

ALIEN PROPERTY CUSTODIAN

EXPLOSIVE AND METHOD OF MAKING THE SAME

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Alien Property Custodian

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This invention relates to an improved form of explosive powder and method of making the same.

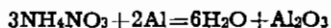
Ammonium nitrate has been used in the past with carbon to form an explosive powder but due to the absorbent character of the ammonium nitrate whereby it absorbs moisture from the air, the powder was not easily preserved and, in addition, the use of other elements, such, for example, as aluminum, which might be adversely affected by the absorbed moisture, was prohibited.

The principal object of my invention is to provide a powder mixture and to combine same in such a manner with such ingredients as to prevent the absorption of moisture by the resultant mixture and to enable said mixture to include elements, which otherwise would be impracticable and which improve the explosive character of the powder.

Another object of my invention is to provide a powder mixture and to combine same in such a manner with such ingredients as to lower the sensibility of the mixture to shock and thus enable the mixture to include elements, such as aluminum, which otherwise would be impracticable and which improve the explosive character of the powder.

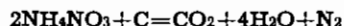
Other and further objects of this invention will become more apparent as the same becomes better understood from an examination of the specification and claims.

I mix the powdered ammonium nitrate with pitch of petroleum in a thorough and intimate manner so that each particle of the powder is covered with a light film of the pitch which acts as insulating material and forms a coating. I also include in the mixture, before application of the pitch, fine powdered aluminum metal in proportions to secure the following chemical reaction upon explosion:



The combustion or explosion resulting gives 685 liters of gas (calculated at atmospheric pressure and 15° C) but the temperature resulting from combustion is very high amounting to 4480°

C with corresponding increase in volume in proportion to increase in temperature. This great increase in volume results in an enormous increase over the results of the explosion according to the usual combustion of ammonium nitrate in combination with carbon under the old formula:



which gave 905 liters (calculated at atmospheric pressure and 15° C) but in which the combustion only raised the temperature to 2530° C.

The great increase in temperature obtainable in the combustion of my mixture which attains the high point of 4480° C compared to the relatively low temperature of 2530° C under the old mixture provides a comparison of 12000 developed in the reaction of the former to 9400 developed in the reaction of the latter.

Compared to other types of explosives used for industrial and war purposes such as those using chlorates and perchlorates of potassium, sodium or ammonium, my explosive is much less sensitive to shock due to the coating of petroleum pitch on the minute particles. This coating of petroleum pitch renders the nitrate insensible to humidity, since, I have found that, after two months exposure to the open air, the retaking of moisture is only .31%. The addition of the aluminum powder to chlorates and perchlorates results in the most powerful explosive which is known at the present time but without this coating of petroleum pitch on the particles of the mixture, which I also apply thereto in the same manner as described above in connection with the nitrate and aluminum mixture, the mixture would be too sensitive to shock to render the use of the chlorates and perchlorates with aluminum powder practicable.

I am aware that many changes may be made and details varied without departing from the principles of my invention and I therefore do not wish to be limited to the details shown or described.

CHARLES BARON.