

PROJECT PROFILE

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| Title | Advancing Sustainability of Process Industries through Digital and Circular Water Use Innovations (AquaSPICE) |
| Project leader | Univ.-Prof. Dr.-Ing. habil. T. Wintgens |
| Responsible Project processor | Dr.-Ing. Laurence Palmowski Mail: palmowski@isa.rwth-aachen.de FON: +49 (0)241 80 91531 |
| Project partners | <p><i>Universities:</i></p> <ul style="list-style-type: none"> Universiteit Gent Università Politecnica delle Marche Polytechnio Kritis Athens University of Economics and Business University of Huddersfield Stichting HZ University of Applied Sciences (HZ) <p><i>Industry/Enterprises:</i></p> <ul style="list-style-type: none"> Dow Olefinverbund GmbH Dow Benelux BV BASF Antwerpen NV Solvay Chimica Italia S.p.A. S.A. Türkiye Petrol Rafinerileri Anonim Şirketi (Tüpraş) JEMS, ENERGETSKA DRUZBA, D.O.O. Agricola International S.A. Belgisch Laboratorium van de Electriciteitsindustrie LABORELEC CVBA (ENGIE LBE) Maggioli S.p.A Business Development Group SRL (BDG) Strane Innovation QLECTOR RAZVOJ CELOVITIH RESITEV ZA PAMETNE TOVARNE D.O.O. ACCELIGENCE LTD Evides Industriewater |

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| | <p><i>Water utility:</i> Water-Link OV</p> <p><i>PPP:</i> Consorzio Aretusa</p> <p><i>Research Institutes:</i> KWR WATER B.V Fundació Eurecat Vlaamse Instelling Voor Technologisch Onderzoek N.V. (VITO) Institute of Communication and Computer Systems (ICCS)</p> <p><i>Plattform/Consulting:</i> Water Europe (WE)</p> |
| Funding body | European Union (EU) |
| Duration | 1.12.2020 – 30.11.2024 |
| <p>The industry is one of the largest water users in Europe. Depending on the production process, the demands on water qualities and quantities differ. Due to climate change, some locations already deal with increased water scarcity and supply risks. Thus, to ensure supply, the reuse of water is of growing importance.</p> <p>AquaSPICE aims to advance the closure of water cycles by combining treatment methods, sensor technologies and digital processes.</p> <p>Optimal efficiency can be achieved by adopting appropriate technologies and practices at different levels, from a single industrial process to an entire factory to other collaborating industries (industrial symbiosis) or other sectors such as agriculture. AquaSPICE will facilitate the transfer of innovation by providing comprehensive technical and organizational solutions. These solutions will be used within different use cases with different constraints.</p> <p>AquaSPICE's innovations emerge from the requirements of 6 case studies involving 8 industrial actors (DOW, BASF, Water-Link, Solvay, ARETUSA, Agricola, JEMS and TUPRAS) in 6 EU countries (Germany, Netherlands, Belgium, Italy, Slovenia and Romania) and 1 associated country (Turkey). The case studies' water streams for production processes are considered with circular economy approaches and treated with</p> | |

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different treatment processes at pilot scale to meet the requirements of downstream processes.

Biological and physicochemical processes are used, including membrane processes. The status of water resources and treatment processes will be recorded in real-time using sensor systems. A digital platform collects the sensor data and can be used to optimize processes.

In addition to coordinating the overall project, ISA is responsible for scientific monitoring of the case studies and the evaluation of treatment processes for compliance with quality criteria. The European Union is funding the research work on industrial water management for a total of 3.5 years as part of the H2020 research and innovation program with approximately 11 million euros.

For more information, visit www.aquaspice.eu.

