REPORT SHEET: Isoamyl Acetate

\[
\begin{align*}
\text{3-Methyl-1-butanol (Isoamyl alcohol)} & \quad \text{Isoamyl acetate} \\
\text{FW 88.15, bp 130 °C, d 0.809} & \quad \text{FW 130.19, bp 142 °C, d 0.876}
\end{align*}
\]

1. Data Table: Fill in the appropriate spaces in the data table below. Under the Amount column, use g for solids, mL for liquids. The abbreviation na stands for not applicable. A mmol is \(1/1000\)th of a mole.

<table>
<thead>
<tr>
<th>Reagent</th>
<th>Amount (g or mL)</th>
<th>mmol</th>
<th>bp (°C) observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoamyl alcohol</td>
<td></td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Acetic Acid</td>
<td></td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Isoamyl acetate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Percent Yield (show calculations on a separate sheet and attach to this page)

Percent yield of distilled product \(\_\_\_\_\_-\_\_-\_\_-\%\)

3. Mechanism. On a separate sheet (attach to this report), write a step-by-step mechanism for the reaction of isoamyl alcohol and acetic acid in the presence of an acid catalyst.

4. Questions.
A) On a separate sheet (attach to this report), assign relevant C-H, C-O, C=O, and O-H stretching and bending frequencies for isoamyl alcohol and isoamyl acetate. You do not need to assign every band in the IR spectra.

B) Explain the purpose of washing the organic layer with 0.5 M sodium bicarbonate. You should include chemical reactions as part of your answer.