



MAAGAN FILTRATION
Pure Innovation - Clear Solutions

Food and Beverages | Case Study



Project ID



Tnuva plant - Tnuva is the largest t dairy in Israel.

Tnuva Soy Dairy |

Location:	Alon Tavor Industrial Area, Israel
Year:	2019
Application:	Pre Filtration for Reverse Osmosis
Goal:	SDI Reduction
Pilot Capacity:	2 m3/hour comparing to existing Sand Filter
Full Scale Capacity:	12 m3/hour
Water Source:	Wells

The Challenge

Mekorot- Israel's water carrier frequently changes the water source, and therefore water quality is unstable. That decreases the functionality of the RO plant, and specifically the RO membranes. Deterioration in the RO plant functionality may defer the quality of the soy production line. The main parameter, required by RO membrane manufacturers, globally, is called SDI (Silt Density Index). SDI, which defines the water clarity, needs to be less than 3 at all times.

Item	Existing value Before Filtration	Required Value After Filtration
SDI	> 5	< 3

Solution

A Maagan Filtration Sheaf Filter Unit was operated, in parallel to the sand filter, in one of Soy Magic Reverse Osmosis plants for three consecutive months (January-March 2019) at an average flow rate of 2 m3/hr.

During the test period water turbidity, SDI and particle count were frequently measured before and after both filters for comparison.

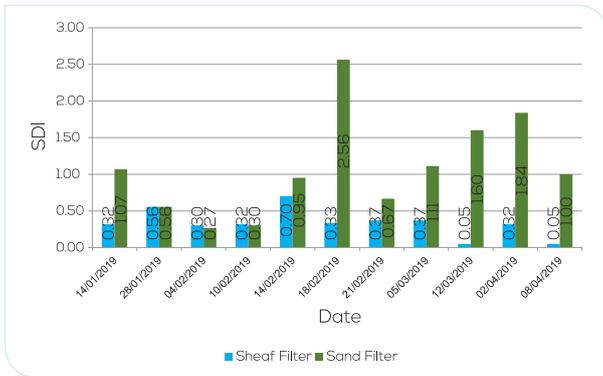


Sheaf Filter Pilot Unit at Soy Magic RO Site

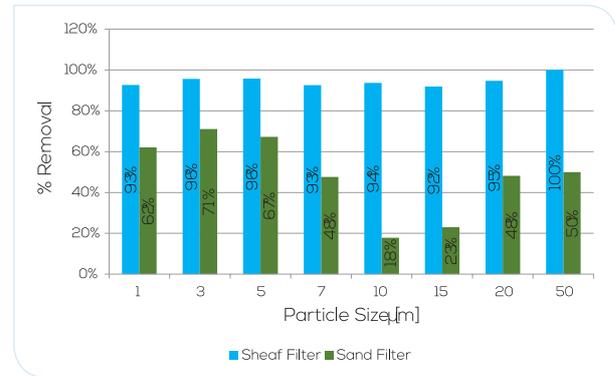
Results

Item	Measured Values Before Filtration	After Sand Filtration	After Sheaf Filtration
SDI	< 3	< 3	< 1 ✓

SDI comparison after Sheaf and sand filters:



Particles percentage removal comparison in Sheaf and sand filters:



SDI Filtration Papers

SDI after the Sheaf filter was significantly lower than SDI after the sand filter and was lower than 1 in all the measurements.

On average, SDI reduction percentage (outlet to inlet) on Sheaf filter was 92% vs. 31% on sand filter.

Conclusions

The results strongly indicate that under identical conditions and for 3 consecutive months, the Sheaf filter performed significantly better than the sand filter, and had superior results in all measured parameters, especially SDI. During the tested period, the Sheaf filter was hydraulically stable and was backwashed only once every day for few seconds (air aided). Water loss was less than 0.1%, which was around 20 times lower than in the sand filter.

No chemicals were required for cleaning of the Sheaf filter, hence –operating costs were vastly lower than in the sand filter.

All of the above clearly indicated that Maagan Filtration Sheaf Filter guarantees the filtered water quality required to secure the Reverse Osmosis Membranes in the RO plant.

As a results of the pilot test Tnuva Soy has purchased a full scale Sheaf filtration unit for their new RO pre filtration (12 m3/hr)