Membrane material | Pore size | Cut-off | Porosity | Function of the ceramic membranes
---|---|---|---|---
\(\text{TiO}_2\) | 800 nm | 400 nm | 800 nm | Recovery of texturizing water in textile industry with ceramic Inopor ultra filtration membranes
| 400 nm | 250 nm | 400 nm | Concentrate
| 200 nm | 100 nm | 200 nm | Permeate
| 100 nm | 70 nm | 100 nm | Feed

Membrane 1
- Feed: pH 7.17, COD 1500 mg/L, NTU 0, COD reduction 54.80%
- Permeate: pH 7.58, COD 678 mg/L, NTU 0
- Concentrate: pH 7.47, COD 1700 mg/L, NTU 0.3

Membrane 2
- Feed: pH 7.17, COD 1480 mg/L, NTU 0.1, COD reduction 83.78%
- Permeate: pH 7.56, COD 240 mg/L, NTU 0.1
- Concentrate: pH 7.44, COD 1710 mg/L, NTU 0.4

Membrane 3
- Feed: pH 7.20, COD 1500 mg/L, NTU 0.3, COD reduction 85.53%
- Permeate: pH 7.57, COD 217 mg/L, NTU 0.5
- Concentrate: pH 7.44, COD 1900 mg/L, NTU 0.3

Membrane 4
- Feed: pH 7.19, COD 1470 mg/L, NTU 0.3, COD reduction 93.69%
- Permeate: pH 7.44, COD 92.7 mg/L, NTU 0
- Concentrate: pH 7.57, COD 1830 mg/L, NTU 0.3

Technical parameters

<table>
<thead>
<tr>
<th>Membrane material</th>
<th>Pore size</th>
<th>Cut-off</th>
<th>Porosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{TiO}_2)</td>
<td>800 nm</td>
<td>400 nm</td>
<td>800 nm</td>
</tr>
<tr>
<td>400 nm</td>
<td>250 nm</td>
<td>400 nm</td>
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</tr>
<tr>
<td>200 nm</td>
<td>100 nm</td>
<td>200 nm</td>
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</tr>
<tr>
<td>100 nm</td>
<td>70 nm</td>
<td>100 nm</td>
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</table>

**Example large scale system**

**Analysis and technical data**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Conductivity (µS/cm)</th>
<th>pH</th>
<th>COD (mg/L)</th>
<th>NTU (clouding)</th>
<th>Reduction COD (%)</th>
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</thead>
<tbody>
<tr>
<td>Feed</td>
<td>612</td>
<td>7.17</td>
<td>1500</td>
<td>0</td>
<td>54.80</td>
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<tr>
<td>Permeate</td>
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<td>7.58</td>
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<tr>
<td>Concentrate</td>
<td>615</td>
<td>7.47</td>
<td>1700</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>

**Membranes**

**Recovery of texturizing water in textile industry with ceramic Inopor ultra filtration membranes**

**Inopor – a brand of Rauschert Group**

**www.rauschert.com**
Initial Situation

The discharge of scouring water wastewater causes significant increase in COD of processed wastewater.

Objective of piloting

- Determine the level of filtration necessary to clean the scouring wastewater for reuse in the sourcing machine.
- Test if the quality of the filtered scouring water is adequate for reuse in the scouring process.

Results

- Filtration in the ultrafilter range is adequate to clean the scouring wastewater for reuse in the scouring machine.
- The footprint and operating cost of scouring water recycling is low and can be integrated into the existing process.
- Quality of the filtered scouring water is adequate for use in the scouring process.

Advantages of ceramic inopor membranes

- high chemical resistance
- bio inert (e.g. against bacteria)
- high thermal resistance
- good steam sterilization
- back flushing possible, high compressive strength
- no material degradation
- optimal regeneration
- high permeate flux rates
- can be stored dry, after cleaning
- high resistance against abrasive particles
- high durability

Applications in the textile industry

- Maintenance or disposal of cleaning liquors and washing water (e.g. removal of textile sizing)
- Industrial wastewater recycling (e.g. decoloring in dyeing mills)
- Recycling of wastewater in the printing industry
- Separation of oil/water emulsions

We welcome your inquiries!

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