Figures du C13 Réaction chimique par échange de proton

**C13-1**

<table>
<thead>
<tr>
<th>Substance</th>
<th>pH approximatif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acide chlorhydrique molaire</td>
<td>&lt; 0</td>
</tr>
<tr>
<td>Drainage minier acide (DMA)</td>
<td>&lt; 1,0</td>
</tr>
<tr>
<td>Batterie acide</td>
<td>&lt; 1,0</td>
</tr>
<tr>
<td>Aide gastrique</td>
<td>2,0</td>
</tr>
<tr>
<td>Jus de citron</td>
<td>2,4</td>
</tr>
<tr>
<td>Cola</td>
<td>2,5</td>
</tr>
<tr>
<td>Vinaigre</td>
<td>2,9</td>
</tr>
<tr>
<td>Jus d’orange ou de pomme</td>
<td>3,5</td>
</tr>
<tr>
<td>Bière</td>
<td>4,5</td>
</tr>
<tr>
<td>Café</td>
<td>5,0</td>
</tr>
<tr>
<td>Thé</td>
<td>5,5</td>
</tr>
<tr>
<td>Pluie acide</td>
<td>&lt; 5,6</td>
</tr>
<tr>
<td>Lait</td>
<td>6,5</td>
</tr>
<tr>
<td>Eau pure</td>
<td>7,0</td>
</tr>
<tr>
<td>Salle humaine</td>
<td>6,5 – 7,4</td>
</tr>
<tr>
<td>Sang</td>
<td>7,35 – 7,45</td>
</tr>
<tr>
<td>Eau de mer</td>
<td>8,0</td>
</tr>
<tr>
<td>Savon</td>
<td>9,0 – 10,0</td>
</tr>
<tr>
<td>Ammoniaque</td>
<td>11,5</td>
</tr>
<tr>
<td>Hydroxyde de calcium</td>
<td>12,5</td>
</tr>
<tr>
<td>Hydroxyde de sodium molaire</td>
<td>14,0</td>
</tr>
</tbody>
</table>

**C13-2**

<table>
<thead>
<tr>
<th>Acides</th>
<th>pKₐ</th>
<th>Bases</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH₃NH₃⁺</td>
<td>10,7</td>
<td>CH₃NH₂</td>
</tr>
<tr>
<td>H₃N⁺ – CH₂ – CO₂</td>
<td>9,8</td>
<td>H₂N – CH₂ – CO₂</td>
</tr>
<tr>
<td>NH₃</td>
<td>9,2</td>
<td>NH₃</td>
</tr>
<tr>
<td>HClO</td>
<td>7,5</td>
<td>ClO⁻</td>
</tr>
<tr>
<td>CH₃CO₂H⁺</td>
<td>4,8</td>
<td>CH₃CO₂⁻</td>
</tr>
<tr>
<td>HCO₂H⁺</td>
<td>3,8</td>
<td>HCO₂⁻</td>
</tr>
<tr>
<td>H₃N⁺ – CH₂ – CO₂</td>
<td>2,4</td>
<td>H₃N⁺ – CH₂ – CO₂⁻</td>
</tr>
<tr>
<td>H₂O⁺</td>
<td>0,0</td>
<td>H₂O⁻</td>
</tr>
</tbody>
</table>

**C13-3**

- A⁻ prédomine
  - [HA]ₐₐ < [A⁻]ₐₐ
- pH < pKₐ
  - [HA]ₐₐ = [A⁻]ₐₐ
- HA prédomine
  - [HA]ₐₐ > [A⁻]ₐₐ
  - pH > pKₐ