Appendix A

Samples analysis

A.1 First and third experiment analyzed data

Next tables A.1, A.2, A.3, A.4, A.5, A.6 and A.7 correspond to the first experiment, whereas tables A.8, A.9, A.10, A.11 and A.12 correspond to the second.

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>COD</th>
<th>COD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 1.0</td>
<td>feb-21</td>
<td>17:45</td>
<td>6,9</td>
<td>1027</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC 1.1</td>
<td>feb-22</td>
<td>17:45</td>
<td>7</td>
<td>658</td>
<td>36%</td>
</tr>
<tr>
<td>eBAC 1.2</td>
<td>feb-23</td>
<td>17:45</td>
<td>7,39</td>
<td>460</td>
<td>55%</td>
</tr>
<tr>
<td>eBAC 1.3</td>
<td>feb-24</td>
<td>17:45</td>
<td>7,6</td>
<td>298</td>
<td>71%</td>
</tr>
<tr>
<td>eBAC 1.4</td>
<td>feb-25</td>
<td>12</td>
<td>7,8</td>
<td>93</td>
<td>91%</td>
</tr>
</tbody>
</table>

Table A.1: Respective data for each reactor during first batch (Concentrations in mg/l).
### Table A.2: Respective data for each reactor during second batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>COD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 2.0</td>
<td>feb-25</td>
<td>14,25</td>
<td>7</td>
<td>-1,7</td>
<td>1250</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC 2.1</td>
<td>feb-26</td>
<td>14,25</td>
<td>7,41</td>
<td>-23,2</td>
<td>396</td>
<td>69%</td>
</tr>
<tr>
<td>eBAC 2.2</td>
<td>feb-27</td>
<td>14,25</td>
<td>7,75</td>
<td>-43,6</td>
<td>277</td>
<td>78%</td>
</tr>
<tr>
<td>eBAC 2.3</td>
<td>feb-28</td>
<td>14,25</td>
<td>7,75</td>
<td>-43,7</td>
<td>190</td>
<td>85%</td>
</tr>
</tbody>
</table>

### Table A.3: Respective data for each reactor during third batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Ammonia</th>
<th>Nitrate</th>
<th>COD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC.C 2.0</td>
<td>feb-25</td>
<td>14,25</td>
<td>7,03</td>
<td>-1,4</td>
<td>1083</td>
<td>96,3</td>
<td>165</td>
<td>66,5</td>
<td>0,144</td>
</tr>
<tr>
<td>eBAC.C 2.1</td>
<td>feb-26</td>
<td>14,25</td>
<td>7,37</td>
<td>-21,6</td>
<td>471</td>
<td>120</td>
<td>42,4</td>
<td>0,346</td>
<td>88%</td>
</tr>
</tbody>
</table>

### Table A.4: Respective data for each reactor during forth batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Ammonia</th>
<th>Nitrate</th>
<th>COD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 4.0</td>
<td>mar-04</td>
<td>14:05</td>
<td>7,09</td>
<td>-5,2</td>
<td>1177</td>
<td>147</td>
<td>Abs. &gt; 3,5</td>
<td>0,466</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC 4.1</td>
<td>mar-05</td>
<td>13:45</td>
<td>7,58</td>
<td>-33,6</td>
<td>336</td>
<td>181</td>
<td>53,4</td>
<td>0,254</td>
<td>71%</td>
</tr>
<tr>
<td>eBAC 4.2</td>
<td>mar-06</td>
<td>14:00</td>
<td>7,84</td>
<td>-49</td>
<td>247</td>
<td>170</td>
<td>45,5</td>
<td>0,237</td>
<td>79%</td>
</tr>
<tr>
<td>eBAC 4.3</td>
<td>mar-07</td>
<td>10:15</td>
<td>7,94</td>
<td>-51,7</td>
<td>124</td>
<td>147</td>
<td>47</td>
<td>0,656</td>
<td>89%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Ammonia</th>
<th>Nitrate</th>
<th>COD Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC.C 4.0</td>
<td>mar-04</td>
<td>14:05</td>
<td>7,1</td>
<td>-5,6</td>
<td>1144</td>
<td>151</td>
<td>Abs. &gt; 3,5</td>
<td>0,261</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC.C 4.1</td>
<td>mar-05</td>
<td>13:45</td>
<td>7,69</td>
<td>-39,5</td>
<td>290</td>
<td>210</td>
<td>53,9</td>
<td>0,165</td>
<td>75%</td>
</tr>
<tr>
<td>eBAC.C 4.2</td>
<td>mar-06</td>
<td>14:00</td>
<td>7,97</td>
<td>-56,6</td>
<td>68</td>
<td>136</td>
<td>57</td>
<td>0,165</td>
<td>94%</td>
</tr>
<tr>
<td>eBAC.C 4.3</td>
<td>mar-07</td>
<td>10:15</td>
<td>8,07</td>
<td>-59,3</td>
<td>77</td>
<td>191</td>
<td>60,5</td>
<td>0,209</td>
<td>93%</td>
</tr>
</tbody>
</table>
Table A.5: Respective data for each reactor during fifth batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Ammonia</th>
<th>Nitrate</th>
<th>COD Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 5.0</td>
<td>mar-07</td>
<td>19:30</td>
<td>7,14</td>
<td>-4,1</td>
<td>206</td>
<td>Abs. &gt; 3,5</td>
<td>62,1</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC 5.1</td>
<td>mar-10</td>
<td>10:30</td>
<td>7,8</td>
<td>-42,8</td>
<td>132</td>
<td>Abs. &gt; 3,5</td>
<td>22,9</td>
<td>4,41</td>
<td>36%</td>
</tr>
</tbody>
</table>

*leaking problems: not representative

Table A.6: Respective data for each reactor during sixth batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>COD Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC.C 5.0</td>
<td>mar-07</td>
<td>19:30</td>
<td>7,16</td>
<td>-5,6</td>
<td>207</td>
<td>Abs. &gt; 3,5</td>
</tr>
<tr>
<td>eBAC.C 5.1</td>
<td>mar-10</td>
<td>10:30</td>
<td>8,21</td>
<td>-66,7</td>
<td>103</td>
<td>Abs. &gt; 3,5</td>
</tr>
</tbody>
</table>

*leaking problems: not representative

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>COD Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 6.0</td>
<td>mar-10</td>
<td>19:30</td>
<td>7,19</td>
<td>-7,1</td>
<td>1110</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC 6.1</td>
<td>mar-11</td>
<td>15:20</td>
<td>7,67</td>
<td>-35,4</td>
<td>310</td>
<td>72%</td>
</tr>
<tr>
<td>eBAC 6.2</td>
<td>mar-12</td>
<td>12:30</td>
<td>7,79</td>
<td>-40,5</td>
<td>119</td>
<td>89%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>COD Reduction*</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC.C 6.0</td>
<td>mar-10</td>
<td>19:30</td>
<td>7,19</td>
<td>-6,9</td>
<td>1030</td>
<td>0%</td>
</tr>
<tr>
<td>eBAC.C 6.1</td>
<td>mar-11</td>
<td>15:20</td>
<td>7,77</td>
<td>-41,5</td>
<td>220</td>
<td>79%</td>
</tr>
<tr>
<td>eBAC.C 6.2</td>
<td>mar-12</td>
<td>12:30</td>
<td>7,99</td>
<td>-51,7</td>
<td>67</td>
<td>93%</td>
</tr>
</tbody>
</table>
Table A.7: Respective data for each reactor during seventh batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC 7.0</td>
<td>mar-12</td>
<td>21:10</td>
<td>7,17</td>
<td>-6,1</td>
<td>211 omr</td>
</tr>
<tr>
<td>eBAC 7.1</td>
<td>mar-13</td>
<td>12:00</td>
<td>7,63</td>
<td>-32,1</td>
<td>209 omr</td>
</tr>
</tbody>
</table>

*omr = over measuring range (not representative values)

Table A.8: Wastewater treatment data along the the first batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBAC C 7.0</td>
<td>mar-12</td>
<td>21:10</td>
<td>7,16</td>
<td>-5,2</td>
<td>210 omr</td>
</tr>
<tr>
<td>eBAC C 7.1</td>
<td>mar-13</td>
<td>12:00</td>
<td>7,67</td>
<td>-34,8</td>
<td>211 omr</td>
</tr>
</tbody>
</table>

*omr = over measuring range (not representative values)

Table A.9: Wastewater treatment data along the the second batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1.0</td>
<td>abr-20</td>
<td>17:00</td>
<td>7,35</td>
<td>-17,5</td>
<td>1210</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 1.1</td>
<td>abr-21</td>
<td>17:00</td>
<td>7,74</td>
<td>-39,5</td>
<td>575</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 1.2</td>
<td>abr-22</td>
<td>17:00</td>
<td>8,67</td>
<td>-93</td>
<td>175</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1.0</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 1.1</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 1.2</td>
<td></td>
<td></td>
<td>-</td>
<td>86%</td>
<td>-8%</td>
<td>39%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 2.0</td>
<td>abr-23</td>
<td>12:30</td>
<td>7,03</td>
<td>1,2</td>
<td>1350</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 2.1</td>
<td>abr-24</td>
<td>11:20</td>
<td>8,06</td>
<td>-57,9</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 2.2</td>
<td>abr-25</td>
<td>14:00</td>
<td>8,32</td>
<td>-72,7</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 2.3</td>
<td>abr-26</td>
<td>13:30</td>
<td>8,44</td>
<td>-79,2</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 2.4</td>
<td>abr-27</td>
<td>14:00</td>
<td>8,65</td>
<td>-91,4</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C 2.0</td>
<td></td>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 2.1</td>
<td></td>
<td></td>
<td>-</td>
<td>82%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C 2.2</td>
<td></td>
<td></td>
<td>-</td>
<td>90%</td>
<td>-97%</td>
<td>90%</td>
</tr>
<tr>
<td>C 2.3</td>
<td></td>
<td></td>
<td>-</td>
<td>95%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>C 2.4</td>
<td></td>
<td></td>
<td>-</td>
<td>96%</td>
<td>-534%</td>
<td>99%</td>
</tr>
</tbody>
</table>
### Table A.10: Wastewater treatment data along the third batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Nitrate</th>
<th>Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3.0</td>
<td>abr-27</td>
<td>14:00</td>
<td>7.6</td>
<td>-31.4</td>
<td>1250</td>
<td>14.9</td>
<td>1.44</td>
<td>52.3</td>
</tr>
<tr>
<td>C3.1</td>
<td>abr-28</td>
<td>14:30</td>
<td>8.13</td>
<td>-61</td>
<td>413</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C3.2</td>
<td>abr-29</td>
<td>14:00</td>
<td>8.24</td>
<td>-68.5</td>
<td>171</td>
<td>6.47</td>
<td>2.95</td>
<td>2.33</td>
</tr>
<tr>
<td>C3.3</td>
<td>abr-30</td>
<td>14:30</td>
<td>8.44</td>
<td>-79.8</td>
<td>114</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C3.4</td>
<td>may-01</td>
<td>14:00</td>
<td>8.8</td>
<td>-102.1</td>
<td>42</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C3.5</td>
<td>may-02</td>
<td>14:00</td>
<td>8.6</td>
<td>-92.2</td>
<td>14</td>
<td>1.94</td>
<td>13</td>
<td>0.233</td>
</tr>
</tbody>
</table>

COD Red. | Phosphate Red. | Nitrate Red. | Ammonia Red. | 67% | - | - |
| 91% | - | - | - | 97% | - | - | - | 99% | 87% | -803% | 100% |

### Table A.11: Wastewater treatment data along the forth batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Nitrate</th>
<th>Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4.0</td>
<td>may-03</td>
<td>14:30</td>
<td>8.24</td>
<td>-66</td>
<td>1202</td>
<td>18.8</td>
<td>1.65</td>
<td>53.1</td>
</tr>
<tr>
<td>C4.1</td>
<td>may-04</td>
<td>14:30</td>
<td>8.65</td>
<td>-89.1</td>
<td>410</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C4.2</td>
<td>may-05</td>
<td>14:00</td>
<td>8.3</td>
<td>-69.6</td>
<td>104</td>
<td>3.54</td>
<td>3.51</td>
<td>3.21</td>
</tr>
<tr>
<td>C4.3</td>
<td>may-06</td>
<td>14:00</td>
<td>8.52</td>
<td>-82.1</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C4.4</td>
<td>may-07</td>
<td>14:00</td>
<td>8.63</td>
<td>-90.1</td>
<td>27</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C4.5</td>
<td>may-08</td>
<td>14:00</td>
<td>8.6</td>
<td>-89.9</td>
<td>4</td>
<td>1.23</td>
<td>11.9</td>
<td>0.178</td>
</tr>
</tbody>
</table>

COD Red. | Phosphate Red. | Nitrate Red. | Ammonia Red. | 66% | - | - |
| 91% | 81% | -113% | 94% | 97% | - | - | - | 98% | - | - | - | 100% | 93% | -621% | 100% |

### Table A.12: Wastewater treatment data along the fifth batch (Concentrations in mg/l).

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Day</th>
<th>Time</th>
<th>pH</th>
<th>mV</th>
<th>COD</th>
<th>Phosphate</th>
<th>Nitrate</th>
<th>Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>C5.0</td>
<td>may-08</td>
<td>14:00</td>
<td>8.05</td>
<td>-57.8</td>
<td>1215</td>
<td>19</td>
<td>1.51</td>
<td>48</td>
</tr>
<tr>
<td>C5.1</td>
<td>may-09</td>
<td>14:00</td>
<td>8.39</td>
<td>-76</td>
<td>338</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C5.2</td>
<td>may-10</td>
<td>21:00</td>
<td>8.65</td>
<td>-91</td>
<td>115</td>
<td>2.13</td>
<td>4.69</td>
<td>3.56</td>
</tr>
<tr>
<td>C5.3</td>
<td>may-11</td>
<td>21:00</td>
<td>8.62</td>
<td>-90.1</td>
<td>66</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C5.4</td>
<td>may-12</td>
<td>21:00</td>
<td>8.62</td>
<td>-90.8</td>
<td>7</td>
<td>1.48</td>
<td>8.84</td>
<td>0.143</td>
</tr>
</tbody>
</table>

COD Red. | Phosphate Red. | Nitrate Red. | Ammonia Red. | 72% | - | - |
| 91% | 89% | -211% | 93% | 95% | - | - | - | 99% | 92% | -485% | 100% |