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SILT DENSITY INDEX (SDI)

TECHNICAL INFORMATION 1

WHY IS SILT DENSITY INDEX (SDI) IMPORTANT?

- What obstructs the reverse osmosis membranes?

Over 10 years of membrane analysis in our laboratory have shown that one of the most frequent obstructions on the modules is caused by colloidal substances (aluminosilicates - clay). These materials often deposit together with iron corrosion products, precipitated iron hydroxide and biofilms.

- What is Silt Density Index (SDI)?

Il Silt Density Index (SDI) measures potential colloidal deposits that can develop in reverse osmosis (RO) or nanofiltration (NF) membranes.

- What doeas Silt Density Index (SDI) measure?

The SDI test determines how quickly colloidal substances and particulate fouling will obstruct a given membrane, particularly a reverse osmosis (RO) membrane or a nanofiltration (NF) membrane.

- Why is Silt Density Index (SDI) used?

The SDI test is used to predict and thus prevent fouling of the membrane surface. The Silt Density Index can also be called, even tough used more rarely, the Kolloid-Index (KI) or the Fouling-Index (FI).

- How is the measurement done?

The Silt Density Index (SDI) measures the time it takes to filter a fixed volume of water through a standard 0.45 µm microfiltration membrane with a constant given pressure of 2.07 bar (30 psi). The difference between the initial time and the time of a second measurement after typically 15 minutes (after silt build-up) represents the SDI value.

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- How do you read Silt Density Index results?

SDI<1	HIGH-QUALITY WATER
1	WATER OF GOOD QUALITY
3	WATER TO BE CHECKED IN ANALYZED IN-DEPTH
SDI>5	WATER THAT NEED FURTHER PRE-TREATMENT
SDI>6,7	WATER COMPLETELY OBSTRUCTS THE MEMBRANE

- Which instruments measure the Silt Density Index (SDI)?

The measurement of the Silt Density Index (SDI) is then carried out by plant engineers during the process design and by the managers of reverse osmosis plants for the optimization of the exercise. The two instruments that measure the Silt Density Index are: SDI-Electronic (electronic) and SDI-Easy (manual).