FILMTEC Membranes
Troubleshooting: Introduction

Introduction

Loss of salt rejection and loss of permeate flow are the most common problems encountered in reverse osmosis (RO) and nanofiltration (NF). Plugging of the feed channels associated with pressure drop increase is another typical problem. If the rejection and/or the permeate flow decreases moderately and slowly, this may indicate a normal fouling which can be handled by proper and regular cleaning (see *Cleaning and Sanitation - Section 6*). An immediate decline in performance indicates a defect or misoperation of the plant. In any case, it is essential that the proper corrective measure is taken as early as possible because any delay decreases the chance of restoring the plant performance – apart from other problems that might be created by an excessively low permeate flow and/or too high permeate TDS.

A prerequisite for early detection of potential problems is proper *record keeping (Section 5.6)* and *plant performance normalization (Section 5.6.6)*. This includes proper calibration of all instruments. Without accurate readings it might be too late before a problem is detected and corrected.

Once a performance decline has been identified, the first step in solving the problem is to localize the problem and to identify the cause(s) of the problem. The first step is to evaluate the performance and the operation of the system. This can be done using the data of the record keeping logsheet or of some additional on-line measurements. Then some checks and system tests should be made. Troubleshooting is much more effective if certain system features and equipment are provided, (see *System Design Suggestions for Troubleshooting Success - Section 3.16*). If the system data is not sufficient in determining the cause(s) and to recommend corrective action, one or more membrane elements must be taken from the plant and analyzed. Element performance analysis includes non-destructive and destructive analysis. Finally, corrective measures are taken to restore the plant performance and to avoid future problems.

Further reading: *W.Byrne (Ed.): Reverse Osmosis, Chapter 7 /1/*.

FILMTEC™ Membranes
For more information about FILMTEC membranes, call the Dow Liquid Separations business:
North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific (ex. China): +800-7776-7776
China: +10-800-600-0015
http://www.filmtec.com

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