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BENTOMET

**DESIGN AND CONSTRUCTION OF A BENTONITES RECYCLING LINE FOR THE
PRODUCTION OF A HEAVY METAL ADSORBENT**

Deliverable D.7.8 Publications in technical magazines

Start date of the project: 1st July 2014

Duration: 3 years

Organisation name or lead contractor for this deliverable: Lurederra



Project: ECO/13/630345		
Dissemination Level		
PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for member of the consortium (including the Commission Services)	

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1. INTRODUCTION

The objective of this deliverable 7.8 “Publications in technical magazines” is to present the list of publications related to the project BENTOMET.

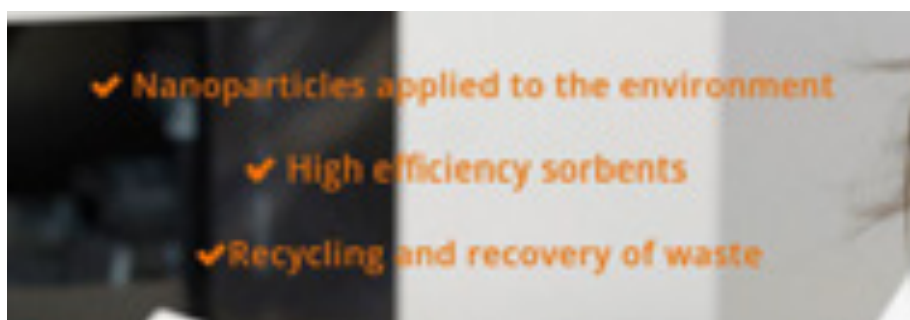
Such publications have been featured with the aim of showing the main concept and results of the project to scientific audience interested in the topic.

2. TECHNICAL WEB SITES

Different web sites with technical content have been used to show the results of the project to scientific audience.

www.lurederra.es: web site of Lurederra, where interested public can check the projects in which the center is participating as well as the most remarkable results obtained.

The following pictures show different screenshots related to the project BENTOMET found in this page.



www.puriwat-life.es: web site of the project LIFE-PURIWAT, whose main objective is the design and development of a demonstrative plant for water purification, based on an innovative filter incorporating a biodegradation system able to eliminate hydrocarbons, fats and oils. As this project is clearly framed in the same topic than BENTOMET, that is, new technologies for water treatment, information about the project BENTOMET is shown in the web site of LIFE-PURIWAT, so people working in the area or looking for information about new methods will have access to it.

A picture from this web page is shown below. The text in Spanish says:

SESSION ON NEW TECHNOLOGIES FOR WASTEWATER TREATMENT (23 FEBRUARY 2017)

Last 23 February 2017, the presentation of the project LIFE-PURIWAT took place in the session on new technologies for wastewater treatment organized by Lurederra Technological Center in its facilities in Los Arcos.

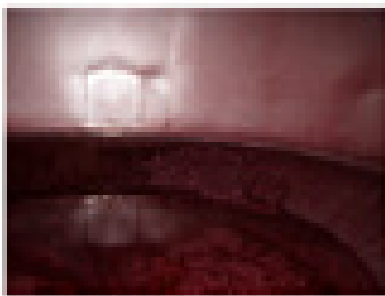
The main objective of this session was to show to the public the project LIFE-PURIWAT, framed within the topic of new technologies for wastewater treatment. Some of the most remarkable projects in which Lurederra Technological Center is participating in this field were also presented, such as LIFE-REMPHOS or ECO-BENTOMET. During this session, Technological Center CTM also participated explaining its activities related to water treatment, being developed with the project LIFE-INSITRATE among others.



www.bentomet.eu: web site of the project BENTOMET, where the project results as well as information about dissemination is included. Some pictures of this page are shown below.



Summary



The project focuses on the construction of a recycling line for waste bentonites used during purification processes in breweries, although the solution could be further adapted to clays from different sources. The treatment line will be constituted by two modules: the first one for the purification and chemical modification of the raw material and the second one for the conditioning of it through drying and milling processes. The final product will be a bentonite-Fe/Co complex with great retention capacity for a range of heavy metals present in industrial waste waters. The project includes activities related to the testing of the efficiency of the obtained product both individually and incorporated into several treatment systems that will be constructed during the project duration, with the aim of providing a range of proved real solutions for different industrial processes.

It is worth to mention that this project will suppose two great environmental advantages. On the one side, it will develop the first industrial line for the recycling of bentonites, a product generated in great amounts and that nowadays is discharged in landfills or collected by alcohol-producing plants, where they can be treated by means of a process which consumes great amounts of energy and generates considerable amounts of CO₂. Despite bentonites are not toxic products their presence in soils can considerably affect the properties of the ecosystems. On the other side, the developed solution will be applied to the removal of heavy metals present in waste waters produced in different industrial sectors, thus helping to reduce a very important environmental problem. In addition, although the focus of the project is the removal of heavy metals, the developed complex could be also an efficient adsorbent for other groups of contaminants that must be eliminated from industrial wastes.

Furthermore, due to the presence of a magnetic particle in the complex, the withdrawal of the adsorbent once the removal of toxic elements has finished can be easily carried out by means of a magnet.

Results



Three main products have been obtained as a result of the project BENTOMET: i) an industrial plant for recycling waste bentonites, which is located in Lusidiana facilities in Lou Anjos (Bragança); ii) modified bentonites resulting from the constructed recycling line, which can be used as heavy metal adsorbent for wastewaters; and iii) a wastewater treatment system incorporating modified bentonites, which has been implemented into a real wastewater treatment industrial line in COOLMIL facilities (The Netherlands). Each treatment system is able to remove very efficiently heavy metals from wastewaters and, then, to easily separate the saturated solid from the treated water using a magnetic device, due to the magnetic properties of the adsorbent.



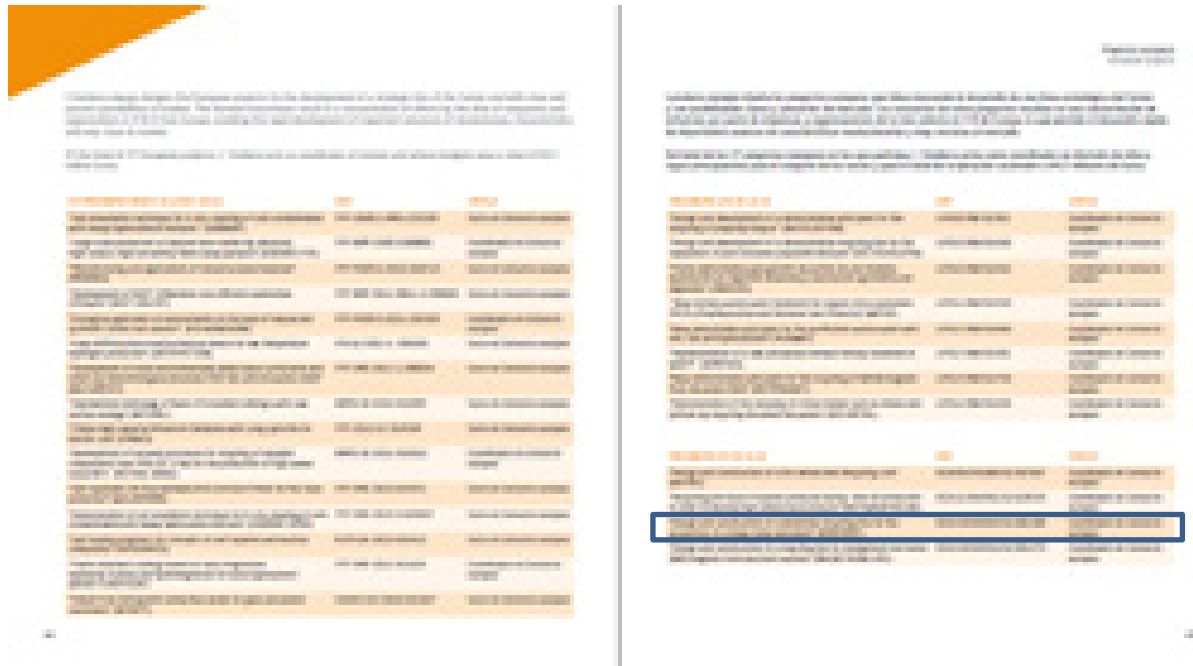
2. ANNUAL REPORTS

The annual report of Lurederra collects information about the most remarkable projects in which the center is working, as well as the most interesting results obtained during the corresponding year. Interested audience can check the advances developed in each field and contact the center to ask for detailed information.

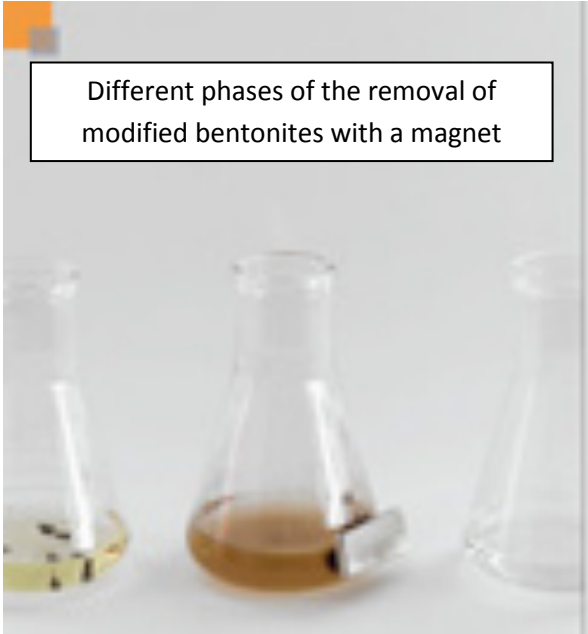
Different pictures from the annual reports of Lurederra (years 2014 and 2015) are shown below. References to BENTOMET project are highlighted.



Annual report 2014



Annual report 2014



Different phases of the removal of modified bentonites with a magnet



Annual report 2015



Annual report 2015

3. CONCLUSIONS AND FINAL REMARKS

Both internet publications and paper publications have been used with the aim of reaching interested scientific audience with BENTOMET results.

Such publications, together with other dissemination material described in the corresponding deliverables (such as D7.2 “Inputs to additional common information” and D7.7.2 Organization of workshops devoted to promote and discuss the recycling line”) perfectly show the potential of the products developed in BENTOMET project.