Case study of Memsys Thermal (MSF)-brine concentration plant in Qatar

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Project information

Brine Discharge from MSF plant

Memsys containerized system onsite

Memsys Pilot system

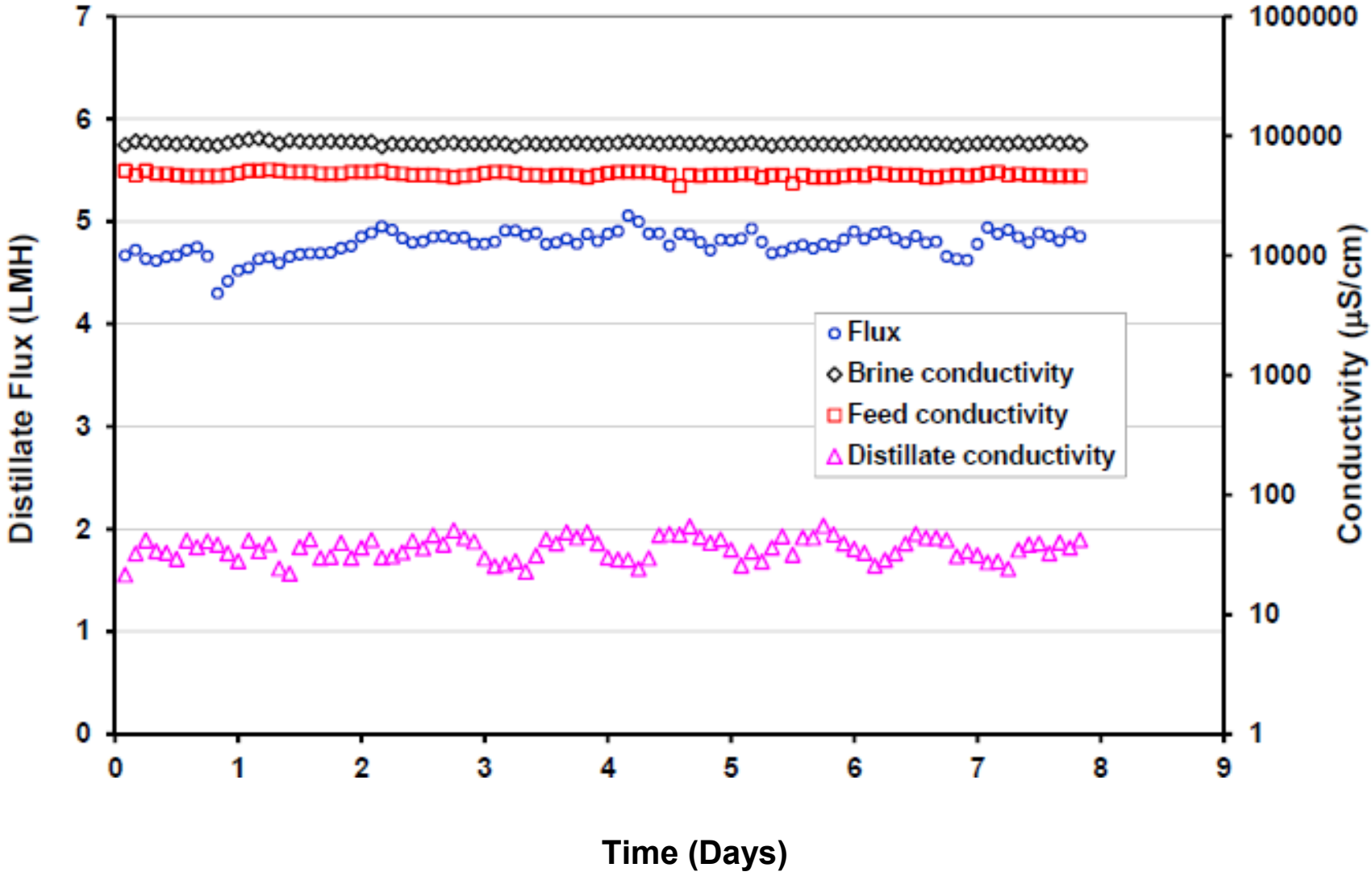
Feed analysis

Scale inhibitor

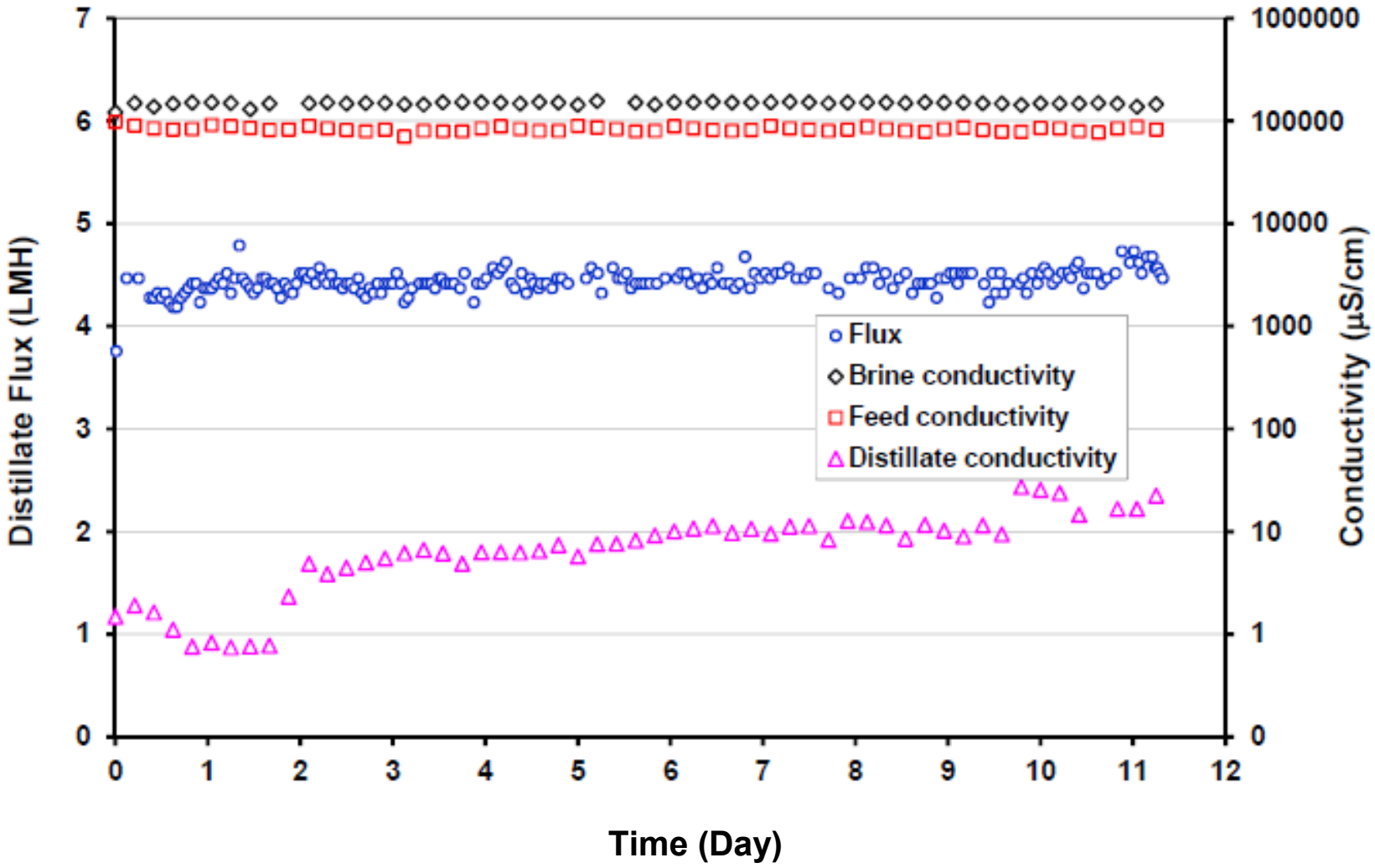
Thermal brine

- **The MSF-brine contents certain amount of scale inhibitor which can continuously benefit next Memsys membrane distillation (MD) process and there is no surface effect on Memsys membrane;**
- **The nature high temperature of MSF-brine will improve the heat efficiency of whole MD process.**

Memsys performance using seawater as feed without pretreatment



Memsys performance using MSF brine as feed with pretreatment



Water analysis of MSF brine, distillate and final reject water after Memsys process

memsys®
thermal separation processes

Parameter	Unit	Thermal Brine (N = 4)	Distillate (N = 4)	Reject Brine (N = 4)	Rejection (%)
Conductivity	µS/cm	94,925	22	129,975	99.98
TDS	mg/L	71,031	6	112,279	99.99
Chloride	mg/L	40,988	2	64,838	99.99
Sodium	mg/L	21,310	2	33,258	99.99
Sulfate	mg/L	4,344	1.2	7,264	99.97
Magnesium	mg/L	2,519	0.3	3,929	99.99
Potassium	mg/L	779	<0.2	1,193	>99.9
Calcium	mg/L	775	<1	1,423	>99.9
Bromide	mg/L	64	<0.1	110	>99.8
Strontium	mg/L	11	<0.2	17	>98.2
Boron	mg/L	8	<0.2	12	>98
TOC	mg/L	3	<1	4	-

Memsys Process optimization: using MSF brine with original temperature (>50 °C) and ambient temperature (32 °C)