Wastewater Treatment Plant Datasheet

For Proposing Malatech Bioaugmentation

Page 2-4 is for continuous flow plants, while page 5-7 is for SBRs. Please choose, and fill the one applicable for your technology

Both versions are applicable for activated sludge, granular sludge, MBBR, MBR etc. technologies. If there are any points of the datasheets not applicable for your plant, please leave it empty! If you have pond wastewater treatment technology, please do not use this datasheet but contact us by e-mail. In case of pond treatment, a very few data are needed only for us to create the proposal for bioaugmentation.

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Questionnaire for the optimization of continuous flow wastewater treatment plants

Please type in the grey boxes, YELLOW = NEEDED FOR EXACT KINETIC CALCULATIONS

Dry weather inlet flow (m^3/d):

Rainy weather inlet flow (m^3/d):

Peak flowrate allowed to flow to the biological reactors (**m^3/h**):

Municipal/Industrial ratio (%/%):

Industrial wastewater type(s):

1) Raw wastewater parameters (for industrial plants: AFTER PRE-TREATMENT that flows into the biology, for municipal WWTP's raw influent data before primary clarification are fine):

Sampling method: ◉ **8-24h automated average sample** ○ **one-time manually taken sample**

COD (mg/l):	representative:		peak:	
BOD (mg/l):	representative:		peak:	
NH4-N (mg/l):	representative:		peak:	
TN (mg/l):	representative:		peak:	
TP (mg/l):	representative:		peak:	
SS (mg/l):	representative:		peak:	

Other parameters (if there are any mentionable):

Effluent parameters::

COD (mg/l):	representative:		peak:	
BOD (mg/l):	representative:		peak:	
NH4-N (mg/l):	representative:		peak:	
TN (mg/l):	representative:		peak:	
TP (mg/l):	representative:		peak:	
SS (mg/l):	representative:		peak:	
pH:	representative			

Other parameters (if there are any mentionable):

Wastewater Treatment Technology (please send flow diagram or schematic view as attachment)

2a) physical and chemical pre-treatment PLEASE PUT "X" for what you have

a) coagulation & flocculation: ☐
b) flotation: ☐
c) physical grit removal (grit removal chamber): ☐
d) physical grease removal (grease trap): ☐
e) high-rate anaerobic biological pre-treatment (UASB, EGSB, IC): ☐

2b) Equalization tank(s) total net volume (m3, if there are any):

2c) Primary Clarification (I. for horizontal-flow types, II. for Dortmund, III. for Dorr, please select the one applicable for your plant):

I. Dimensions of the primary clarifiers in case of Horizontal flow, rectangular type:

Length (m): Width (m): Height (m, water level at deepest point): total number of clarifiers operating:

II. Dimensions of the primary clarifiers in case of Dortmund-type:

Length (m): Height (m, water level at deepest point): total number of clarifiers operating:

III. Dimensions of the primary clarifiers in case of Dorr-type:

Diameter (m): Height (m, water level at deepest point): total number of clarifiers operating:

Comments (same type, but not all have same dimensions, some are not in operation etc.):

3) Biological reactor volumes, if any of the reactor types are missing from your system, please leave those boxes empty:

Anaerobic: Number of reactors: L= W= H= ,or D= H= Layout: ○serial ○parallel

Anoxic: Number of reactors: L= W= H= ,or D= H= Layout: ○serial ○parallel

Aerobic: Number of reactors: L= W= H= ,or D= H= Layout: ○serial ○parallel

Comments (same type, but not all have same dimensions, some are not in operation etc.):

4) Please provide your current DO control setup in your control system, leave empty that you don't have:

minimum (mg/l when blowers operate on peak frequency, operator does not want to allow lower values):
preferred value (mg/l, the set up preferred level by the operator to be maintained in aeration):
maximum (mg/l, blowers operate on minimum frequency, operator does not want to allow higher values):
emergency max (when Dissolved Oxygen reaches this concentration, blowers shut down until it falls back):

Are the blowers able to maintain the Dissolved Oxygen value set for control? ○YES ○NO

If YES is the correct answer, please put an X for the correct answer from a), b) and c) below:

☐ a) The blowers run at minimum frequency nearly all day, the blowers are oversized for the air requirement of the plant

☐ b) The blowers daily operational frequency varies, they run around minimum frequency during late night and dawn, but they run nearly at peak frequency during the organic peak loads of the morning and evening or weekend

☐ c) The blowers run at maximum frequency at least about 80% of a day

5) Recirculation flowrates (% or m^3/h, if any are not applicable at your plant, please leave it empty):

a) Anoxic to anaerobic (total): % of av. daily flow or m3/h, if pump is freq. controlled: min: max:

b) Aerobic to anoxic (total): % of av. daily flow or m3/h, if pump is freq. controlled: min: max:

c) From sec. clarifier (total): % of av. daily flow or m3/h, if pump is freq. controlled: min: max:

6) Minimum activated sludge temperature in the reactors in wintertime (°C):

7) Activated sludge concentration (MLSS) maintained in the bioreactors (mg/l):

8) Settled sludge volume after 30 minutes (ml/l) (sample taken from the end of aerobic reactor):

9) Daily average removed excess sludge amount from the secondary clarifier (m^3/d):

Is excess sludge removed every day: ○YES ○NO

If NO is the correct answers, please mark the days with an X when excess sludge removal is done:

☐Monday ☐Tuesday ☐Wednesday ☐Thursday ☐Friday ☐Saturday ☐Sunday

10) Monthly quantity of dewatered sludge: m3/month or ton/month

11) Dewatered sludge concentration as TSS% (average):

12) Average electricity consumption of the entire WWTP (kWh/day):

13) Chemicals used in the water line (P-removal, nutrient addition, pH or filamentous blooming control etc.):

Active ingredient of chemical: average amount used (litre or kg/d): Concentration of chemical (%):
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14) Secondary clarification (I. for horizontal-flow types, II. for Dortmund, III. for Dorr, please choose that is applicable for your plant):

I. Dimensions of the secondary clarifiers in case of Horizontal flow, rectangular type:

Length (m): Width (m): Height (m, water level at deepest point): total number of clarifiers operating:

II. Dimensions of the secondary clarifiers in case of Dortmund-type:

Length (m): Height (m, water level at deepest point): total number of clarifiers operating:

III. Dimensions of the secondary clarifiers in case of Dorr-type:

Diameter (m): Height (m, water level at deepest point): total number of clarifiers operating:

Comments (same type, but not all have same dimensions, some are not in operation etc.):

15) Are there any limitations of the technology? (e.g not sufficient aeration due to aged diffusers, under- or oversized blowers, limited sludge removal or dewatering system capacity etc.)

16) List of current operational problems, technical, mechanical or electrical matters which could have an influence on the biology

17) Other relevant information

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Questionnaire for the optimization of SBR wastewater treatment plants

Please type in the grey boxes, YELLOW = NEEDED FOR EXACT KINETIC CALCULATIONS

Dry weather inlet flow (m^3/d):

Rainy weather inlet flow (m^3/d):

Municipal/Industrial ratio (%/%):

Industrial wastewater type(s):

1) Raw wastewater parameters (for industrial plants: AFTER PRE-TREATMENT that flows into the biology, for municipal WWTP's raw influent data or buffer tank data are fine):

Sampling method: ○ **8-24h automated average sample** ○ **one-time manually taken sample**

COD (mg/l): representative: peak:
BOD (mg/l): representative: peak:
NH4-N (mg/l): representative: peak:
TN (mg/l): representative: peak:
TP (mg/l): representative: peak:
SS (mg/l): representative: peak:
Other parameters (if there are any mentionable):

Effluent parameters::

COD (mg/l): representative: peak:
BOD (mg/l): representative: peak:
NH4-N (mg/l): representative: peak:
TN (mg/l): representative: peak:
TP (mg/l): representative: peak:
SS (mg/l): representative: peak:
pH: representative:
Other parameters (if there are any mentionable):

Wastewater Treatment Technology (please send flow diagram or schematic view as attachment)

2a) physical and chemical pre-treatment PLEASE PUT "X" for what you have

a) coagulation & flocculation: ☐
b) flotation: ☐
c) physical grit removal (grit removal chamber): ☐
d) physical grease removal (grease trap): ☐
e) high-rate anaerobic biological pre-treatment (UASB, EGSB, IC): ☐

2b) Equalization tank(s) total net volume (m3, if there are any):

2c) Primary Clarification (I. for horizontal-flow types, II. for Dortmund, III. for Dorr, please select the one applicable for your plant):

I. Dimensions of the primary clarifiers in case of Horizontal flow, rectangular type:

Length (m): Width (m): Height (m, water level at deepest point): total number of clarifiers operating:

II. Dimensions of the primary clarifiers in case of Dortmund-type:

Length (m): Height (m, water level at deepest point): total number of clarifiers operating:

III. Dimensions of the primary clarifiers in case of Dorr-type:

Diameter (m): Height (m, water level at deepest point): total number of clarifiers operating:

Comments (same type, but not all have same dimensions, some are not in operation etc.):

3a) SBR Reactor data:

Number of buffer tanks:
Volume of buffer tanks/each (m^3):
Number of reactors:
Reactor volumes /each (m^3):
Reactor dimensions (m): D= H= , or L= W= H=
Reactor operating water level (m):
Minimum reactor water level (after decanting) (m):

Comments (if not all reactors have the same dimensions, some are not in operation etc, please mention it here):

3b) Cycle times/reactor/day (h):

Fill period: Type of filling: ○ Static (no mixing, no aeration) ○ Mixed ○ Aerated
Aeration period:
Anoxic period:
Main aeration period:
Settling period:
Decanting period:
Excess sludge removal period:

If your system's cycle times differ from those listed above, please describe them below, including the duration of each cycle (h), (also for municipal WWTP operators: if you have emergency cycle setup for high flowrate caused by rain, please provide here):

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-
-
-
-
-
-

4) Please provide the current DO control setup in the control system for the aerobic phase, leave empty that you don't have:

minimum (mg/l when blowers operate on peak frequency, operator does not want to allow lower values):
preferred value (mg/l, the set up preferred level by the operator to be maintained in aeration):
maximum (mg/l, blowers operate on minimum frequency, operator does not want to allow higher values):
emergency max (when Dissolved Oxygen reaches this concentration, blowers shut down until it falls back):

Are the blowers able to maintain the Dissolved Oxygen value set for control? ○ YES ○ NO

If YES is the correct answer, please put an X for the correct answer from a), b) and c) below:

☐ a) The blowers run at minimum frequency during aeration, the blowers are oversized for the air requirement of the plant

☐ b) The blowers operational frequency varies, they operate at peak frequency at the early stages of aeration, then frequency lowers

☐ c) The blowers run at maximum frequency for the entire duration of aerobic phase

5) Minimum activated sludge temperature in the reactors in wintertime (°C):

6) Activated sludge concentration (MLSS) maintained in the bioreactors (mg/l):

7) Settled sludge volume after 30 minutes (ml/l) (sample taken at the end of aerobic phase):

8) Average daily amount of excess sludge removed from the SBR reactor(s) (total m3/day):

Is excess sludge removed every day: ○YES ○NO

If NO is the correct answers, please mark the days with an X when excess sludge removal is done:

☐Monday ☐Tuesday ☐Wednesday ☐Thursday ☐Friday ☐Saturday ☐Sunday

9) Monthly quantity of dewatered sludge: m3/month or ton/month

10) Dewatered sludge concentration as TSS% (average):

11) Average electricity consumption of the entire WWTP (kWh/day):

12) Chemicals used in the water line (P-removal, nutrient addition, pH or filamentous blooming control etc.):

Active ingredient of chemical: average amount used (litre or kg/d): Concentration of chemical (%):
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Active ingredient of chemical: average amount used (litre or kg/d): Concentration of chemical (%):

13) Are there any limitations of the technology? (e.g not sufficient aeration due to aged diffusers, under- or oversized blowers, limited sludge removal or dewatering system capacity etc.)

14) List of current operational problems, technical, mechanical or electrical matters which could have an influence on the biology

15) Other relevant information