

Makhteshim Chemical Factory Wastewater Treatment Plant



Site is situated in desert region with very high ambient temperatures

Plant Description:

- Local authorities mandated a waste plant to reduce environmental pollution.
- Extremely strong toxic waste with very high salt content.
- Composition variable according to factory production schedule.
- BOD > 5,000mg/l
- TDS levels 23,000 – 37,000mg/l
- Chlorides 8,000 – 11,000mg/l
- The contract agreement provided for the process design, including cooling plant, air purification, sludge treatment & drying plus supply and delivery of 80 x EK400 membrane units.
- Additional services were provided in the nature of detailed design assistance, inspections during installation, assistance to start-up, commissioning and membrane maintenance.
- Totally enclosed with full pollution control on all off-gases.
- One of the largest industrial waste plants in the world.

Current Status:	Plant in operation since 2007
Discharge Consent:	30mg/l BOD; 30mg/l SS; 30mg/l Ammonia; 1mg/l P
Brief Description:	Membrane bioreactor system used to treat wastewater from pesticide production process

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Makhteshim Chemical Factory Wastewater Treatment Plant

Process Description:

Extended aeration plant removing >14,900kg BOD/day.

Tanks are of concrete construction, with under-foundation membrane to prevent ground pollution.

Tanks circa 100m x 50m constructed with >7,000m³ concrete

Massive biomass of 23,000m³ needed to achieve optimum f:m ratio.

90,000Nm³/hr airflow for biological process cooled to maintain process temperature <38°C

Plant designed to operate automatically with minimal supervision.

Design Requirements

Influent average loadings:

BOD	5,000 mg/l
COD.	11,400 mg/l
TKN	500 mg/l
NH ₃ – N	480 mg/l
SS	100 mg/l
TDS up to	37,000 mg/l

Effluent standards

BOD	30 mg/l
Total P	1 mg/l
NH ₃ – N	30 mg/l
SS	30 mg/l

Plant Data

Maximum daily volume	3,000m ³ /d
Average Daily flow	3,000m ³ /d
Peak flow	34.7l/sec
MLSS membrane tank	12,000mg/l
Membrane units	80 x EK400
Sludge age	>40 days
Sludge produced	90m ³ /d

Performance

BOD	<20 mg/l
Ammonia	<10 mg/l
SS	<5 mg/l

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