



Project funded by the EC  
within LIFE+ program  
LIFE12 ENV/ES/000265



# adnatur

Demonstration of natural coagulant use  
advantages in physical & chemical treatments  
in industry and urban waste water



Coordinating Beneficiary:



Associated Beneficiaries:



MORA  
SPAIN



**Action C.1:** This action started and finished as expected (January 2014-September 2016). The following activities have successfully been done:

- Control strictly current operation mode of all 3 installations in urban and industrial settings, textile and ceramic companies.
- Do and collect periodic analysis in order to know water contamination and quality of sludge.
- Control and study of chemical consumption and associated costs in currently treatments.
- Comparative study with all obtained results in previous exposed stages.
- Definitive replacement of the Aluminum polychloride, by the ADNATUR coagulant in the flotation unit of textile industry TEXTILS MORA.

In that sense, it had been possible to

- Monitor the environmental impact (Quantify the environmental benefits, Analyse the samples)
- Monitor the socio-economic impact (Quantify maintenance expenses)
- Elaborate the comparative study with all the obtained results. Advantages and savings of the new developed prototype

As a result of this action, two deliverables have been developed:

- ***Deliverable D.C.1.1***: Socio-Economic Impact Report.
- ***Deliverable D.C.1.2***: Environmental Impact Report

This action has allowed comparing throughout the project, the results obtained with the prototypes, to those usually obtained in the facilities of the end users, in order to know:

- Environmental advantages, in terms of chemical consumption, quality of wastewater and sludge quality
- Economic advantages and saves, in which not only the costs per cubic meter of the treatment come into play, but also the reduction of taxes due to the pollution load of discharge, quality of the sludge being handled and the service life and maintenance of the facilities, as a result of the use of oxidizing and corrosive products



## TEXTILS MORA :

### Environmental impact:

As a final result: required dosage of coagulant has been reduced at 60% and neutralizing agent has been completely removed. Because of successful results, the company decided to change the Aluminium polychloride by the ADNATUR coagulant in their flotation unit. **From November 2015 to nowadays ADNATUR coagulant has been proved in the industrial facilities in TEXTILS MORA, obtaining very good results, which have been very similar to those, obtained during previous demonstration obtained.**

To control these trials, an analysis of the wastewater was done twice a month, obtainig:

**COD** reductions: 75-91%.

**TSS** reductions: 87-99%.

**CONDUCTIVITY** increases: 2-0%

### Economic impact:

Saves at least nearly **5.000€**, depending on the exactly volume poured

## URBAN WWTP –EGEVASA:

### Environmental impact:

- The obtained values with prototype are very similar to the values of current facilities with some positive and negative discrepancies. However the average of them was very **similar** if it is considered that they are **very low limits**, 1 mg/L to TP and 5,4 mg/L to amoniacal nitrogen.
- **Coagulant consumptions** are very similar, ferric chloride and ADNATUR coagulant during the first months of demonstration but ADNATUR coagulant consumption has been **halved** in optimization months of demonstration.

### Economic impact:

EGEVASA manages a lot of WWTP which consume **ferric chloride** in treatments (**corrosive** processes in the facilities, eg. flow jets of the biological reactor are substituted every year by new ones). Extrapolating the obtained results in the project to WWTP of Benichembla, whose ferric chloride annual consumption is of 540 Kg/year, it is predicted that the substitution of ferric chloride by ADNATUR coagulant will imply saves of nearly **90%**.





## KERABEN:

### Environmental impact:

- Wastewater from KERABEN processes are very different to previous ones, because these wastewaters have a lot of suspended solids (SST) but not COD. This led to adjust the coagulant formulation to ADNATUR-V2, which allowed removing the TSS with pilot in the decantation process.
- During monitoring action, the inlet and outlet water quality have been controlled in current installations. The most important parameters are TSS and Conductivity. To control these trials, an analysis of the wastewater was three times a week, obtaining:
  - **TSS reductions: 95-99%**
  - **Turbidity reductions: 95%-99%**
  - **Conductivity increases: maximum 8,5%** (from 3320 to 3610 $\mu$ S/cm). Outlet Conductivity values in pilot are lower to outlet values of current facilities.

### Economic impact:

In KERABEN trials, the prize of ECOMIX PX for each treated wastewater m<sup>3</sup> is cheaper than ADNATUR-v2 coagulant for each treated wastewater m<sup>3</sup>, but the dosage of this last one is lower, that implies **260 €/year of saves using ADNATUR-v2 coagulant**



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LIFE+ Environment Policy and Governance project application  
Project Policy Area: WATER  
**LIFE12 ENV/ES/000265**  
**Duration: 36 months**

Coordinating Beneficiary:



Associated Beneficiaries:



M O R A  
S P A I N