

# OPERATION AND MAINTENANCE

## INDUSTRIAL WASTEWATER TREATMENT PLANTS

### Bursa Organized Industrial Zone Domestic and Industrial Wastewater Treatment Plant

Bursa Organized Industrial Zone  
Domestic and Industrial Wastewater Treatment Plant



#### Location

Bursa / TÜRKİYE

#### Client

Bursa Organized  
Industrial Zone

#### Contractor

1<sup>st</sup> Stage  
MASS - TEKSER  
Consortium

2<sup>nd</sup> Stage  
MASS

#### Completion Date

Construction  
1<sup>st</sup> Stage: 1998  
2<sup>nd</sup> Stage: 2005  
Operation  
1<sup>st</sup> Stage: 2002  
2<sup>nd</sup> Stage: 2007

#### Contract Value

11,585,000 USD

#### Financial Resource

Own resources of  
Bursa Chamber of  
Commerce and  
Industry

#### Scope

Operation of the plant  
for both stages.

#### Scope:

Maintenance-repair and operation services of described wastewater treatment plant for 12 months.

#### Plant Description:

##### Pre-Treatment

- Screening
- Grit & Grease Removal
- Equalization and Pumping Station

##### Chemical Treatment

- Coagulation and Flocculation
- Primary Sedimentation

##### Biological Treatment

- Aeration Tanks with Blower - Diffuser Aeration
- Biological Nitrogen, Chemical Phosphorus Removal
- Secondary Sedimentation

##### Sludge Treatment

- Sludge Thickening
- Sludge Dewatering System with Beltpress (1<sup>st</sup> Stage)

#### Capacity

<b>Flow</b>	100,000 m <sup>3</sup> /day	
<b>Population Equivalent</b>	780,000 PE	
<b>Parameter</b>	<b>Influent</b>	<b>Effluent</b>
BOD <sub>5</sub> (mg/l)	500	85
COD (mg/l)	1,000	250
TSS (mg/l)	600	90
TN (mg/l)	70	10
TP (mg/l)	10	1

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### Gaziantep Organized Industrial Zone Domestic and Industrial Wastewater Treatment Plant

Gaziantep Organized Industrial Zone  
Domestic and Industrial Wastewater Treatment Plant



#### Location

Gaziantep / TÜRKİYE

#### Client

Gaziantep Organized Industrial Zone

#### Contractor

MASS - MİTAŞ  
Joint Venture

#### Contract Date

2002

#### Completion Date

Operation  
2006

#### Financial Resource

Own resources of  
Gaziantep Organized  
Industrial Zone

#### Scope

Operation of the plant  
for two years.

#### Scope:

Maintenance-repair and operation services of described wastewater treatment plant for 24 months including operational personnel and maintenance staff, supply of chemicals.

#### Plant Description:

##### Pre-Treatment

- Screening
- Grit & Grease Removal
- Equalization and pumping station

##### Chemical Treatment

- Coagulation and Flocculation
- Chemical Sedimentation

##### Biological Treatment

- Aeration Tanks with Blower - Diffuser Aeration
- Biological Nitrogen, Chemical Phosphorus Removal
- Secondary Sedimentation

##### Sludge Treatment

- Sludge Thickening
- Sludge Dewatering with Beltpress

#### Capacity

<b>Flow</b>	90,000 m <sup>3</sup> /day	
<b>Population Equivalent</b>	1,500,000 PE	
<b>Parameter</b>	<b>Influent</b>	<b>Effluent</b>
BOD <sub>5</sub> (mg/l)	1,000	140
COD (mg/l)	2,000	300
TSS (mg/l)	220	100
TKN (mg/l)	25	15
TP (mg/l)	2	1

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## INDUSTRIAL WASTEWATER TREATMENT PLANTS

### Gerede Tannery Organized Industrial Zone Wastewater Treatment Plant

Gerede Tannery Organized Industrial Zone  
Wastewater Treatment Plant



#### Location

Gerede, Bolu /  
TÜRKİYE

#### Client

Gerede  
Tannery Organized  
Industrial Zone

#### Contractor

MASS - MİTAŞ  
Joint Venture

#### Contract Date

2007

#### Completion Date

2008

#### Financial Resource

Ministry of  
Industry and Trade

#### Scope

Operation of the plant  
for one year.

#### Scope:

Maintenance-repair and operation services of described wastewater treatment plant for 36 months including operational personnel and maintenance staff, supply of chemicals.

#### Plant Description:

##### Pre-Treatment

- Screening
- Grit and Grease Removal
- Equalization and Pumping Station

##### Chemical Treatment

- Coagulation and Flocculation
- Chemical Sedimentation

##### Biological Treatment

- Four Stage Bardenpho Process with Blower - Diffuser Aeration
- Biological Nitrogen, Chemical Phosphorus Removal
- Secondary Sedimentation

##### Sludge Treatment

- Sludge Thickening
- Sludge Dewatering with Beltpress

#### Capacity

<b>Flow</b>	4,000 m <sup>3</sup> /day	
<b>Population Equivalent</b>	134,000 PE	
<b>Parameter</b>	<b>Influent</b>	<b>Effluent</b>
BOD <sub>5</sub> (mg/l)	1,730	100
COD (mg/l)	5,000	300
TSS (mg/l)	3,500	125
Total Cr (mg/l)	200	2

# REFERENCES



## INDUSTRIAL WWTP OPERATION AND MAINTENANCE

Project Name	Process	Capacity	Client/Location/Year
<b>BURSA TANNERY ORGANIZED INDUSTRIAL ZONE W.W.T.P.</b>	Physical Treatment, Flow Equalization, Rapid and Slow Mixing, Chemical Sedimentation, Chemical Chromium and Sulfur Removal, Biological Nitrogen Removal, Sludge Thickening, Sludge Dewatering	4,000 m <sup>3</sup> /day 167,000 PE	Bursa Tannery Org. Ind. Zone Bursa/Turkey 2008-Ongoing
<b>BILIM PHARMACEUTICAL</b>	Physical Treatment, Membrane Bioreactor	30 m <sup>3</sup> /day 1,400 PE	Kocaeli/Turkey 2008-Ongoing
<b>PLASTIKCILER ORGANIZED INDUSTRIAL ZONE W.W.T.P.</b>	Physical Treatment, Flow Equalization, Activated Sludge Treatment, Disinfection, Sludge Thickening, Sludge Dewatering	1,500 m <sup>3</sup> /day 18,750 PE	Plastikciler Org. Ind. Zone Kocaeli/Turkey 2007-Ongoing
<b>BURSA ORGANIZED INDUSTRIAL ZONE W.W.T.P. I. &amp; II. PHASE</b>	Physical Treatment, Flow Equalization, Coagulation and Flocculation, Chemical Sedimentation, Chemical Phosphorus Removal, Biological Nitrogen Removal, Sludge Thickening, Sludge Dewatering	100,000 m <sup>3</sup> /day 780,000 PE	Bursa Org. Ind. Zone Bursa/Turkey 2005-2007
<b>GAZIANTEP ORGANIZED INDUSTRIAL ZONE W.W.T.P.</b>	Physical Treatment, Flow Equalization, Coagulation and Flocculation, Chemical Sedimentation, Chemical Phosphorus Removal, Biological Nitrogen Removal, Sludge Thickening, Sludge Dewatering	90,000 m <sup>3</sup> /day 1,500,000 PE	Gaziantep Org. Ind. Zone Gaziantep/Turkey 2002-2006
<b>GEREDE TANNERY ORGANIZED INDUSTRIAL ZONE W.W.T.P.</b>	Physical Treatment, Flow Equalization, Rapid and Slow Mixing, Chemical Sedimentation, Chemical Chromium and Sulfur Removal, Biological Nitrogen Removal, Sludge Thickening, Sludge Dewatering	4,000 m <sup>3</sup> /day 134,000 PE	Gerede Tannery Org. Ind. Zone Bolu/Turkey 2007-2008
<b>MERCEDES BENZ HOSDERE FACTORY W.W.T.P.</b>	Physical Treatment, Flow Equalization, Chemical Phosphorus Removal, Biological Nitrogen Removal, Filtration, Disinfection, Sludge Thickening, Sludge Dewatering	360 m <sup>3</sup> /day 3,500 PE	Istanbul/Turkey 2005-2006
<b>TURK HENKEL CHEMICAL</b>	Physical Treatment, Flow Equalization, Coagulation and Flocculation, Chemical Sedimentation, Activated Sludge Treatment, Sludge Thickening, Sludge Dewatering	700 m <sup>3</sup> /day 64,000 PE	Kocaeli/Turkey 1998-2000
<b>BURSA ORGANIZED INDUSTRIAL ZONE W.W.T.P. I. PHASE</b>	Physical Treatment, Flow Equalization, Coagulation and Flocculation, Chemical Sedimentation, Chemical Phosphorus Removal, Biological Nitrogen Removal, Sludge Thickening, Sludge Dewatering	50,000 m <sup>3</sup> /day 390,000 PE	Bursa Org. Ind. Zone Bursa/Turkey 1997-1998
<b>MUTLU AKU</b>	Coagulation and Flocculation, Chemical Sedimentation, Filtration, Sludge Dewatering	700 m <sup>3</sup> /day 10,000 PE	Istanbul/Turkey 1992-1993



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