Lampiran. A. Data Hasil Pengukuran Minyak/Lemak

1. Kolam aerobik primer

<table>
<thead>
<tr>
<th>Sampel</th>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62.2447</td>
<td>62.4056</td>
<td>0.1609</td>
<td>160.90</td>
</tr>
<tr>
<td></td>
<td>62.3965</td>
<td>62.5582</td>
<td>0.1617</td>
<td>161.70</td>
</tr>
<tr>
<td></td>
<td>62.4742</td>
<td>62.6352</td>
<td>0.1610</td>
<td>161.00</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td></td>
<td>161.20</td>
</tr>
</tbody>
</table>

Penambahan NaOH 5%

5 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.2202</td>
<td>62.3684</td>
<td>0.1482</td>
<td>148.2</td>
</tr>
<tr>
<td>62.2786</td>
<td>62.4291</td>
<td>0.1505</td>
<td>150.5</td>
</tr>
<tr>
<td>62.1210</td>
<td>62.2749</td>
<td>0.1539</td>
<td>153.9</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.2029</td>
<td>62.3415</td>
<td>0.1386</td>
<td>138.6</td>
</tr>
<tr>
<td>62.2443</td>
<td>62.3846</td>
<td>0.1403</td>
<td>140.3</td>
</tr>
<tr>
<td>62.3865</td>
<td>62.5264</td>
<td>0.1399</td>
<td>139.9</td>
</tr>
</tbody>
</table>
**15 menit**

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.3869</td>
<td>62.5132</td>
<td>0.1263</td>
<td>126.3</td>
</tr>
<tr>
<td>62.2206</td>
<td>62.3430</td>
<td>0.1224</td>
<td>122.4</td>
</tr>
<tr>
<td>62.2974</td>
<td>62.4192</td>
<td>0.1218</td>
<td>121.8</td>
</tr>
<tr>
<td><strong>Rata-rata</strong></td>
<td>123.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A = Berat Gelas Beaker setelah dipanaskan selama 1 jam pada suhu 110°C

B = Berat Gelas Beaker + sampel dipanaskan selama 1 jam pada suhu 70°C

C = Kadar Minyak/Lemak (g/L)

D = Kadar Minyak/Lemak (mg/L)

Volume sample = 1000 mL

C = (B-A)

2. Kolam aerasi

**Sampel**

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.3347</td>
<td>62.4163</td>
<td>0.8160</td>
<td>81.60</td>
</tr>
<tr>
<td>62.4215</td>
<td>62.5024</td>
<td>0.8090</td>
<td>80.90</td>
</tr>
<tr>
<td>62.2479</td>
<td>62.3293</td>
<td>0.8140</td>
<td>81.40</td>
</tr>
<tr>
<td><strong>Rata-rata</strong></td>
<td>81.30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Penambahan NaOH 5%**

5 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.9870</td>
<td>62.0554</td>
<td>0.0684</td>
<td>68.40</td>
</tr>
<tr>
<td>60.2213</td>
<td>60.2939</td>
<td>0.0726</td>
<td>72.60</td>
</tr>
</tbody>
</table>

Universitas Sumatera Utara
<table>
<thead>
<tr>
<th></th>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 menit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62.3867</td>
<td>62.4491</td>
<td>0,0624</td>
<td>62.40</td>
</tr>
<tr>
<td></td>
<td>62.2449</td>
<td>62.3122</td>
<td>0,0673</td>
<td>67.30</td>
</tr>
<tr>
<td></td>
<td>62.2971</td>
<td>62.3619</td>
<td>0,0648</td>
<td>64.80</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td></td>
<td>64.80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 menit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62.4287</td>
<td>62.4817</td>
<td>0,0535</td>
<td>53.50</td>
</tr>
<tr>
<td></td>
<td>62.4018</td>
<td>62.4608</td>
<td>0,0595</td>
<td>59.50</td>
</tr>
<tr>
<td></td>
<td>62.6522</td>
<td>62.7049</td>
<td>0,0572</td>
<td>57.20</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td></td>
<td>56.70</td>
</tr>
</tbody>
</table>

A = Berat Gelas Beaker setelah dipanaskan selama 1 jam pada suhu 110°C
B = Berat Gelas Beaker + sampel dipanaskan selama 1 jam pada suhu 70°C
C = Kadar Minyak/Lemak (g/L)
D = Kadar Minyak/Lemak (mg/L)
Volume sample = 1000 mL
C = (B-A)
Penambahan Ca(OH)$_2$ 5%

1. Kolam aerobik primer

5 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.0092</td>
<td>62.1655</td>
<td>0.1563</td>
<td>156.30</td>
</tr>
<tr>
<td>62.2440</td>
<td>62.4032</td>
<td>0.1592</td>
<td>159.20</td>
</tr>
<tr>
<td>62.1206</td>
<td>62.2790</td>
<td>0.1584</td>
<td>158.40</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>157.90</td>
</tr>
</tbody>
</table>

10 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.4282</td>
<td>62.5777</td>
<td>0.149</td>
<td>149.50</td>
</tr>
<tr>
<td>62.3866</td>
<td>62.5368</td>
<td>0.1502</td>
<td>150.20</td>
</tr>
<tr>
<td>62.2970</td>
<td>62.4458</td>
<td>0.1488</td>
<td>148.80</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>149.50</td>
</tr>
</tbody>
</table>

15 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.2216</td>
<td>62.3653</td>
<td>0.1437</td>
<td>143.70</td>
</tr>
<tr>
<td>62.2452</td>
<td>62.3867</td>
<td>0.1415</td>
<td>141.50</td>
</tr>
<tr>
<td>62.4015</td>
<td>62.5466</td>
<td>0.1451</td>
<td>145.10</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>143.40</td>
</tr>
</tbody>
</table>

A = Berat Gelas Beaker setelah dipanaskan selama 1 jam pada suhu 110$^\circ$C

B = Berat Gelas Beaker + sampel dipanaskan selama 1 jam pada suhu 70$^\circ$C

C = Kadar Minyak/Lemak (mg/L)

D = Kadar Minyak/Lemak (g/L)

Volume sample = 1000 mL

C = (B-A)
2. Kolam Aerasi

5 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.2212</td>
<td>62.3015</td>
<td>0.0803</td>
<td>80.30</td>
</tr>
<tr>
<td>62.2788</td>
<td>62.3575</td>
<td>0.0787</td>
<td>78.70</td>
</tr>
<tr>
<td>62.1209</td>
<td>62.1988</td>
<td>0.0779</td>
<td>77.90</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>78.90</td>
</tr>
</tbody>
</table>

10 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.2440</td>
<td>62.3164</td>
<td>0.0724</td>
<td>72.40</td>
</tr>
<tr>
<td>62.4020</td>
<td>62.4736</td>
<td>0.0716</td>
<td>71.60</td>
</tr>
<tr>
<td>62.6526</td>
<td>62.7279</td>
<td>0.0753</td>
<td>75.30</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>73.10</td>
</tr>
</tbody>
</table>

15 menit

<table>
<thead>
<tr>
<th>A (g)</th>
<th>B (g)</th>
<th>C (g/L)</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.0020</td>
<td>62.0705</td>
<td>0.0685</td>
<td>68.50</td>
</tr>
<tr>
<td>62.2453</td>
<td>62.3117</td>
<td>0.0664</td>
<td>66.40</td>
</tr>
<tr>
<td>62.3010</td>
<td>62.3669</td>
<td>0.0659</td>
<td>65.90</td>
</tr>
<tr>
<td>Rata-rata</td>
<td></td>
<td></td>
<td>66.90</td>
</tr>
</tbody>
</table>

A = Berat Gelas Beaker setelah dipanaskan selama 1 jam pada suhu 110^0C
B = Berat Gelas Beaker + sampel dipanaskan selama 1 jam pada suhu 70^0C
C = Kadar Minyak/Lemak (g/L)
D = Kadar Minyak/Lemak (mg/L)
Volume sample = 1000 mL
C = (B-A)
Lampiran. Data Hasil Pengukuran Nilai BOD

Hasil Pengukuran BOD untuk kolam Aerobik Primer

### Pengencer

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>E (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,52</td>
<td>4,74</td>
<td>1,0560</td>
</tr>
<tr>
<td>5,48</td>
<td>4,72</td>
<td>1,0289</td>
</tr>
</tbody>
</table>

Volume Botol = 145 ml

### Sampel

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,68</td>
<td>5,36</td>
<td>1,5211</td>
<td>2500</td>
<td>1162,75</td>
</tr>
<tr>
<td>6,74</td>
<td>5,44</td>
<td>1,4981</td>
<td>2500</td>
<td>1172,75</td>
</tr>
</tbody>
</table>

|       |       |          |     | 1167,75  |

Volume Botol = 170 ml

### Sampel + NaOH 5% waktu 5 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,56</td>
<td>5,30</td>
<td>1,4520</td>
<td>2500</td>
<td>990,0</td>
</tr>
<tr>
<td>6,48</td>
<td>5,28</td>
<td>1,4059</td>
<td>2500</td>
<td>942,50</td>
</tr>
</tbody>
</table>

|       |       |          |     | 966,25   |

Volume Botol = 170 ml
### Sampel + NaOH 5% waktu 10 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,34</td>
<td>5,14</td>
<td>1,4059</td>
<td>2500</td>
<td>874,75</td>
</tr>
<tr>
<td>6,42</td>
<td>5,22</td>
<td>1,3828</td>
<td>2500</td>
<td>884,75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>879,75</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + NaOH 5% waktu 15 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,38</td>
<td>5,16</td>
<td>1,4059</td>
<td>2500</td>
<td>874,75</td>
</tr>
<tr>
<td>6,32</td>
<td>5,14</td>
<td>1,3598</td>
<td>2500</td>
<td>827,25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>851,00</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + Ca(OH)\(_2\) 5% waktu 5 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,84</td>
<td>5,54</td>
<td>1,4981</td>
<td>2500</td>
<td>1105,25</td>
</tr>
<tr>
<td>6,78</td>
<td>5,50</td>
<td>1,4750</td>
<td>2500</td>
<td>1047,50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1076,375</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + Ca(OH)\(_2\) 5% waktu 10 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,56</td>
<td>5,34</td>
<td>1,4520</td>
<td>2500</td>
<td>990,0</td>
</tr>
<tr>
<td>6,48</td>
<td>6,22</td>
<td>1,4520</td>
<td>2500</td>
<td>1057,75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1023,88</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml
### Sampel + Ca(OH)$_2$ 5% waktu 15 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>$fp$</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,42</td>
<td>5,18</td>
<td>1,4289</td>
<td>2500</td>
<td>932,25</td>
</tr>
<tr>
<td>6,36</td>
<td>5,16</td>
<td>1,3828</td>
<td>2500</td>
<td>884,75</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Hasil Pengukuran BOD untuk kolam Aerasi

#### Sampel

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>$fp$</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,82</td>
<td>4,70</td>
<td>1,2906</td>
<td>2500</td>
<td>586,5</td>
</tr>
<tr>
<td>5,76</td>
<td>4,66</td>
<td>1,2676</td>
<td>2500</td>
<td>596,75</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

#### Sampel + NaOH 5% waktu 5 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>$fp$</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,72</td>
<td>4,62</td>
<td>1,2676</td>
<td>2500</td>
<td>529,0</td>
</tr>
<tr>
<td>5,68</td>
<td>4,60</td>
<td>1,2445</td>
<td>2500</td>
<td>539,0</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

#### Sampel + NaOH 5% waktu 10 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>$fp$</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,64</td>
<td>4,54</td>
<td>1,2445</td>
<td>2500</td>
<td>471,25</td>
</tr>
<tr>
<td>5,62</td>
<td>4,56</td>
<td>1,2215</td>
<td>2500</td>
<td>481,5</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml
### Sampel + NaOH 5% waktu 15 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,60</td>
<td>5,54</td>
<td>1,2215</td>
<td>2500</td>
<td>413,25</td>
</tr>
<tr>
<td>6,56</td>
<td>5,52</td>
<td>1,1985</td>
<td>2500</td>
<td>424,0</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + Ca(OH)₂ 5% waktu 5 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,84</td>
<td>4,72</td>
<td>1,2906</td>
<td>2500</td>
<td>586,5</td>
</tr>
<tr>
<td>5,82</td>
<td>4,74</td>
<td>1,2445</td>
<td>2500</td>
<td>539,0</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + Ca(OH)₂ 5% waktu 10 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,76</td>
<td>4,66</td>
<td>1,2676</td>
<td>2500</td>
<td>529,0</td>
</tr>
<tr>
<td>5,70</td>
<td>4,68</td>
<td>1,2215</td>
<td>2500</td>
<td>481,5</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml

### Sampel + Ca(OH)₂ 5% waktu 15 menit

<table>
<thead>
<tr>
<th>A (ml)</th>
<th>B (ml)</th>
<th>C (mg/L)</th>
<th>fp</th>
<th>D (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,68</td>
<td>4,62</td>
<td>1,2215</td>
<td>2500</td>
<td>413,75</td>
</tr>
<tr>
<td>5,64</td>
<td>4,46</td>
<td>1,3598</td>
<td>2500</td>
<td>481,50</td>
</tr>
</tbody>
</table>

Volume Botol = 170 ml
A = Volume Na$_2$S$_2$O$_3$ pada hari ke-0 (mL)
B = Volume Na$_2$S$_2$O$_3$ pada hari ke-5 (mL)
C = BOD sampel + BOD dari pengencer (mg/L)
D = BOD sampel (mg/L)
E = BOD dari pengencer (mg/L)

Normalitas Na$_2$S$_2$O$_3$ = 0,0242 N

\[
C = \frac{(A - B) \times 0,0242 \times N \times 8000}{V - 2}
\]

\[
E = \frac{(A - B) \times 0,0242 \times N \times 8000}{(145 - 2)}
\]

\[
D = (C - E) \times f_p
\]
Lampiran. C. Data Hasil Pengukuran nilai COD

Sampel Limbah Cair dari Kolam Aerasi

Data Hasil Pengukuran volume FAS 0,2470 N dalam Penentuan nilai COD

<table>
<thead>
<tr>
<th>No</th>
<th>Perlakuan</th>
<th>Vol. FAS (ml)</th>
<th>fp</th>
<th>Nilai COD (mg/L)</th>
<th>Nilai COD rata-rata</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blangko</td>
<td>23,48, 23,50</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Sampel</td>
<td>21,70, 21,64</td>
<td>10</td>
<td>1406,91, 1470,14</td>
<td>1438,53</td>
</tr>
<tr>
<td>3</td>
<td>Sampel + NaOH 5% waktu 5 menit</td>
<td>21,72, 21,76</td>
<td>10</td>
<td>1391,10, 1375,29</td>
<td>1383,19</td>
</tr>
<tr>
<td>4</td>
<td>Sampel + NaOH 5% waktu 10 menit</td>
<td>21,76, 21,80</td>
<td>10</td>
<td>1359,48, 1343,68</td>
<td>1351,58</td>
</tr>
<tr>
<td>5</td>
<td>Sampel + NaOH 5% waktu 15 menit</td>
<td>21,80, 21,84</td>
<td>10</td>
<td>1327,87, 1312,06</td>
<td>1319,97</td>
</tr>
<tr>
<td>6</td>
<td>Sampel + Ca(OH)₂ 5% waktu 5 menit</td>
<td>21,68, 21,74</td>
<td>10</td>
<td>1422,72, 1391,10</td>
<td>1406,91</td>
</tr>
<tr>
<td>7</td>
<td>Sampel + Ca(OH)₂ 5% waktu 10 menit</td>
<td>21,70, 21,76</td>
<td>10</td>
<td>1406,91, 1375,29</td>
<td>1391,10</td>
</tr>
<tr>
<td>8</td>
<td>Sampel + Ca(OH)₂ 5% waktu 15 menit</td>
<td>21,78, 21,78</td>
<td>10</td>
<td>1342,62, 1360,14</td>
<td>1351,38</td>
</tr>
</tbody>
</table>

* Volume sampel yang dititrasi = 25 ml

\[
\text{Nilai COD (mg O}_2/\text{L)} = \frac{(A - B) \times mL \times N \times 8000 \times fp}{mL \times \text{Sampel}}
\]

A = Volume FAS untuk titrasi blanko
B = Volume FAS untuk titrasi sampel
C = COD sampel (mg/L)
Normalitas FAS (Ferro Amonium Sulfat) = 0,2470
## Sampel Limbah Cair dari Kolam Aerobik primer

### Data Hasil Pengukuran volume FAS 0,2470 N dalam Penentuan nilai COD

<table>
<thead>
<tr>
<th>No</th>
<th>Perlakuan</th>
<th>Vol. FAS (ml)</th>
<th>Nilai COD (mg/L)</th>
<th>Nilai COD rata-rata</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Blangko</td>
<td>23,48</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23,52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sampel</td>
<td>21,12</td>
<td>10</td>
<td>1865,34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,14</td>
<td></td>
<td>1881,15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1873,25</td>
</tr>
<tr>
<td>3</td>
<td>Sampel + NaOH 5% waktu 5 menit</td>
<td>21,18</td>
<td>10</td>
<td>1817,92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,20</td>
<td></td>
<td>1833,72</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1825,82</td>
</tr>
<tr>
<td>4</td>
<td>Sampel + NaOH 5% waktu 10 menit</td>
<td>21,20</td>
<td>10</td>
<td>1802,11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,26</td>
<td></td>
<td>1786,30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1794,20</td>
</tr>
<tr>
<td>5</td>
<td>Sampel + NaOH 5% waktu 15 menit</td>
<td>21,24</td>
<td>10</td>
<td>1770,49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,30</td>
<td></td>
<td>1754,68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1762,58</td>
</tr>
<tr>
<td>6</td>
<td>Sampel + Ca(OH)$_2$ 5% waktu 5 menit</td>
<td>21,14</td>
<td>10</td>
<td>1849,53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,20</td>
<td></td>
<td>1833,72</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1841,63</td>
</tr>
<tr>
<td>7</td>
<td>Sampel + Ca(OH)$_2$ 5% waktu 10 menit</td>
<td>21,18</td>
<td>10</td>
<td>1817,92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,24</td>
<td></td>
<td>1802,11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1810,02</td>
</tr>
<tr>
<td>8</td>
<td>Sampel + Ca(OH)$_2$ 5% waktu 15 menit</td>
<td>21,22</td>
<td>10</td>
<td>1786,30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21,28</td>
<td></td>
<td>1770,49</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1778,39</td>
</tr>
</tbody>
</table>

Volume sampel yang dititrasi = 25 ml

\[
\text{Nilai COD (mg O}_2/\text{L}) = \frac{(A - B) \times mL \times N \times 8000 \times fp}{mL \text{ Sampel}}
\]

A = Volume FAS untuk titrasi blanko
B = Volume FAS untuk titrasi sampel
C = COD sampel (mg/L)
fp = Faktor Pengencer
Normalitas FAS (Ferro Amonium Sulfat) = 0,2470 N
Lampiran. D Dokumentasi Penelitian

Gambar lampiran 4. 1. Lokasi menuju pengambilan sampel

Gambar lampiran 4. 2. Lokasi pengambilan sampel

Gambar lampiran 4.3. Perkebunan kelapa sawit PTPN-4 Sosa Padang Lawas
Gambar lampiran 4.4. Salah satu kolam limbah pabrik kelapa sawit

Gambar lampiran 4.5. Kolam Aerasi dan Aerobik primer
Gambar lampiran 4.5. Limbah Cair PKS yang siap dibuang ke badan air

Gambar lampiran 4.6. Kolam LCPKS PTPN-IV Sosa yang perlu ditangani

Gambar Lampiran 4.7. Pelaksanaan analisis sampel di Pusat LaboratoriumUji Mutu-LP USU
Gambar Lampiran 4.8. Pelaksanaan analisis sampel di Pusat Laboratorium Uji Mutu- LP USU

Gambar Lampiran 4.9. Pelaksanaan analisis sampel di Pusat Laboratorium Uji Mutu-LP USU

Gambar Lampiran 4.10. Sampel LCPKS yang diekstraksi dengan N-Hexana