

Miranda Wastewater Solutions for Residences

Eczacıbaşı ORMANADA Case Study for Miranda STP System

Residence Design Data

Number of Guestrooms	: 500
Total Population	: 1750 people
Water Usage for Capita	: 200 lt / person
Daily Wastewater Flowrate	: 350 m ³ /day
The Quality of Treated Water	: Irrigation
Water Supply	: External Network
Area to be Irrigated (est.)	: 35.000 m ²



Eczacıbaşı Gayrimenkul Geliştirme ve Yatırım A.Ş.



In the majority of residential areas wastewater is simply discharged...

ORMANADA recycles wastewater for Irrigation, benefits occur as outlined table on the right.



Eczacıbaşı ORMANADA Residences, İstanbul MIRACELL Wastewater Treatment System Feasibility Analysis

Past Status

Monthly Irrigation Water Utilized in Summer Season (m ³)	10.500
Average Amount Paid for Irrigation Water (Dollar/m ³)	1,5 \$
Monthly Water Charge (Dollar)	15.750 \$
Seasonal (6 Months) Water Charge (Dollar)	94.500 \$
Estimated charge to be paid for water in 10 years (Dollar)	945.000 \$

(Annual inflation percentages have been taken into account in all the projected water charges)

Status After Recycling of Wastewater with Miranda Wastewater Treatment System

Capacity of the WWTP (m ³ /day)	350
Monthly Capacity of the WWTP (m ³ /month)	10.500
Model of Miranda WWTP to be used: MIRACELL	400
Monthly Operational Charge of the WWTP (Dollar)	2.004 \$
Cost of Miranda WWTP & Seasonal Operation Cost (Dollar)	12.024 \$
Estimated Plant and Operational Costs Projected for 10 years (Dollar):	120.240 \$

Plant Amortization Period (Month): 12

**Savings To Be Gained From The Plant
Operation in 10 Yrs. (Dollar):** 824.760 \$

* Cost of concrete storage tanks are not included in the calculations



You have a right to a clean environment

www.miranda-tr.com

Miranda Wastewater Solutions for Residences



Operational Advantages

- Miracell is simple to operate
- Requires a short 1 day training
- Requires minimal maintenance by any person
- System start-up to produce satisfactory treated water within 2 weeks after installation.
- Easy sludge disposal at comfortable frequency.
- System can be serviced by Miranda through local representatives or any trained technical maintenance team servicing the residential facilities.

Miranda's Miracell Sewage Treatment System complements residential communities by:

- Assisting the hotel to conserve water.
- Save significant amounts from the annual water expenditures.
- MIRACELL sewage treatment plants are made from composites and do not corrode.
- Miracell sewage treatment are lightweight and have a life span of over 15 years.



FEATURES & BENEFITS

- MODULAR
- DURABLE
- AESTHETIC
- SILENT
- ODORLESS
- DO NOT CORRODE
- CONSUMES LOW ENERGY



Can be installed Indoors & Outdoors or buried in ground

MIRANDA recycles waste water in conformity with irrigation norms (BOD 20, COD 120, TSS 30).

MIRACELL®

DROPBOX®



Operational Costs of the Miranda System

350 m³/day Capacity Miracell Blue W.W.T.P. Operation Cost Table Eczacıbaşı Ormanada

ENERGY CONSUMPTION

A. WASTEWATER TRANSFER PUMP

Power	0,55 kW
Amount	2 pcs
Treated Water Per Month	10500 m ³
Daily Running Time	20 hour
Energy Consumption Per Month	528 kW

Cost Per Month	149,8 TL	40,4 \$ / Month
Cost Per m ³	0,0143 TL	0,0039 \$ / m ³

B. MIRACELL GEARBOX & MOTOR

Power	0,25 kW
Amount	0,20 kW
Treated Water Per Month	8 pcs
Daily Running Time	10500 m ³
Energy Consumption Per Month	24 hour
	1152 kW

Cost Per Month	326,9 TL	88,11 \$ / Month
Cost Per m ³	0,0311 TL	0,0084 \$ / m ³

C. CHLORINE, CAUSTIC, HCL DOSAGE PUMP

Power	0,016 kW
Amount	0,0128 kW
Treated Water Per Month	4 pcs
Daily Running Time	10500 m ³
Energy Consumption Per Month	20 hour
	31 kW

Cost Per Month	8,7 TL	2,35 \$ / Month
Cost Per m ³	0,0008 TL	0,0002 \$ / m ³

D. SAND FILTER FEED PUMP

Power	2,20 kW
Amount	1,76 kW
Treated Water Per Month	1 pcs
Daily Running Time	10500 m ³
Energy Consumption Per Month	20 hour
	1056 kW

Cost Per Month	299,7 TL	80,78 \$ / Month
Cost Per m ³	0,0285 TL	0,0077 \$ / m ³

E. SAND FILTER BACKWASH PUMP

Power	2,20 kW
Amount	1,76 kW
Treated Water Per Month	1 pcs
Daily Running Time	10500 m ³
Energy Consumption Per Month	1 hour
	53 kW

Cost Per Month	15 TL	4,0 \$ / Month
Cost Per m ³	0,0014 TL	0,0004 \$ / m ³

F. ULTRAFILTRATION

Power	3,00 kW
Amount	2,40 kW
Treated Water Per Month	1 pcs
Daily Running Time	10500 m ³
Energy Consumption Per Month	20 hour
	1440 kW

Cost Per Month	408,7 TL	110,2 \$ / Month
Cost Per m ³	0,0389 TL	0,0105 \$ / m ³

Total Annual Energy Cost	14.506 TL	3.910 \$
Total Annual Energy Cost Per m ³	0,12 TL	0,03 \$

FIXED DATA

Exchange Rate	: 3,71 TL / \$	Motor Int. Power	: 0,8
Daily / Monthly Flow	: 350 m ³ / 10500 m ³	Absorbed Power	: 0,8
Electric Cost	: 0,2838 TL - 0,08 \$ / kWh	1 Month	: 30 days

Miranda is proud to assist in saving significant amounts of funds while contributing to the environment.



Miranda is proud to contribute to help keep Landscape of ORMANADA Residences greener.