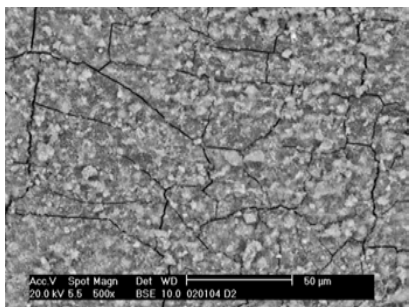
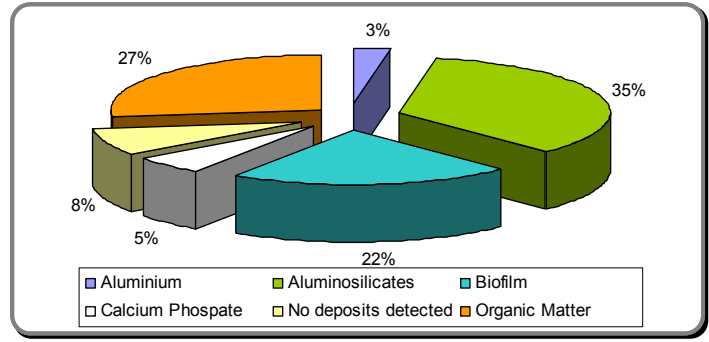


- Clay is colloidal alumino-silicates
- Attaches rapidly to membrane surface
- Causes reduction in flux and increase in feed pressure.
- Reduces membrane permeability



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- Most common foulant in lead membrane elements
- Source is erosion products in surface waters

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## Clay Chemistry



Clay	$\text{Al}_2\text{O}_3\text{SiO}_2 \cdot x\text{H}_2\text{O}$
Kaolin (china clay)	50% $\text{Al}_2\text{O}_3$ : 55% $\text{SiO}_2$
Feldspar	$\text{KAl SiO}_3$
Mullite	$3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$
Andalucite	$\text{Al}_2\text{OSiO}_4$



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## Genesol 703

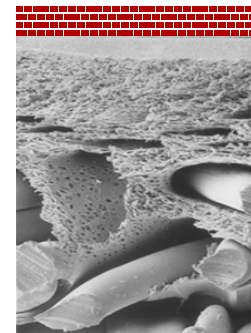


Powdered product  
100% active

- Phosphate cleaner, detergent
- Surfactant
- Chelant
- Salt to create high ionic strength at membrane surface so osmosis clears the pores.



Osmosis ↑



Reverse Osmosis ↓

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## Genesol 703 CASE STUDY 1



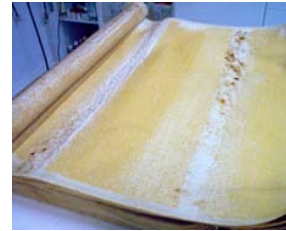
Inorganic >90% dry mass  
Aluminium silicates  
Iron oxide  
SEM micrograph and EDAX  
analysis. (ref. 070749)



	Flow rate	L/m <sup>3</sup> /hr	% salt	Passage
	Design	40.36	Design	99.7%
	before	after	before	after
Stage 1. Genesol 703 at 35-40°C for 2 hours	17.33	<b>58.43</b>	93.82	<b>96.45</b>
Stage 2. Genesol 37 at ambient temp. 1 hour	58.43	<b>53.39</b>	96.45	<b>97.00</b>

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## Genesol 703 CASE STUDY 2



- Cleaning 1: 3% Mild acid for 1 hour ambient
- Cleaning 2: 2% Chelant + 1% surfactant (2h) at 35 C
- Cleaning 3: 2% Alkaline cleaner (2 h) at 35 C  
3% Mild Acid (1 h) ambient  
2% Alkaline cleaner (2 h) at 35 C
- Cleaning 4: 1% Genesol 703 (2 h) at 35 C  
3% Mild Acid (1 h) at 35 C



	Flowrates L/m <sup>2</sup> /h @ 25 C		% Salt rejection	
	design	45.05	99.0	- 99.5
Cleaning 1:	43.22	39.26	99.2	99.1
Cleaning 2:	45.63	42.95	99.1	99.4
Cleaning 3-S1	44.96	44.97	98.8	99.1
Cleaning 3-S2	44.97	40.63	99.1	99.2
Cleaning 3-S3	40.63	44.39	99.2	99.3
<b>Cleaning 4-S1</b>	<b>43.51</b>	<b>45.50</b>	<b>99.2</b>	<b>99.4</b>
Cleaning 4-S2	45.5	40.74	99.4	99.3
Cleaning 4-S3	40.74	46.97	99.3	99.3