

STUDY OF THE EFFICIENCY OF APPLICATION OF SCALE INHIBITORS FOR WATER

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Abstract. Scale formation in pipelines and on equipment surfaces is a serious problem in many branches of industry. Different scales are formed in cooling water systems and caused heat transfer problems. A common method for controlling scale deposition is the use of chemicals which act as antiscalants. This study focuses on the selection of antiscalant and the parameters of the process for the creation of resource-saving technologies for the use of water in industry. To inhibit the scale formation in cooling water systems, antiscalant RT-2024-4 was used, characterised and the ability of the reagent to mitigate the scale formation was tested. Artesian, tap water and water from the Desna River and model solutions with a hardness of 7.33–14.65 mg-eq/L were used as test objects. The conducted studies show that the temperature increase in the range of 80–90°C and the time of thermostating in the range of 2–5 hours have practically no effect on the stabilisation and anti-scale effects. The statistical data processing method was used to analyse the experimental data. High stability of water with respect to scale formation was established. The expediency of using the scale stabilizer RT-2024-4 for mineralised and highly mineralized waters was shown.

Keywords: antiscalant, water, scaling, hardness ion.

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