Lampiran A : Spektrum FT-IR Asam Oleat
**Lampiran B : Penentuan Bilangan Iodin dengan Metode Wijs**

<table>
<thead>
<tr>
<th>Sampel</th>
<th>Massa Sampel (gram)</th>
<th>Volume Titrasi (ml)</th>
<th>Bilangan Iodin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m₁</td>
<td>m₂</td>
<td>m₃</td>
</tr>
<tr>
<td>Blanko</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asam Oleat</td>
<td>0,235</td>
<td>0,235</td>
<td>0,298</td>
</tr>
<tr>
<td>9,10-dihidroksi stearat</td>
<td>0,332</td>
<td>0,353</td>
<td>0,331</td>
</tr>
</tbody>
</table>

Bilangan Iodin Asam Oleat = \[
\frac{(B-S) \times N \times 12,69}{\text{Berat Sampel (gram)}}
\]

= \[
\frac{(47,47-31,51) \times 0,1 \times 12,69}{0,256}
\]

= 79,11

Bilangan Iodin asam 9,10-dihidroksi stearat = \[
\frac{(B-S) \times N \times 12,69}{\text{Berat Sampel (gram)}}
\]

= \[
\frac{(47,47-39,23) \times 0,1 \times 12,69}{0,339}
\]

= 30,84
Lampiran C : Penentuan Bilangan Asam dengan Metode Wijs

<table>
<thead>
<tr>
<th>Sampel</th>
<th>Massa Sampel (gram)</th>
<th>Volume Titrasi (ml)</th>
<th>Bilangan Asam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m₁</td>
<td>m₂</td>
<td>m₃</td>
</tr>
<tr>
<td>Asam Oleat</td>
<td>0,608</td>
<td>0,338</td>
<td>0,323</td>
</tr>
<tr>
<td>Asam 9,10-dihidroksi stearat</td>
<td>0,316</td>
<td>0,300</td>
<td>0,340</td>
</tr>
<tr>
<td>9,10-dihidroksi-N-(2-etanol)stearamida</td>
<td>0,308</td>
<td>0,396</td>
<td>0,374</td>
</tr>
</tbody>
</table>

Bilangan Asam Asam Oleat = \( \frac{V_{KOH} \times N_{KOH} \times 56,1}{ \text{Berat Sampel (gram)}} \)

\[ = \frac{10,5 \times 0,0198 \times 56,1}{0,423} \]

\[ = 27,57 \]

Bilangan Asam 9,10-dihidroksi stearat = \( \frac{V_{KOH} \times N_{KOH} \times 56,1}{ \text{Berat Sampel (gram)}} \)

\[ = \frac{10,17 \times 0,0198 \times 56,1}{0,319} \]

\[ = 35,41 \]

Bilangan Asam surfaktan nonionik 9,10-dihidroksi-N-(2-etanol)stearamida

\[ = \frac{V_{KOH} \times N_{KOH} \times 56,1}{ \text{Berat Sampel (gram)}} \]

\[ = \frac{8,17 \times 0,0198 \times 56,1}{0,359} \]

\[ = 25,28 \]
**Lampiran D : Penentuan Bilangan Penyabunan dengan Metode Wijs**

<table>
<thead>
<tr>
<th>Sampel</th>
<th>Massa Sampel (gram)</th>
<th>Volume Titrasi (ml)</th>
<th>Bilangan Penyabunan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m&lt;sub&gt;1&lt;/sub&gt;</td>
<td>m&lt;sub&gt;2&lt;/sub&gt;</td>
<td>m&lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td>Blanko</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asam Oleat</td>
<td>1,030</td>
<td>1,050</td>
<td>1,044</td>
</tr>
<tr>
<td>Asam 9,10-dihidroksi stearat</td>
<td>1,035</td>
<td>1,028</td>
<td>1,174</td>
</tr>
<tr>
<td>9,10-dihidroksi-N-(2-etanol)stearamida</td>
<td>1,123</td>
<td>1,126</td>
<td>1,124</td>
</tr>
</tbody>
</table>

Bilangan Penyabunan Asam Oleat = \( \frac{(V_{blanko} - V_{titrasi}) \times N_{HCl} \times 56,1}{Berat Sampel (gram)} \)

= \( \frac{(22,7 - 22,17) \times 0,501 \times 56,1}{1,041} \)

= 14,31

Bilangan Penyabunan asam 9,10-dihidroksi stearat = \( \frac{(V_{blanko} - V_{titrasi}) \times N_{HCl} \times 56,1}{Berat Sampel (gram)} \)

= \( \frac{(22,7 - 21,95) \times 0,501 \times 56,1}{1,079} \)

= 19,54

Bilangan Penyabunan surfaktan nonionik 9,10-dihidroksi-N-(2-etanol)stearamida = \( \frac{(V_{blanko} - V_{titrasi}) \times N_{HCl} \times 56,1}{Berat Sampel (gram)} \)

= \( \frac{(22,7 - 22,10) \times 0,501 \times 56,1}{1,124} \)

= 15,00
HLB senyawa Asam Oleat ialah:

\[
\text{HLB} = 20 \left(1 - \frac{S}{A}\right) \\
= 20 \left(1 - \frac{14,21}{27,57}\right) \\
= 20 - 10,31 \\
= 9,69
\]

HLB senyawa asam 9,10-dihidroksi stearat ialah:

\[
\text{HLB} = 20 \left(1 - \frac{S}{A}\right) \\
= 20 \left(1 - \frac{19,54}{35,41}\right) \\
= 20 - 11,04 \\
= 8,96
\]

HLB senyawa surfaktan nonionik 9,10-dihidroksi-\(N\)-(2-etanol)stearamida ialah:

\[
\text{HLB} = 20 \left(1 - \frac{S}{A}\right) \\
= 20 \left(1 - \frac{15,00}{25,28}\right) \\
= 20 - 11,87 \\
= 8,13
\]