



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 A.1 has been executed since the beginning of the project (October 2013) and all activities had been carried out as planned and finished on March 2014.

As a result of this action, the following activities have been carried out:

- Determination of the coagulant efficiency in industry waste water from textile and ceramics sectors.
- Determination of the coagulant efficiency in urban waste water.
- Validation of modified natural based coagulants with textile and ceramics waste water. Synergetic effect and compatibility.
- Validation of modified natural based coagulants with urban waste water. Synergetic effect and compatibility.
- Validation of the biomethane potential and toxicity tests of the produced sludge and comparison with the different sludge produced by different coagulant (i.e natural and chemical)

Following the milestone A.1 – M.2 (Pre-industrial results in the three scenarios: textile, ceramics and WWTP) and as a result of this action two deliverables have been prepared on time:

Deliverable D.A.1.1: Report of the pre-industrial assessments results in industrial was water (textile and ceramics sectors)

Deliverable D.A.1.2: Report of the design of both prototypes (plans and components)

Main conclusions obtained KERABEN:

GRINDING WASTEWATER: It can be concluded that the coagulant ADNATUR K50, besides not increasing conductivity of the sample, reduces it. It should be underlined that conductivity is one of the most problematic parameters in ceramic sector wastewater. Furthermore, it also reduces the concentration of COD, suspended solids and calcium, as well as the turbidity of the clarified further than the inorganic coagulant poly aluminium chloride. Finally highlight that the inorganic coagulant increases chlorides concentration while natural coagulant reduces it.

GLAZES WASTEWATER: It can be determined that coagulant ADNATUR K50 does not substantially increase conductivity compared to poly aluminium chloride. Furthermore, it also reduces the concentration of COD, suspended solids and calcium, as well as the turbidity of the clarified further than the inorganic coagulant poly aluminium chloride. Finally highlight that the inorganic coagulant increases sulphates concentration while natural coagulant reduces it.

Main conclusions obtained TEXTILS MORA:

From the results obtained it can be determined that the coagulant ADNATUR K70 does not increase conductivity compared to ferric chloride. Furthermore, it also reduces COD, suspended solids and total nitrogen concentration, as well as the turbidity of the clarified water, even further than the inorganic coagulant, ferric chloride.

Main conclusions obtained EGEVASA: It can be concluded that the coagulant ADNATUR K70 and ADNATUR K20, besides not increasing conductivity of the sample, reduces it. Furthermore, the coagulants ADNATUR with a dose reduction of 50% produce the same removal rate in problematic parameters than the inorganic coagulant, ferric chloride. Moreover, they reduce the iron in more than a 97% by not providing heavy metals as ferric chloride. Finally, the clarified obtained with ADNATUR technology, do not have colour. The colour is a parameter to take into account in this area because there are textile industries that provide colour to the inlet water.

Bioluminescence essay and sludge inhibition activity tests showed as the ADNATUR K70 coagulant doesn't imply any toxic effects for bacterial community. The estimated EC50 values resulted to be too far from the typical coagulant dosages applied in primary waste water treatments. The good level of biodegradability as well as the increase in methane production rate during the anaerobic tests is considered plausible results since the ADNATUR K70 organic nature. As a matter of fact the natural coagulant has shown no toxic effects for both the aquatic life and the sludge biomass activity. Moreover, the product resulted to have a good level of biodegradability in both aerobic and anaerobic conditions.



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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