



LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL

**TESTING
and METROLOGY**

UQTA

Water Quality
and Treatment Laboratory

HYDRAULICS AND ENVIRONMENT DEPARTMENT

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Scope

The Water Quality and Treatment Laboratory (UQTA) of LNEC-EM is integrated in the Hydraulics and Environment Department/Urban Water Unit of LNEC.



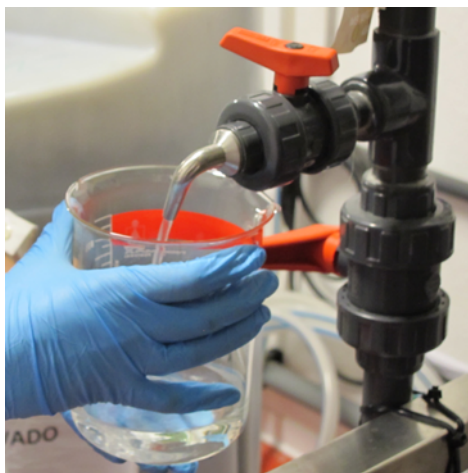
Since 2006, UQTA has been carrying out experimental activities to support R&D&I projects on water quality, treatment and distribution of drinking water, urban wastewater and reclaimed water, aiming to increase effectiveness and efficiency of water services and to contribute to a smart and sustainable management of the urban water.



Field of expertise

UQTA carries out tests to characterise water quality from water and wastewater treatment plants (WTP and WWTP) and from drinking water or reclaimed water distribution systems. Conventional physicochemical and microbiological parameters are analysed, as well as other parameters that may influence water safety, such as:

- organic matter – total and dissolved organic carbon (TOC and DOC), hydrophobicity/hydrophilicity, molecular weight and size distribution, UV-Vis absorption and fluorescence emission spectra
- cyanotoxins
- biofilm and disinfection by-product formation potential
- chloride demand and decay kinetics



In addition, UQTA carries out tests to support studies for conventional treatments' optimisation or for the development and implementation of advanced treatments for drinking water and for wastewater discharge and water reuse – quaternary treatments for micropollutants control. Tests on treatment technologies are performed at laboratory and/or pilot scale and are mainly focused on physical separations and/or biodegradation, namely:

- powdered activated carbon adsorption
- granular activated carbon (bio)filtration
- coagulation/flocculation
- membrane processes and hybrid adsorption/membrane processes



Highlights

UQTA provides support and carries out experimental or analytical activity within the framework of NES (Urban Water Unit) R&D projects and contracted studies.

The tests carried out at UQTA aim to support:

- the development of strategies for controlling contaminants resistant to the conventional treatments in WTP and WWTP – natural and anthropogenic organic matter, priority substances and contaminants of emerging concern (endocrine disruptors, pharmaceuticals, cyanotoxins), chemical oxidation by-products and biological forms resistant to chemical oxidation (viruses and protozoan (oo)cysts).
- the management and safety of the distribution of water for human consumption and water for reuse.