

WHAT IS NIAGARA?

NIAGARA is a European research project aligned with HORIZON-CL6-2022-ZEROPOLLUTION-01 that aims to develop strategies to offer a holistic solution to the widespread issue of water pollution focusing on understanding, monitoring and remediating contaminants in Drinking Water Treatment Plants (DWPs).



NIAGARA addresses the monitoring of chemical and biological pollution in drinking water at the DWTP level, new technologies for their removal, their associated potential toxicological effects, and the prediction of their spread and human exposition. Moreover, it also develops a detailed characterization of these solutions and investigations of the overall toxicity, risks and sustainability associated with its future scaling. This way, NIAGARA is an answer to the challenges that DWTPs are facing in the fight against drinking water pollution.

PARTNERS



NIAGARA

UNDERSTANDING, MONITORING, AND REMEDIATING THE SPREAD OF CHEMICAL, MICROBIOLOGICAL AND PLASTIC POLLUTION IN DRINKING WATER TREATMENT PLANTS



CALL: HORIZON-CL6-2022-ZEROPOLLUTION-01
OVERALL PROJECT BUDGET: € 3 601 443,00
START DATE: 1 November 2023
END DATE: 31 October 2027
TOTAL MONTHS: 48 months

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OBJECTIVES

Development of a cost-effective manufacturing plan for Multi-analyte Biosensors (BWP) designed to monitor chemical and biological water pollutants.

Design of a manufacturing scheme for an Immobilized Enzymatic Degradation System (IEDS) aimed at eliminating chemical pollutants and pathogens from drinking water.

Validation of an efficient and safe disinfection method based on UV/TiO₂ photocatalysis with comprehensive consideration of disinfection by-products.

Development of a fast and cost-effective hydraulic model based on Smooth Particle Hydrodynamics (SPH) to predict the spread of pollutants and un-regulated disinfection by-products.

Demonstrate our solutions at pilot level (TRL5) and their combined use establishing Safety and Sustainability-by-design criteria.

WHAT POLLUTANTS ARE WE DEALING WITH?

Emerging contaminants (ECs) refer to a diverse array of molecules and metabolites present in the environment. These substances, previously undetected in the environment, have only recently become subjects of study and monitoring, despite potentially having existed in the environment for an extended period. ECs have become a growing concern due to their ability to enter the environment and cause adverse ecological and human health effects. In NIAGARA we will work with the following pollutants:



Bisphenol A



Helicobacter pylori



imazilil



Ibuprofen/paracetamol



NIAGARA IS ALIGNED WITH EU'S TRANSITION TO A CIRCULAR AND LOW-CARBON ECONOMY AND EU'S CHEMICALS STRATEGY FOR SUSTAINABILITY BY ASSESSING:

- 1 The sustainability of all the processes and products proposed and all the activities foreseen through environmental life cycle (LCA) and life cycle cost (LCC) assessments.
- 2 The Safe- and Sustainable-by Design (SSbD) since the very beginning of the project until final pilot validation and beyond.