

ELECTRIC DISCHARGE DESTRUCTION OF REINFORCED CONCRETE SLEEPERS WITH DIFFERENT MODES OF PULSE POLARITY

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Analysis of publications in the world on the topic of electrical discharge destruction shows that today interest in electrical discharge technologies for processing materials, such as drilling or crushing, is rapidly increasing [1-6]. However, publications associated with the destruction of concrete products and removal of the surface layer is not enough.

Experimental data of the destruction of reinforced concrete sleeper in the system of electrodes placed on the sample were obtained. The tests were carried out at different modes: bipolar pulse, pulses with positive and negative polarities. The optimal charging voltage was determined, which was chosen according to the criteria for the occurrence of breakdown at the top or in the decay of a pulse signal without overvoltages in the system with the given interelectrode distance.

During the experiment, the sample was destroyed before the first layer of reinforcement (Fig. 1.), and it can be noted that the destruction near the reinforcement shows the worst result among all the stages of destruction, since the amount of consumed specific energy is more than in all other stages. Also, there is the smallest result in terms of the volume of the broken-off material. This happens due to the fact that a significant part of the impulses falls on the reinforcement, and not on the destruction of concrete.

As a result of destruction, the reinforcement can be completely removed without any additional effort.



Fig. 1. View of the sample with the installed electrode plate system.

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