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FLASH COMPOSITION

Jean Piccard, Marshallton, Del., assignor to Hercules Powder Company, Wilmington, Del., a corporation of Delaware

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This invention relates to an improvement in flash compositions and more particularly to flash compositions for use in blasting caps.

The compositions in accordance with this invention will be found advantageous for use in blasting caps wherever indicated or desirable, as, for example, in electric blasting caps, delay caps, etc.

As is well known, various types of blasting caps are provided with an ignition charge in order to insure ignition of the main or detonating charge. The requirements for an ignition charge is that it be an easily inflammable composition in order that it may be readily ignited by a fuse or the electric bridge wire of an electric cap and of such a character that it will in turn operate to effectively ignite a detonating composition or, for example, the delay fuse in a delay cap. An ignition charge should have a low ignition temperature and should not contain detonating materials, especially in connection with a delay cap where such materials might cause instantaneous shots.

Now, in accordance with this invention, flash compositions are provided which include broadly a non-detonating, organic perchlorate and an oxidizing salt. More specifically, the non-detonating organic perchlorate may be, for example, an oxonium perchlorate, an organic ammonium perchlorate, etc.

The non-detonating organic perchlorate, a salt of perchloric acid not an ester of perchloric acid, may be, for example, aniline perchlorate, pyridine perchlorate, tetramethylammonium perchlorate, dimethylpyrone methylperchlorate, 2-, 4-, 6- trimethylpyroxonium perchlorate, and 2-, 6- dimethyl, 4- phenyl pyroxonium perchlorate. The non-detonating organic perchlorate, as is indicated, will not contain in the molecule explosive groups such as the diazo group, the nitro-group, the azido group, etc., etc. Of the above mentioned non-detonating organic perchlorates the first three compounds are well known and easily prepared. The preparation of dimethylpyrone methylperchlorate is described by Baeyer and Piccard in Ann. 407, 338 (1915), while the preparation of the last two mentioned compounds is described by Baeyer and Piccard in Ann. 384, 215 (1911).

The oxidizing salt may be any suitable oxidizing salt such, for example, as potassium chlorate, silver nitrate, potassium ferricyanide, etc., etc., or mixtures thereof.

The non-detonating organic perchlorate and the oxidizing salt may be present in the compositions in accordance with this invention in any suitable proportion, it being noted that while the proportions may widely vary, they will be selected with consideration for the desired characteristics of the composition, such as inflammability, low ignition temperature, capacity for firing a detonating charge, igniting a delay fuse, etc. As illustrative, the non-detonating organic perchlorate will desirably be present in amount of about 20% and the oxidizing salt in amount of about 80%.

In preparing compositions in accordance with this invention the essential ingredients; i. e., a non-detonating organic perchlorate and an oxidizing salt may be mixed in any desired manner. Thus, for example, they may be intimately mixed in a finely powdered condition by any common well known procedure. As will be understood, additional ingredients may be included in the compositions in accordance with this invention, if desired, and, for example, the ingredients may be bound with any suitable binder, as, for example, nitrocotton, which in amount say, for example, of about 1%, will afford a suitable and satisfactory binder. Where nitrocotton is used as a binder, it will be incorporated with the ingredients in the form of any suitable solution and the solvent evaporated after incorporation.

As illustrative, for example, a suitable composition in accordance with this invention may be made up on the following formula:

	Percent.
Dimethylpyrone methyl perchlorate	20
Potassium chlorate	39.5
Silver nitrate	39.5
Nitrocotton	1.0

In making up the composition in accordance with the above formula, the ingredients will be intimately mixed in a finely powdered condition and the nitrocotton incorporated therewith in, for example, the form of a solution produced with the use of, for example, acetone or other suitable solvent, and the acetone or other solvent used evaporated.

Compositions in accordance with this invention will be found to be highly advantageous in that they will be easily inflammable, will possess a low ignition temperature, will be free of detonating materials and will be found highly effective for the firing of detonating charges of the various types commonly used in blasting caps, for the ignition of delay fuses, etc.

What I claim and desire to protect by Letters Patent is:

1. A flash composition including as ingredients a non-detonating organic perchlorate and an oxidizing salt.

2. A flash composition including as ingredients an organic perchlorate free from explosive groups of the order of the diazo group, the nitro group, the azido group, and an oxidizing salt.

3. A flash composition including as ingredients a salt of perchloric acid free from explosive groups of the order of the diazo group, the nitro group, the azido group, and an oxidizing salt.

4. A flash composition including as ingredients a non-detonating oxonium perchlorate and an oxidizing salt.

5. A flash composition including as ingredients a non-detonating organic ammonium perchlorate and an oxidizing salt.

6. A flash composition including as ingredients a non-detonating organic perchlorate about 20% and an oxidizing salt about 80%.

7. A flash composition including as ingredients a non-detonating organic perchlorate, an oxidizing salt and a binder.

8. A flash composition including as ingredients a non-detonating organic perchlorate, an oxidizing salt and nitrocotton.

9. A flash composition including as ingredients dimethylpyrone methylperchlorate and an oxidizing salt.

10. A flash composition including as ingredients tetramethylammonium perchlorate and an oxidizing salt.

11. A flash composition including as ingredients pyridine perchlorate and an oxidizing salt.

JEAN PICCARD.