



Sodium carboxymethyl cellulose as an inhibitor of scale formation in nanofiltration of hard artesian waters

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ABSTRACT

The ability of sodium carboxymethyl cellulose (Na-CMC) to inhibit scale formation in nanofiltration (NF) of hard artesian waters have been studied. Na-CMC inhibition ability was examined in comparison with ACUMER scale formation inhibitor. We used three types of membranes: ESPA1, OPMN-P, and AMN-P. It was revealed that the event of absence of the inhibitor in the hard artesian water membranes' flux is decreasing. Level of flux leads to decrease in virgin membranes that depend on their type. Scale formation process gradually decreases when Na-CMC or ACUMER was added to the water. Na-CMC inhibition ability is comparable with ACUMER with the use of less dense membranes OPMN-P, AMN-P. Na-K III и ACUMER models of inhibition action in NF of hard artesian water are proposed when different types of membranes are used.

Keywords: Hard artesian waters; Inhibitors; Nanofiltration; Sodium carboxymethyl cellulose; Scaling

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