

## DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE



UNIVERSITÀ DI PISA

### PROGRAMMA REGIONALE TOSCANA

PR FESR 2021-2027 OP1 OS1 Azione 1.1.4 "Ricerca e sviluppo per le  
imprese anche in raggruppamento con organismi di ricerca"

Bando n.2 "Progetti di ricerca e sviluppo per le MPMI e Midcap"



The SIRENA project deals with the reduction of environmental impacts resulting from human production activities and, at the same time, with the building of virtuous circular economy paths within wastewater treatment plants. Thus, the main outcomes of the SIRENA project are:

- Improvement of purification efficiency, to return to the community water as purified as possible, also regarding those emerging pollutants (such as PFAS and microplastics) which, despite being present in low concentrations, currently remain in the purified water, representing an environmental issue.
- Preparation of new adsorbents by thermochemical treatments of the sludge derived from the wastewater treatment plant to be used within the same plant, according to the circular economy perspective.
- Improvement of the control system of the plant and the quality of the outgoing water with the inclusion of new real-time monitoring systems coordinated by a management software capable of exploiting AI algorithms to analyse the quality of the outgoing water 24 hours a day and, on this base, predict/estimate malfunctions within the various sections of the plant.

#### Involved partners:

- CUOIO-DEPUR SpA
- PPM Srl
- DND Biotech Srl
- EXETESIS Srl
- University of Pisa, Department of Chemistry and Industrial Chemistry

**Period:** April 2024–February 2026

**Budget:** € 1.500.000

**Co-financed by Tuscany Region:** € 647.500