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## PRIMING MIXTURE

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5 Claims. (Cl. 52—4)

This invention relates to priming mixtures, particularly priming mixtures of the non-corrosive type, and contemplates certain mixtures utilizing as an oxidizer certain materials the use of which has already been proposed in a general way but not fully developed.

Ammunition priming mixtures as ordinarily made comprise three classes of ingredients: a fuel, or substance to be oxidized; an oxidizer, to furnish the oxygen necessary for the oxidizing of the fuel; and, a combustion initiator, having the function of starting the reaction between the fuel and the oxidizer. It is not necessary that either the fuel or the oxidizer in themselves be subject to decomposition, under the stimulus of a blow. The combustion initiator, however, must be sensitive to shock, its decomposition being productive of sufficient heat and pressure to cause reaction between the oxidizer and fuel.

A non-corrosive oxidizer which has been used with a substantial measure of success is lead nitrate. This material, however, is open to the objection that it appears to give certain types of mixtures acidic characteristics, and in this manner is probably responsible for certain reactions resulting in the deterioration of such mixtures under adverse conditions of temperature and humidity. Aside from this characteristic, the material is an excellent priming mixture oxidizer.

The present invention contemplates the use of the basic lead salt of nitric acid ($PbOHNO_3$) as a priming mixture ingredient. The use of this salt is suggested, but not fully disclosed, in German Patent No. 497,460, issued May 8, 1930, to Rathsburg and Stadler. Said patent contains a general suggestion of the use of basic lead nitrate with certain named combustion initiators, and fuel and friction supplying materials generally, without making any definite disclosure of any mixture in which basic lead nitrate is successful.

The present invention contemplates the use of basic lead nitrate in certain actual successful mixtures. Generally stated, the combustion initiators used are guanylnitrosaminoguanyltetracene, lead styphnate, basic lead picrate, and diazodinitrophenol. The fuels used in various basic lead nitrate mixtures include lead sulphocyanate, antimony sulphide, calcium silicide, and the recently discovered lead salts of dinitrosalicylic acid.

Typical successful basic lead nitrate mixtures are as follows:

| | | | | | |
|---|---|---|---|---|---|
| Guanylnitrosaminoguanyltetracene | 2% | | 3% | 3% | 2% |
| Lead styphnate | 40 | 38% | 40 | | 30 |
| Basic lead picrate | | | | 45 | |
| Diazodinitrophenol | | 6 | | | |
| Basic lead nitrate | 30 | 30 | 39 | 26 | 30 |
| Lead sulphocyanate | 8 | | 8 | 8 | |
| Lead dinitrosalicylate | | 7 | | | 13 |
| Antimony sulphide | | | 5 | | |
| Calcium silicide | | | 5 | | |
| Glass | 20 | 18 | | 18 | 25 |
| Gum | | 1 | | | |

The lead dinitrosalicylate in the above table may be either the normal or a basic lead salt of dinitrosalicylic acid. These mixtures have been found to possess the requisite sensitiveness and priming capacity, and to be extraordinarily resistant to conditions of high temperature and humidity.

This invention comprising the first discovery of actual mixtures utilizing basic lead nitrate as an oxidizer, the appended claims are to be broadly construed.

What is claimed is:

1. A priming mixture containing basic lead nitrate, a guanylnitrosaminoguanyltetracene, and lead styphnate.

2. A priming mixture containing basic lead nitrate, basic lead picrate, and guanylnitrosaminoguanyltetrecene.

3. A priming mixture containing basic lead nitrate, a lead salt of dinitrosalicylic acid, and diazodinitrophenol.

4. A priming mixture containing basic lead nitrate, and a combustion initiator selected from the group consisting of guanylnitrosaminoguanyltetracene, lead styphnate, basic lead picrate, and diazodinitrophenol.

5. A priming mixture containing basic lead nitrate, lead styphnate, and diazodinitrophenol.

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