OPTIMIZATION OF METHODS FOR REGENERATION THE COOLING ABILITY OF MINERAL OILS IN INDUSTRIAL HEAT TREATMENT TECHNOLOGIES

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The purpose of this work was to develop a method for regeneration the cooling properties of mineral oils for the final heat treatment of steel products.

Results. A quick and effective method for the recovery of quenching oils without stopping the process has been proposed and studied in detail. Regeneration is carried out in two stages: 1) oil filtration to remove various types of mechanical impurities; 2) a certain amount of the initial quenching oil is added to the quenching bath with spent and purified mineral oil, which partially lost its initial cooling capacity. Adding the original quench product to the spent one should be carried out meteredly, with parallel periodic testing of the cooling capacity of oil of different concentrations of the original oil in the according international standard ISO 9950 using a special hardware-software complex.

Findings. 1. Experiments carried out on samples of quenching medium based on mineral oil I-20A, after its 6-month operation in the workshop on the heat treatment line of steel products, showed that replacing up to 50% of the used oil with the original product almost completely restores its initial cooling capacity .

2. The positive result of laboratory studies of the proposed method for the recovery of quenching oils gives grounds for conducting pilot tests under production conditions and possible introduction into technological practice.