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NONCORROSIVE PRIMING COMPOSITION

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6 Claims. (Cl. 52—2)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

This invention relates to a noncorrosive priming composition for small arms ammunition.

Although potassium chlorate compositions give excellent ballistic results, the corrosive residue left by this salt has been so objectionable that nearly all manufacturers have attempted to develop suitable primer compositions without potassium chlorate. In order to obtain the required sensitiveness, however, it has been necessary to include an initiating compound with the usual fuels and oxidizers. Mercury fulminate was widely used at one time for this purpose, but the contamination of the cartridge brass with mercury made this compound objectionable when it was desired to reload the cartridge case. A number of substitutes for mercury fulminate were then proposed, such as lead styphnate, lead azide, diazodinitrophenol, and other explosive compounds.

All noncorrosive priming compositions which have been proposed to date, however, have one common characteristic; namely, that they depend on a highly explosive chemical compound for their sensitiveness and igniting power. The storing and handling of such explosive compounds introduces a hazard into primer manufacture which was almost nonexistent in the production of the old chlorate type primer. The chlorate primer contains only insensitive ingredients that require no particular precautions in handling.

With these facts in mind, we have developed a noncorrosive priming composition which, like the potassium chlorate primer, contains only fuels and oxidizers that are nonexplosive in themselves. The sensitiveness of this priming composition depends on the use of red phosphorous. As a specific example, we have found the following mixture suitable for small arms primers:

	Per cent
Red phosphorous	25
Barium nitrate	58
Antimony sulfide	17

This mixture may be blended and loaded into primer cups in the usual way. It has been found advantageous to use a small amount of glue or gum as a binder for the pellet.

The composition given above is merely one of several noncorrosive priming mixtures which may be prepared with red phosphorous. Other oxidizers and fuels may be used, depending on the degree of sensitiveness desired. For example it may be prepared with other nitrates such as strontium nitrate or basic lead nitrate. In addition, peroxides of heavy metals may be used as oxidizing compounds.

Examples of other mixtures which are suitable for small arms primers are:

	Per cent
Red phosphorous	5 to 25
Zirconium metal	5 to 20
Barium nitrate	40 to 70
Lead peroxide	10 to 25

or

Red phosphorous	5 to 25
Barium nitrate	40 to 70
Antimony sulfide	10 to 25

We are aware that red phosphorous compositions have been used for pyrotechnics, explosive or so-called "spot light" bullets, and for match heads. Red phosphorous compositions, however, have not heretofore been successfully used in primers for small arms ammunition, and herein lies the novelty of this invention.

We claim:

1. A priming mixture consisting of red phosphorous 25% barium nitrate 58%, and antimony sulfide 17%.

2. A priming mixture consisting of red phosphorous 5–25%, barium nitrate 40–70%, and antimony sulfide 10–25%.

3. A primary mixture consisting of red phosphorous 5–25%, a nonexplosive and noncorrosive nitrate of a metal 40–70%, and antimony sulfide 10–25%.

4. A priming mixture consisting of red phosphorous 5–25%, a nonexplosive and noncorrosive oxidizing agent 40–70%, and a nonexplosive and noncorrosive fuel 10–25%.

5. A priming mixture consisting of red phosphorous, barium nitrate, and antimony sulfide.

6. A priming mixture consisting of red phosphorous, a nonexplosive and noncorrosive oxidizing agent, and a nonexplosive and noncorrosive fuel.

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