

A REACTIVITY AND PHYSICOCHEMICAL CHARACTERISTICS OF ACTIVATED ALUMINUM POWDERS

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Aluminum powders have found the widest application as metallic fuels. They are used in the field of explosive engineering, production of high-energy combustible mixtures and solid propellants of rocket engines, however, high protective properties of the oxide film on the surface of metal particles do not allow to fully realize its potential capabilities [1]. The presence of a condensed oxide layer on the surface of powder particles, which has high protective properties, is a major drawback that does not allow to fully utilize its energy potential. The problem of increasing the energy characteristics of explosives for various purposes, due to the introduction of metallic fuels into their composition, has not been fully solved to date. This is due to the insufficient reactivity of metal powders, which do not have time to give up the potential energy of combustion in the detonation wave, but contribute to an increase in the work of the explosion. The use of explosives of various compositions, to some extent, allows to control the efficiency of charges, but in each case requires a preliminary study of the physicochemical characteristics of modified metallic fuels that can be used in the process of manufacturing metallized explosives.

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References

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