1. Schematic view of waste water treatment

- Experimental set-up for magnetic filter performance

![Schematic view of waste water treatment](image)

- Magnetic filter performance

2. Development of the new adsorbent

To improve the magnetic separation efficiency, we introduce a method of nanomagnetite aggregation.

1. Increasing of surface area → increasing of absorption capacity
2. Enhanced magnetic susceptibility → Improvement of separation efficiency

3. Magnetic separation efficiencies for the adsorbents

<table>
<thead>
<tr>
<th>Magnetic intensity (T)</th>
<th>0.4</th>
<th>0.5</th>
<th>0.75</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schwertmannite</td>
<td>65(%)</td>
<td>72</td>
<td>85</td>
<td>&gt;90</td>
</tr>
<tr>
<td>New adsorbent</td>
<td>96(%)</td>
<td>&gt;99</td>
<td>&gt;99</td>
<td>&gt;99</td>
</tr>
</tbody>
</table>

4. Fluoride and phosphate adsorptions results

![Fluoride and phosphate adsorptions results](image)

5. Patent status & Patent owner contact

- Patent license is available.

Patent owner contact: Masaru OZAKI (JST)
Tel:+81-3-5214-8486, e-mail: license@jst.go.jp