

NEW TYPE INDUSTRIAL EXPLOSIVE

Description

In the republics of the former Soviet Union, including Georgia, great volume of gunpowder and solid jet fuel utilized from up-to-date ammunition which should be definitely destroyed, has been accumulated. Nowadays in practice there are two ways of their destruction: explosion and burning. Both of them are connected with economic expenses as well as with ecological problems. In the advanced states special plants are used for their utilization, where destruction of these materials is realized.

Traditional ways of problem solution imply creation of new explosive materials on the base of application of ingredients possessing better properties. In distinct from the traditional methods the essence of the offered technology is creation of new type of industrial explosive compounds and application of fuel removed from utilized missiles/shells of military designation in the role of components of explosive materials. Such an approach, on the one hand simplifies the economic and ecological problems connected with destruction of obsolete missiles. On the other hand such an approach will contribute to sharp decrease of price of industrial explosives.

The implemented works prove also that the new explosive materials can also be used in any natural condition, while application of available emulsion explosives in water wells, in aggressive media (sulfide medium) is connected with the risk of self-explosion since the components existing in them react with sulfide rocks.

Innovative Aspects and Main Advantages

Nowadays the problem of utilized gunpowder in other countries is mainly solved with destruction of gunpowder by burning or explosion, which is connected with irreparable expenses and negative ecological results. Our approach is different from that of others with creation of ecologically safe (zero oxygen balance) industrial explosives based on these gunpowder.

Researches implemented at the funding of International Scientific Technical Center (ISTC) in 2004-2007 proved that industrial explosives (compounds) made on the base of utilized colloidal gun powders are distinguished by their detonation properties, are ecologically pure and can be used for destruction of rocks in any conditions, including aggressive medium.

Main advantages includes the following:

- Cheap and ecologically pure industrial explosives are created, which, by their hydrodynamic properties, are equal to the most powerful industrial explosives existing at the current market;
- Using this technology enables to use repeatedly in industry the obsolete energy carriers, which were to be subjected to destruction;

- Oxygen balance in the new type explosive compounds is zero, and thanks to it harmful gasses spread in the environment as a result of explosion are brought to minimum.

Areas of Application

Highly effective, waterproof, environmentally appropriate industrial explosives used during explosion works in open pit mining; seismic prospecting in gas and oil apertures; frozen ground loosening; rock destruction; road and tunnel building; preparation of foundation pits; elimination of construction sites, etc.



Fig. 1. Ballistite jet fuel

Stage of Development

Demo samples of the environmentally appropriate industrial explosives on the basis of salvaged ammunition have been obtained. Development engineers have created an industrial standard, in which the detonation and processing characteristics of the developed industrial explosives are introduced along with those conditions, which are necessary for their production, transportation, application and storage. The original installation scheme for obtaining industrial explosives on the basis of colloidal powders and ballistic propellant is also elaborated.

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