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Table 1. Economic analysis for a biorefinery producing bioethanol, DDGS, and CO2 (base case). The economic margin is calculated as VOP - COP for each stream.

<table>
<thead>
<tr>
<th>Stream</th>
<th>COP (£/t)</th>
<th>VOP (£/t)</th>
<th>Economic margin (£/t)</th>
<th>Flowrate (kt)</th>
<th>Total (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioethanol</td>
<td>41.52</td>
<td>590</td>
<td>548.48</td>
<td>114.57</td>
<td>62.84</td>
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<tr>
<td>DDGS</td>
<td>43.39</td>
<td>72.5</td>
<td>29.11</td>
<td>83.6</td>
<td>2.43</td>
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<tr>
<td>CO2</td>
<td>43.47</td>
<td>10.7</td>
<td>-32.77</td>
<td>102.29</td>
<td>-3.35</td>
</tr>
<tr>
<td>Combined waste</td>
<td>41.93</td>
<td>0</td>
<td>-41.93</td>
<td>668.71</td>
<td>-28.04</td>
</tr>
</tbody>
</table>

Figure 3. Detailed value analysis for a biorefinery (a) producing bioethanol, DDGS, and CO2 (base case) and (b) co-producing an additional 80% purity AX product.
Figure 4. Arabinoxylan extraction flowsheet modified from Hollmann and Lindhauer (2005) for achieving a 70% purity arabinoxylan product.
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