

## BIO-CEL\* MBR PROCESS QUESTIONNAIRE

Project Name: \_\_\_\_\_  
 OEM: \_\_\_\_\_ Engineering Company: \_\_\_\_\_  
 End User: \_\_\_\_\_ Project Country: \_\_\_\_\_  
 Project Phase:  Evaluation  Tendering  Bidding  Job in Hand  Other: \_\_\_\_\_  
 Project type:  New plant  Capacity expansion  Replacement of existing MBR  
 Expected start-up date of the project:  Q1  Q2  Q3  Q4 year 20 \_\_\_\_\_

1. **Source** of feed flow:  
 Municipal  Commercial (public use)  Industrial → Type: \_\_\_\_\_  
 % of each source (in case of **mixed industrial** wastewater): \_\_\_\_\_

2. Is there mechanical / chemical **pretreatment** upstream to MBR (please explain)?

3. When one / all filtration line(s) are out of service, is there enough **buffer capacity** for the required duration to hold the inflow upstream to the filtration step (1 hour / week), for module inspections (max. 1 day, once or twice per year)?

4. Must the permeate production be **non-stop (24 h, 7 days)** due to further use of it (e.g. use in production or as feed to RO)?

### 5. Hydraulic load to filtration step:

*Please give ONLY the values after equalization tank.*

- Annual daily average flow,  $Q_d$ : \_\_\_\_\_ m<sup>3</sup>/d
- Hourly peak flow,  $Q_{h,max}$  (dry weather, no mixture with rain water): \_\_\_\_\_ m<sup>3</sup>/h
- Hourly peak flow,  $Q_{h,max}$  (wet weather, applicable for municipal STP with combined sewer system): \_\_\_\_\_ m<sup>3</sup>/h
- Maximum duration of **Peak** flow (per day and week): \_\_\_\_\_ h/d \_\_\_\_\_ d/w
- Maximum duration of **Rain** flow (municipal mixed sewer): \_\_\_\_\_ d/month \_\_\_\_\_ d/year

**Wastewater** temperature \* (°C):

- Minimum temp. Summer: \_\_\_\_\_ • Minimum temp. Winter: \_\_\_\_\_
- Maximum temp. Summer: \_\_\_\_\_ • Maximum temp. Winter: \_\_\_\_\_

\* If there is a table for long-term temperature regimen available, please attach it to your inquiry.

6. Is there any **antifoam / chemical addition** in biological tank (if yes, please explain)?

7. The **composition of flow**: (if a detailed water analysis is available in English or German, please attach it)

Parameter	Value	Unit	Parameter	Value	Unit	Other Unit
COD	_____	mg/L	Suspended Solids (TSS)	_____	mg/L	_____
BOD <sub>5</sub>	_____	mg/L	FOG - Free	_____	mg/L	_____
Total Nitrogen	_____	mg/L	FOG - Emulsified	_____	mg/L	_____
Ammonia NH <sub>4</sub> -N	_____	mg/L	Salinity (TDS)	_____	mg/L	_____
Nitrate NO <sub>3</sub> -N	_____	mg/L	Chloride (Cl <sup>-</sup> )	_____	mg/L	_____
Phosphorus (as PO <sub>4</sub> -P)	_____	mg/L	TOC	_____	mg/L	_____
Alkalinity (as CaCO <sub>3</sub> )	_____	mg/L	Conductivity	_____	µS/cm	_____
Solvents_Cationic	_____	mg/L	Solvents_Anionic	_____	mg/L	_____
8. Required <b>effluent quality</b> :						
_____	_____	mg/L	_____	_____	mg/L	_____
_____	_____	mg/L	_____	_____	mg/L	_____

9. The **aim of the filtration (use of permeate)**:

- |  |  |
|--|--|
| <input type="checkbox"/> Irrigation                  | <input type="checkbox"/> Toilet flushing     |
| <input type="checkbox"/> Discharge to surface waters | <input type="checkbox"/> Reuse in production |
| <input type="checkbox"/> Pretreatment before RO      | <input type="checkbox"/> Other:              |
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10. Further **details / tender specifications**:

- Which **automation level** is expected for the plant?
    - High** automation level → all treatment steps including periodic chemical cleaning of MBR system will be 100% operated by **PLC**.
    - Low** automation level → the plant is partly/mostly operated manually. The periodic chemical cleaning of MBR system will be done **manually** by staff.
  - Is the **design flux** defined by the tender (please specify peak or average flux)?
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- Is the **number of filtration lines** fixed by the tender or project demands?
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- Are there any **existing plans and drawings** (P&ID, GA, etc.) of this plant? If yes, please attach.
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- Additional Information:
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