
IESL TECHNICAL BULLETIN

DECEMBER 2004

RO SANITISATION.

We have very recently experienced the effectiveness of INDION RO sanitisation chemicals and hence this bulletin on the same.

As most of you are aware that formaldehyde is no more permitted to be used in any of the pharmaceutical / drinking application as the above chemical is categorised to be carcinogenic.(Chemical which causes cancer).

Our site trials at two sites have shown us that our INDION chemicals 2821 / 2826 and 2840 are very effective in controlling plate count and pseudomonas to a certain extent.

SANITISATION PROCEDURE:

1. Permeate cleaning:-
 - a. Ensure that the cleaning loop i.e. cleaning tank-pump-cartridge filter-pressure vessel with membranes is ready.
 - b. Circulate the permeate water for half an hour.
 - c. Analyse pH, Ca H,SiO₂ after recirculation.
 - d. Now drain this water.
2. Sanitization with Indion 2826
 - a. Prepare a fresh solution with permeate water and 2% of Indion 2826.
 - b. Circulate this solution for one hour.
 - c. Keep the membranes in soaked condition with this solution for 2 hours.
 - d. Again circulate for one hour and drain the
3. Cleaning with Indion 2821
 - a. Prepare fresh solution with permeate water and 2% of Indion 2821.
 - b. Check the pH of solution and adjust the pH to 10.5
 - c. Circulate the solution for two hours.
 - d. Analyze for pH, Fe, F, SiO₂ and TDS before and after circulation.
 - e. Drain the solution.
4. Product water Flushing:-
 - a. Take fresh water in cleaning tank after rinsing the tank thoroughly.
 - b. Circulate for half an hour in membranes and drain.
 - c. Repeat this activity till conductivity after after circulation in the membranes remains unchanged.
5. Cleaning with Indion 2824
 - a. Prepare fresh solution with permeate water and 2% of Indion 2824
 - b. Standardize the pH 3.0 to 3.5, if required by adding Indion 2821
 - c. Circulate the solution for two hours.
 - d. Analyze for pH, CaH, Fe, F, SiO₂ and TDS before circulation.
 - e. Drain the solution.

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CASE STUDY

1. M/s. Micro Labs. Ltd., Bangalore:-

Chemicals used:- INDION 2821, INDION 2826 and INDION 2840

Strength:- 2% w/v of each chemical

Quality of water after sanitation:-

Before Sanitation: - 120-130 cfu/ml

After sanitation: - Less than 10 cfu/ml

2. The Matrix Laboratory, Hyderabad:-

Strength: - 2% w/v of each chemical

Quality of water: -

Before Sanitation: - Present including Pseudomonas.

After sanitation: - Plate count is absent.

Pseudomonas also absent to some extent.

*** Special note to carry out the Sanitation:-**

1. It is always advisable to clean the RO equipment membrane wise during sanitation so that the contaminated cleaning solution does not enter the next membrane.
2. The improvement in performance when single membrane cleaning is done is so substantial that customers will ask for it each time.
3. This is possible by carrying our portable cleaning system with single element pressure tube to site . The existing portable cleaning system can be used for both 4 “ and 8 “ membrane RO equipment.
4. In case individual membrane cleaning is not possible due to higher capacity RO or distance of site please do take up individual pressure tube cleaning.
5. For individual pressure tube cleaning use the dummy plugs and ensure the correct cleaning procedure atleast for 8-12 hours for one cycle of cleaning.
6. NEVER EVER CLEAN 2-3 PRESSURE TUBES AT A TIME.

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