



# TARGETING THE ELIMINATION OF ANTINEOPLASTIC COMPOUNDS IN HOSPITAL WASTEWATERS: NOVEL FRONTIERS IN SUSTAINABLE TREATMENT

This study aims to develop an advanced oxidation process in order to treat hospital wastewaters. The removal efficiency of a technology called photocatalytic membrane reactor towards antineoplastic drugs will be studied. Such drugs are used to treat different cancers.

## Objectives

The research project aims to develop an appropriate oxidation process to minimize the toxicity of antineoplastic compounds present in hospital wastewater. The specific objectives are as follows:

- Characterization study of wastewaters of 3 Belgian hospitals
- Feasibility study on the treatment performance for antineoplastic drugs removal in hospital wastewater
- Applicability study on membrane based treatment technology for wastewater in hospitals.

## Overall research content

### Survey on hospital wastewater (3 hospitals)

- Survey on characteristics of hospital wastewaters (cytostatics and physio-chemical parameters);
- Estimate the pollution loads and risk of hospital wastewater discharge;

### Photocatalytic membrane reactor (PMR)

- Investigate the performance of the system based on removal of antineoplastics, their by-products and total organic carbon.
- Evaluate the characteristic of fouling behavior in PMR;
- Propose suitable and optimized operating conditions for PMR treating hospital wastewater.

## Qualification requirement

Students with background of environmental/chemical engineering with good laboratory skills.