DESAL
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RATINOVA
Mr. W. Gerhardt
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Re.: Novasan ® OSMO disinfectant **March 27, 1996**

Dear Mr. Gerhardt

DSI has subjected two types of membranes, DESAL-3 type SG and DESAL-11 type AG, to the product Novosan® OSMO from Ratinova. The water flux and the salt permeability of the membranes was measured before and after the test.

RATINOVA recommends to use its product in a concentration of 0.1% to 0.5%. DSI has used the product at the recommended concentration slightly above the recommended, but also increased concentration BA a factor of 15 above the recommended to accelerate the test. All tests were made at room temperature.

Test 1. A DESAL 11 type AG was subjected to a concentration of 1.2% for 20 hours.

Test 2. Then the concentration was increased from 1.2% to 3.5% for 25 hours, using the same DESAL 11 membrane.

Test 3. New DESAL 11 and DESAL 3 membranes were subjected to increasing concentrations of Novasan. Start concentration 0.1%, final concentration 3.8%.

It is assumed that a dairy plant is disinfected by a 0.25% solution for 30 minutes at a temperature not exceeding 35 °C. Based on this the following was found.

Test 1 with DESAL 11 corresponds to 190 disinfections. This gave no significant change of water flux and salt permeability.
Test 2 corresponds to 700 disinfections. After that the salt permeability had doubled, while the water flux had not changed significantly.
Test 3 resulted in severe attack on the membrane, when the concentration reached 3,8%, which is approximately 15 times higher than the recommended concentration.
Salt permeability increased by a factor of three and water flux dropped by a factor of 1.3.
DESAL-3 seems to be more sensitive to oxidation than DESAL 11, although this is not proven conclusively by just one test.

It is not logical that the increase from 3.5% in test 2 to 3.8% in test 3 can give such a big difference in attack on the membrane. It seems more logical to conclude that significant membrane damage is likely when the concentration of Novasan exceeds around 10 times the recommended concentration. It also seems that a high dosage results in more damage than the ppm-hours indicate.