1 Deactivation of soil polluted with liquid propellant components

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The problem of deactivation of soil polluted with components of liquid propellant is very topical in Kazakhstan now. There are many different ways of soil decontamination (for example chemical, thermal, microbiological) and adsorptive method is one of the most effective.

This work deals with deactivation of soil polluted with heptyl with help of shungite sorbent under different conditions. The subject of inquiry was soil from Karaganda region.

The shungite sorbent were prepared by mixed of shungite concentrate with solution of sugar. The mixture was granulated and prepared granules (size of 1 cm) were dried at 110 °С for 1,5h and activated by steam. It is known that metals ions (manganese, copper, and molybdenum, chromium, iron and other) catalyze oxidation of heptyl and the products of its decomposition. Therefore we introduced additions of manganese (57 mg/g) and iron (31 mg/g) in shungite sorbent composition.

The soil deactivation experiments were carried at room temperature using air-dry and humid soil samples with different content of heptyl. The shungite sorbent was active in process of heptyl sorption: 94-96 % purification of soil was achieved. It was determined that heptyl sorption process depends on its content in soil, a ratio of soil

and sorbent and time of them interaction. The iron addition did not improve results of soil polluted with components of liquid propellant deactivation. But the introduction of manganese in carbon-mineral sorbent composition improved heptyl sorption which achieved 100 %.

3 So investigations shown that shungite sorbent deactivates of polluting soil and may be successfully used for it.