EXPERIMENT 4: PREPARATION OF SALICYLIC ACID

OBJECTIVE:
Salicylic acid will be prepared through base-promoted hydrolysis of methyl salicylate, as illustrated by the reaction below. The product will be isolated via filtration and purified by recrystallization. The purified product will be analyzed by BCNMR and by determining its melting point.

EQUATION:

\[
\text{Methyl salicylate} + \text{NaOH} \rightarrow \text{Salicylic acid} + \text{CH}_3\text{OH}
\]

TABLE OF REAGENTS:

<table>
<thead>
<tr>
<th>Compound Name</th>
<th>MW (g/mol)</th>
<th>Mass (g)</th>
<th>Vol (mL)</th>
<th>Density (g/mL)</th>
<th>mp/bp (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl salicylate</td>
<td>152.15</td>
<td>7.5g</td>
<td>25mL</td>
<td>1.484</td>
<td>-8.6/223.3</td>
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<tr>
<td>5M NaOH</td>
<td>40.0</td>
<td>2.5mL</td>
<td>—</td>
<td>12/140</td>
<td></td>
</tr>
<tr>
<td>H_2SO_4</td>
<td>98.0</td>
<td>9mL</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Salicylic acid</td>
<td>138.12</td>
<td>3.5g</td>
<td>1.44</td>
<td>159/211</td>
<td></td>
</tr>
</tbody>
</table>

HAZARD INFO:

* Methyl salicylate = toxic/irritant - avoid skin/eye contact and inhalation. Wear gloves

* NaOH = corrosive/causes burns - avoid contact, wear gloves.

  If any is spilled, notify instructor right away.

* H_2SO_4 = corrosive/causes burns - avoid contact, wear gloves.

  Neutralize any spills immediately.

* Salicylic acid = irritant - avoid skin/eye contact and inhalation. Wear gloves.