalline and poisonous. It decomposes at temperatures above 323 K (50*C). It was discovered for the first time last year, but strangely it "disappeared" and was not heard from again for a long time. Until a man named Govard rediscovered it in 1799 and studied its properties specific mercury fulminate is about 4.41 g/cm3, and the bulk density is about 1.28 g/cm3. The detonation velocity of mercury fulminate is: at a density of 3.07 - 3925 m/s, and at a density of 4.2 detonation is equal to 5400 m/s. The use is known as any explosives initiating in primers. However, it is a rather weak initiating material, it needs at least 0 anything to stimulate, even PETN! This is the first MWI that has found practical application, which does not mean that it is the best, but it is certainly very interesting, if only for historical reasons. According to the production of mercury fulminate described below, it consists of two stages:

- Formation of mercury nitrate,
- Synthesis of mercury fulminate.

There is another unproven method of obtaining fulminate by boiling the mercury salt of nitromethane, but the recommended method is the one described below

## Receiving

**Reagents**

- Mercury (Hg),
- Nitric acid 65% (HNO3 ),
- Ethyl alcohol 96% (C2H5OH),
- Distilled water.

**Where to get it?**

For nitric acid, you have to go to a chemical store, or buy it from some friendly people ;) Mercury can be bought in chemical stores, but they don't sell it to people on the street, so it's better buy from people trading on our forum, or if someone wants, they can buy a pair of ordinary mercury thermometers and remove the mercury from them. Ethyl alcohol 96% is ordinary alcohol denatured alcohol is 96% denatured ethyl alcohol, but you can of course use it for our mercury fulminate, although it would be useful to at least distill it from NaOH, and spirit is the best, you can buy it cheaply from our eastern neighbors. You can buy distilled water at gas stations, or make it yourself - water distillation, but in In case of emergency, it is not necessary, tap water can be used.

**Equipment**

- Beaker,
- baguette,
- Filter,
- Flask
- Funnel.

First, we weigh 5g of mercury in a beaker. Then we measure 33 ml of concentrated nitric acid in a separate container. Then we pour the acid into the mercury. The mercury will begin to dissolve HNO3, which will be accompanied by the release of harmful brown fumes, these are nitrogen oxides. The reaction will end when all the mercury has dissolved and the solution turns green. In between, pour 50 ml of ethyl alcohol into a large flask, then cool the first solution to room temperature (max. 30*C) (if we do not do this, everything may fall into the container). Carefully pour the contents of the first beaker into the flask with alcohol - NEVER THE OVER THE WAY! After a while, a turbulent reaction will begin, resulting in the release of white, smelly smoke. This will take a few minutes. Then the smoke will disappear and brown nitrogen oxides will begin to be released in its place. When nitrogen oxides stop being released, it is finished. We wait a few minutes until the mixture cools down to room temperature and mercury fulminate crystals begin to precipitate. Then the whole thing is filtered and washed with approximately 1 liter of water, or even tap water, until a neutral reaction is achieved. The fulminant should not be washed with any spirits or acetones because it dissolves in them. Then we take our fulminant and dry it gently by placing tissues on the filter for a few minutes. The resulting finished product is placed in a dark film box, and the fulminate decomposes in the sun. Fulminate should not be neutralized with soda or any alkali, as this leads to its decomposition with the release of metallic mercury. With this method, mercury fulminate has a color ranging from gray to slightly brown (or beige, if you prefer :)). You can obtain white mercury pyruvate by adding 0.05 g of copper and 0.2 ml to the mercury before the reaction. Contrary to appearances, the fulminate obtained without these bleaches is purer! Here's what the purer Hg(ONC)2 looks like

**Security**

Mercury and mercury compounds are highly poisonous, so you should not smell, taste, or even touch them with your bare hands, because mercury penetrates the skin and cannot be washed completely. If mercury is spilled somewhere, sprinkle it with sulfur, and mercury sulfide is formed. and this one is harmless to health and the environment and is easy to collect. Wear acid-resistant and protective glasses during the reaction. It is also best to wear a mask, because we may accidentally inhale the poisonous smoke generated during the reaction. Obviously, do not lean over the beaker, you need a relatively high vessel (at least 5 times larger than the height of the liquid) because the whole thing foams a lot. Mercury fulminate is very much more HMTD to mechanical stimuli, so it should be handled very gently and carefully. It should be stored in small quantities, away from fire and other things, otherwise mercury fulminate could explode. Be very careful and CAREFUL when working with mercury fulminate!

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