

## Water Technologies & Solutions fact sheet

# FloSize\* 189

## cellulose acetate membrane sizing agent

- Rejection in cellulose acetate (CA) systems is often restored to the manufacturers' specification range.
- Existing acid or antiscalant dosing equipment may be used to add the sizing agent.
- No system downtime is required for the sizing procedure. The product can be added while the RO system is online.
- Treatment may be accomplished in less than 30 minutes.

### description and use

FloSize 189 is a polymer-based additive used to size partially hydrolyzed cellulose acetate membranes in order to increase salt rejection. This product is effective on all cellulose acetate blends, but should never be used on thin-film composite membranes. In order for this sizing agent to be effective, normalized salt rejection of the CA system to be sized should not be below 90%.

Cellulose acetate membranes will hydrolyze over time. This hydrolysis reaction involves the loss of acetyl functional groups from the surface of the membrane. When this takes place, the salt rejection of the membrane begins to degrade. Elevated temperature and elevated pH can drastically increase the rate of hydrolysis; therefore it is critical to closely control these parameters in an RO system

### important notes:

Sizing does not simulate the original membrane surface chemistry as to its ability to last as long as the original membrane.

Sized membranes are more sensitive to both feed water pH changes and cleaning. Cleaning of the membranes often results in the need to resize.

At decreased storage temperatures, the packaged product may become cloudy and separate. If this should happen, simply warm and stir the liquid until the solution becomes clear and homogeneous.

Contact your local SUEZ representative with any questions regarding the use or application of this product.

### packaging information

FloSize 189 is a liquid material, available in a variety of customized containers and delivery methods. Contact your SUEZ sales representative for details.

### safety precautions

A Material Safety Data Sheet containing detailed information about this product is available upon request, or it can be accessed online at [www.suezwatertechnologies.com](http://www.suezwatertechnologies.com).

### dosing and use instructions

1. The RO system should be cleaned with a low pH cleaner (Kleen\* MCT103), followed by a neutral

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pH cleaner (Kleen MCT107). Contact your local SUEZ representative for optimum cleaning procedures.

2. After cleaning, the RO system should be re-started under normal operating parameters.
3. Check the system performance. Flow and rejection for each pressure vessel should be determined. Vessels with abnormally high flows or rejections should be analyzed.
4. All defective o-rings and all leaking modules should be replaced. No amount of FloSize 189 will overcome a substantial leak.
5. The acid injection pump can be used to inject the FloSize 189. However, the pump must be completely rinsed of acid, as the polymer will precipitate at low pH.
6. The FloSize 189 solution should have a pH of 8, even when diluted. If the pH is lower than 8, adjust with ammonium hydroxide.
7. Discontinue feeding the antiscalant.
8. Direct permeate and concentrate to drain.
9. Operate the RO system at a pH of 7.0 for a minimum of 5 minutes before injecting the polymer solution. Without this important step, the FloSize 189 might not adhere to the membrane.
10. Begin the injection of FloSize 189 at a rate of 300 ppm. Note that the concentrate stream will contain high levels of unused polymer.
11. Continue the injection of FloSize 189 until the desired rejection levels are achieved or until the rejection stabilizes.
12. Discontinue the injection of FloSize 189.
13. Continue operating the RO system for 15 minutes at pH 7 to flush any residual polymer out of the system.
14. Restart the injection of the antiscalant.
15. Thoroughly flush all residual FloSize 189 from the chemical injection pump by recirculating pH 8 water through the pump and feed-line until it is clean.
16. Restart the acid injection and lower the system feed pH to the standard operating level of 5.5 to 6.0.
17. Reconnect the permeate and concentrate to the standard operating configuration.
18. Monitor the system performance closely over a 48-hour period. When normalized, the rejection should be stable.