Assignment 7

The due date for submitting this assignment has passed.

Due on 2019-09-10, 23:59 IST.

Based on the given statement, answer (a), (b), (c), (d), (e), (f) & (g):

1 kg of sludge containing 0.5 kg Ca(OH)₂, 0.1 kg NaOCl and 0.3 kg Ca(OH)₂ is mixed with 1 kg of water. The suspension is allowed to settle and overflow and underflow are separated. The underflow is 0.8 kg solution related to per kg sludge.

1) Calculate the mass of NaCl entrained in overflow: (Unit: kg)

<table>
<thead>
<tr>
<th>Overflow</th>
<th>Underflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg oil per kg clear solution</td>
<td>kg oil per kg solid solution</td>
</tr>
<tr>
<td>0.0</td>
<td>0.06</td>
</tr>
<tr>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>0.20</td>
<td>0.005</td>
</tr>
<tr>
<td>0.25</td>
<td>0.007</td>
</tr>
<tr>
<td>0.30</td>
<td>0.01</td>
</tr>
<tr>
<td>0.35</td>
<td>0.013</td>
</tr>
<tr>
<td>0.40</td>
<td>0.017</td>
</tr>
<tr>
<td>0.45</td>
<td>0.022</td>
</tr>
<tr>
<td>0.50</td>
<td>0.026</td>
</tr>
</tbody>
</table>

2) Calculate the concentration of the solution in the overflow if it is free from solids.

3) Calculate the fractional recovery (%)

4) Calculate the mass of underflow: (Unit: kg)

5) Calculate the mass of overflow: (Unit: kg)

6) Calculate the fraction of oil removed in the extract.

7) If the above extraction is done in two stages using 1800kg of the solvent in each stage, calculate the mass fraction of residual oil in the final solids.

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Hint:

No, the answer is incorrect. Score 0
Accepted Answer:
(Type: Numerical) 0.133

1 point

No, the answer is incorrect. Score 0
Accepted Answer:
(Type: Numerical) 0.61

1 point

No, the answer is incorrect. Score 0
Accepted Answer:
(Type: Numerical) 0

1 point

No, the answer is incorrect. Score 0
Accepted Answer:
(Type: Numerical) 0

2 points

No, the answer is incorrect. Score 0
Accepted Answer:
(Type: Numerical) 12.8

2 points