Innovative Solutions in the Process Industry for next generation Resource Efficient Water management

- SPIRE-01-2016: Systematic approaches for resource-efficient water management systems in process industries
- Start/end date: 1st Oct 2016-31st March 2020
- Partners:
Case Studies in Steel and chemical industry

1. The EU/ SPIRE needs
   - Enhanced sustainability in industrial water management
   - Safe access to water

2. The Project Solution
   Several solutions for steel and chemical industry:
   Catalyst, magnetic separator, new membranes, forward osmosis, water management

3. Value to Customers
   - Increased water efficiency at customer
   - More independent from water supply

4. How will this happen?
   - Demonstration at different sites.
   - Exploitation by the partners who own the innovation, business models can vary
Inspired to reach higher water efficiency!

- Less energy demand
- Less water use
- Process water recovery
- Raw material recovery
- Recycled waste water
- Wastewater reduction
- Utilization of waste heat
- Cooling water
- Recycled cooling water
- Routes towards multi scale symbiosis: site – regional
- Towards ZLD
- As systematic concept ready for other SPIRE industries
- Towards ZLD
- Less wastewater release
### Key expected sustainability impacts of INSPIREWATER

**Baseline:** current water consumption and management not sustainable. Case studies in Spain (Steel, Chemistry) and Sweden (Steel)

<table>
<thead>
<tr>
<th>Indicator (Max 3-4 key indicators)</th>
<th>Baseline</th>
<th>Expected Impact</th>
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</thead>
<tbody>
<tr>
<td>Water consumption reduction</td>
<td>Comparably low water re-use in current set-up</td>
<td>40-80% reduction, data to be evaluated at end of project</td>
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<tr>
<td>Less waste water production related to industrial use of water</td>
<td>Water production in relation to need for the process with limited re-use</td>
<td>40-80% reduction, data to be evaluated at end of project</td>
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<tr>
<td>Less energy use by including use of waste heat, and new technologies</td>
<td>Compared to current water treatment, e.g. sand filtration and by avoidance of waste transport</td>
<td>20-90% less energy use, data to be evaluated at end of project</td>
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<tr>
<td>Increased recovery of materials (metals and phosphorous)</td>
<td>Waste created by unused by-products</td>
<td>20% increase of recovery of material, data to be evaluated at end of project</td>
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</tbody>
</table>

*Core SPIRE indicator*
Outputs or learning from INSPIREWATER for other SPIRE projects

• STILL EARLY IN THE PROJECT

• Currently Demonstrations are started
• Need for water efficiency is increasing
• Important with cooperation between Case-study owners, suppliers and researchers
• Information exchange can always be improved, but is also restricted (NDA)
• It is early in the project, but helpful to think exploitation
• There are always more dissemination opportunities
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Project website: https://www.spire2030.eu/inspirewater