

Introduction

Record keeping on a membrane system is important for a number of reasons, as it aids troubleshooting of problems, allows monitoring to schedule cleans and is essential for warranty claims.

The minimum records that should be kept for a membrane system are those that are required to carry out normalisation of the operational data. These are;

Pressures:Inlet, interstage and reject.Flowrates:Feed, permeate and reject.Conductivity:Feed, permeate and reject.Temperature:FeedThis data should be recorded at least onceper day.

Additional data can be useful for tracking the performance of a system.

Pressure data through the entire system can be a useful aid to determining the quality of the feed water. Measuring the differential pressure across the cartridge filter can monitor the rate at which a cartridge filter fouls. In some cases the way in which the differential pressure builds up can be used to determine the main cause of the fouling. For example, if the differential pressure remains low for a period, then rises rapidly, the cause is often microbiological fouling.

A system conductivity profile should be taken on start up and at regular intervals thereafter. If a problem with permeate quality occurs, the system profile can then be compared with historical data to determine if it is a sudden failure, probably caused by an o-ring or broken permeate port, or a gradual decline in performance caused by system fouling. System conductivity profiles should be typically carried out every 1-3 months.

Some method of measuring the fouling potential of the feed water is useful to

indicate changes in the nature of the feedwater, and to measure the efficacy of any pre-treatment system. Feed water fouling potential may be measured by the use of a silt density index (SDI) test. The SDI of a water is not always an indication of the fouling tendency of a system but it is a general indicator of the colloidal content. Membrane warranties are often linked to the SDI of the water a system is operating on. Alternative methods of measuring the feed water fouling potential are turbidity and particle counters. SDI's should be taken once or twice per week on a small system and daily on larger systems.

Loading plans of the location of each membrane are used to track the duty each membrane has seen. Should a problem occur, and investigative work be necessary on an element, knowing where an element has been operated and for how long can help determine the likely cause of any problem. Each element has an individual serial number visible through the fibre wrapping. Logging each elements position within its pressure vessel is generally all that is required. This should be done any time an element is changed.

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SAMPLE REVERSE OSMOSIS LOGSHEET

Site Name	Ro Unit						
		Startup	11/5	12/5	13/5	14/5	15/5
		Values					
Time							
SDI							
Feed Temperature	С						
Feed Flow	m ³ /hr						
Permeate Flow	m ³ /hr						
Reject Flow	m ³ /hr						
Feed Pressure	bar						
Interstage Pressure	bar						
Brine Pressure	bar						
Permeate Pressure	bar						
Feed Conductivity	µS/cm						
Permeate Conductivity	µS/cm						