



WATOP

PROJECT N°: LIFE11 ENV/ES/000503

CHRONOGRAM

	Duration	2012			2013				2014				2015			
		J	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	N
A.1:	Expected	█	█													
	Current	█	█													
B.1:	Expected		█	█												
	Current		█	█												
B.2:	Expected			█	█											
	Current			█	█											
B.3:	Expected						█	█								
	Current						█	█								
B.4:	Expected														█	█
	Current														█	█
C:	Expected	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Current	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
D:	Expected	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Current	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
E:	Expected	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Current	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

To sum up, the current situation of WATOP Project (to date **31st January 2015**), is as follows:

Action A1: TECHNICAL REQUIREMENTS FOR IN SITU IMPLEMENTATION OF THE PURIFICATION EQUIPMENT (COMPLETED WITH SUCCESS)

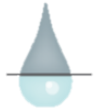
The targeted objectives have been achieved:

SMSA managed the different activities related to the study of the different processes, facilities and lay out of the Waste Water Treatment Plant (WWTP) of Estella, in order to establish the specific technical requirements of the new filtering device to be developed. Furthermore, a study of the wastewater parameters at the inlet of the filtering device has been carried out, with the objective to design the system basing on those parameters, as well as the definition of the energy consumption and flows, with the aim to define the current status of the plant.



WWTP of Estella



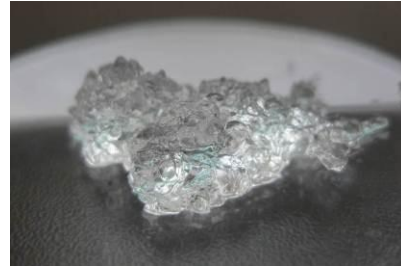


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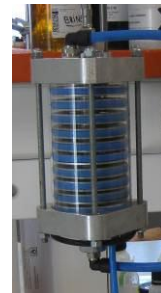
Action B.1: DEVELOPMENT OF THE PURIFICATION DEVICE AT PILOT SCALE. (COMPLETED WITH SUCCESS)

The targeted objectives have been achieved:
Different nano-resins PAA/CD have been synthesized at pilot scale, (capable to capture organic micropollutants). The obtained nano-resins have different crosslinking degrees and are able to work at different pH media.



Nano-resin PAA/CD

On the other hand, a prototype of the filtering device has been designed and developed. The filtering device is a case which contains different removable plates, where the nano-resins or filtering material is placed. The system allows modifying the number of modules in order to optimize the quantity of nano-resin to be added.



Laboratory scale prototype filter

Action B.2: PILOT SCALE TESTS OF THE PURIFICATION CAPACITY OF PPCPs REMOVAL AND PARAMETERS ADJUSTMENT (COMPLETED WITH SUCCESS)

The following developments have been carried out in the present task:

Various tests have been carried out; concluding that the contact time between the resin and the micropollutant, and the PPCP concentration in waste water are parameters that have a strong influence in the resin effectiveness. Therefore, to achieve the objective removal rate in waste water, which have a very low concentration of PPCP (about ppb) long contact periods of time are required.



Laboratory testing

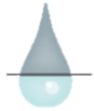
In this sense, it has achieved 50% removal in 60 seconds while after 10 minutes the achieved performance was of 94%.

Action B.3: PROTOTYPE IMPLEMENTATION IN WATER PURIFICATION PLANT (COMPLETED WITH SUCCESS)

After evaluating the results obtained in the tests with waste water in action B.2, it was concluded that any change in the filtering parameters (mainly contact time) could cause changes in resin effectiveness.

During this action, and taking into account the results obtained in the previous activity, it was designed and dimensioned the filter at demonstrative scale, considering the most suitable materials for its production.





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In this task, the following developments has been carried out :

It has carried out the new design of demonstrative pilot plant. The system has 10 filtering devices which filter the wastewater vertically (from bottom to top), ensuring a homogeneous contact between the PPCP and the nano-resin, and avoiding also the clogging problems which happened in the previous design.

Then, the device was manufactured and assembled, for its subsequent start-up and implementation in the EDAR of SMSA in Estella.



Demonstrative filter

B.4: IN SITU OPERATING TESTS AT SEMI INDUSTRIAL SCALE (COMPLETED WITH SUCCESS)

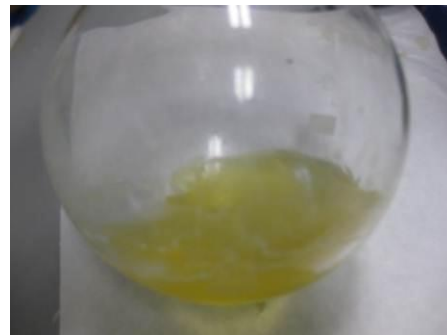
In this task the following developments has been carried out :

PAA/CD has been synthesized at demonstrative scale and it has been characterized in order to verify that the desired product has obtained.

Several tests were executed to check the operation and results of the demonstrative plant. It was performed a monitoring of the water in the inlet and outlet, concentration of removal PPCPs, saturation time of the filters and the resin, thus achieving a complete control of the filter to get optimal results.

The main conclusions are given below.

- The resin provides satisfactory results during the first months and it can be regenerated.
- The parameters of temperature and pH do not affect the effectiveness of the process.
- The resin clog the pores and the water can't leave the filters, solving the same with a self-cleaning system of the filter.



Nano-resin



Tests

The tasks listed below started at the beginning of the project and last the whole project.

- Action C.1: MONITORING OF THE PROJECT IMPACT
- Action D: COMMUNICATION AND DISSEMINATION ACTIONS
- Action E1: PROJECT MANAGEMENT
- Action E2: NETWORKING WITH OTHER PROJECTS.

