



NLR 550 – OXIDIZING POWDERED MEMBRANE CLEANER

FOULING

The loss of membrane performance due to fouling by organic and biological components is common to many UF, NF and RO membranes. This fouling can lead to reduced permeate flow, changes in rejection characteristics across the membrane system, increases in differential pressure and frequent membrane replacement.

CLEANING

Keeping your membrane clean with regular cleaning routines or performing a maintenance clean to recover the membranes are possible solutions to overcome the fouling plaguing many existing systems.

The NLR-550 powder membrane cleaner is designed to target biological foulants, organics, oil, grease, lignin, and dyes. This cleaner is also effective on man-made polymers often found in wastewater treatment systems.

The NLR-550 cleaner offers the same benefits at liquid Hydrogen Peroxide. NLR 550 has been tested for compatibility with New Logic's membranes and has been found to be a mild oxidizing agent that is compatible with nearly all membranes, yet provide powerful cleaning capabilities.

NLR 550 can be used to clean, bleach, remove stains and residue, and sanitize modules. NLR 550 will destroy bacteria and other microorganisms and works effectively on biological fouling. It is also environmentally safe since the products of decomposition are water, oxygen, and Soda Ash.

USAGE INSTRUCTIONS

Cleaning for your particular system may require an individualized procedure based on your type of foulants. However, the following is a basic procedure that should work for a broad range of situations.

NLR-550 is a powder oxidizing cleaner that should be added to warm water to the proper concentration prior to use. The cleaning solution should be prepared in a clean tank equipped with a mixer and a low-pressure recirculation pump. For a standard cleaning you will prepare a 0.5% (w/w) solution. This will equate to adding ~8 lbs (3.8 kg) of the NLR-550 cleaner to 200 gallons of water. Here is a table outlining the volumes to use for various final cleaning solution volumes.

Total Cleaning Solution	Pounds of NLR 550	Kilo-grams of NLR 550
25 gallons	1 lb	500 grams
50 gallons	2 lbs	1 kg
100 gallons	4 lbs	1.8 kg
200 gallons	8 lbs	3.8 kg
300 gallons	12 lbs	5.5 kg

The solution pH will be approximately 8.0 to 9.5. When recirculating the solution through your membrane system you will want to use a feed pressure of 35-50 psi. The exact flow rate will depend on the size of your membrane module.

Rinse your membrane system first with de-ionized (DI) or RO Permeate water for 10 minutes. Prepare the NLR-550 cleaning solution as instructed above and heat to 45°C or prepare the solution with heated water. Recirculate the solution for 30-45 minutes checking the temperature periodically and adjusting as necessary.

The cleaner may work better at between pH 10.0 to 11.5. This cleaner can also be added to a solution of NLR 505. Always confirm that the cleaner, the pH used, and the temperature of your solution are compatible with your membrane system. Rinse the system again with DI water prior to returning to your regular process feed material. The use of DI water is not necessarily required but ordinary tap water may introduce foulants to your system prior to returning to your feed material. If you are having problems with your cleaning then you should test to see if a DI water rinse following cleaning improves the performance.

For periodic maintenance cleaning or for heavily fouled membranes you may want to prepare a 1% solution of the NLR-550 cleaner and recirculate as above or complete the above cleaning two times. You may also want to have your membranes soak overnight for heavily fouled systems.

REQUIRED CLEANING TIME

The actual time required to complete a cleaning will depend on the foulants and the length of time between cleanings. In some cases you can clean in 30 minutes while in other cases it will take hours or could require an overnight soak. The best cleaning cycle will be determined through experimentation by altering variables such as: cleaner concentration, water temperature, type of water, and duration of cleaning cycle.

The longer you run the cleaning solution, the more likely you are to consume one of the ingredients. For longer cleaning you may need to add more NLR-550 to the cleaning tank. This is another parameter to consider when optimizing your process. Checking for foaming or bubbling of the cleaner periodically will help you determine if the cleaner composition is maintained.

PACKAGING

NLR-550 is shipped as a powder in 25 kg, 50 kg, 100 kg, and 175 kg containers. The shelf life for the cleaner when stored unopened indoors at a temperature between 5°C and 30°C is one year from its date of manufacture. For specific pricing and delivery information, please contact New Logic.

HANDLING

NLR-505 is an oxidizing cleaner and should not be mixed with other cleaners unless specified by the vendor. Be sure to store in a dry location. Rotate stock to maintain freshness. The main benefit to NLR 550 over Hydrogen Peroxide is shelf life and potency. H₂O₂ degrades with time, NLR 550 does not degrades until mixed with water

Wear chemical resistant gloves when you expect long, constant exposure. It is also a good practice to wear safety glasses or goggles when using this product.