



## Project Information Sheet

### ECO/11/304497-ApplyADOXPOL

**Programme area:** Wastewater treatment system. First application and market replication of a cost-effective and sustainable industrial wastewater purification system with ozone oxidation and flotation technique water conservation and reuse.

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**Website:** [www.adoxpol.com](http://www.adoxpol.com)

**Benefits** Reduced water pollution, reduced chemical use.

**Keywords:** Ozone flotation, Oxidation, Environment

**Sector:** Recycling

**Type of solution** Ozone flotation/oxidation for wastewater treatment

**Duration:** 01/12/2012 –30/11/2014

**Budget:** € 653 262 (EU contribution: 50%)

**Contract number:** ECO/11/304497



## Summary

The ApplyAdoxpol project describes how the SME Normex and their industrial partners plan to take their innovative ozone-based wastewater purification technology, developed in the FP6 project Adoxpol, from prototype all the way to the market, making it possible for the end user in the food & beverage sector to both save and re-use water. Part of the work will include product production plans, including reducing production risk through a good description and standardisation of all components included in the system.

Central in the technology is a novel ozone injection and flotation unit developed to maximize the oxidation process with minimal amount of ozone. The ozone allows the oxidation of recalcitrant substances and with the development of a flotation chamber this enhances the optimal diffusion of micro-bubbles, coalescence of colloidal materials and efficient removal of agglomeration of coagulating froth/adsorbed pollutants.

The project includes, Production and process engineering, Exploitation and business plan and Dissemination activities.

## Expected and/or achieved results

**Environmental Impact** - Traditional DAF systems uses flocculants and coagulants in the treatment process, including chemicals that can have a negative environmental effect. Use of flocculants and coagulants also pollute the sludge which otherwise could be reused. The Adoxpol process uses ozone in the flotation process. Ozone has a coagulation effect and helps bind particles for better flotation. In addition, the ozone provides oxidation and disinfection. No chemicals are added in the process, therefore saving the environment and in addition, the sludge can be reused if desired.

**Technical documentation** - Complete technical documentation for four standardized models has been made as part of the project. Complete documentation of a Container based test unit has been made.

The Adoxpol system design has been evaluated by Normex and industrial designers at Inventas AS, the technical spec has been evaluated by the Prof Hallvard Ødegaard at Scandinavian Environmental Technology AS and a control system has been designed by Normex and Hydro Eco. Web page has been made by Normex and drawings and technical documentation is being made for the steel unit by VS Poland and for the PE/PP construction and container system by Asio.

**Exploitation & Business Plan** – Development of a complete business, market plan and operational plan.

Collectively, the consortium has made business-plan and dissemination plan. The business plan is under the lead of subcontracted TI and a business plan is prepared in close cooperation with the industrial partners in the consortium. The Adoxpol system can in principle be used in several industries, but the food and drink (F&D) industry is identified as the primary market. The business plan include a presentation of the European, Workwilde and Norwegian F&D industry. Further, competitive technologies and competing enterprises are described and advantages/disadvantages of the Adoxpol system is performed. The business strategy is defined including general activity, preparation of information materials, sales activity and financial plans.

**Dissemination** - Market plan, including dissemination activities, production of an animation video and site demonstrations.

A project web site is prepared and has presented updated results during the project. The project results and technology is promoted at several conferences including:

Events that took place during the course of the project:

- Participation at Nor Fishing 2014 – August 19 – 22, 2014
- Participation at IceFish 2014 – September 25 – 27, 2014
- Presentation of Animation Video to potential end users
- Participate in Norwegian Matchmaking programme in Sri Lanka. – Oct 27 – Nov 3 – 2014

Post project plans:

- Participation at Aqua Nor 2015
- Use of Animation Video post project to potential end users
- Demo activities with upgraded container unit.



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During the project period, installations of the Adoxpol system is performed at Marine Harvest and Stordal municipality and this installations and their results are used for site visits and presentations of the technology as well as references in the promotion of the Adoxpol system. Further, small scale plant of the Adoxpol technology is installed in a container and this will be actively in promoting the technology as well as test the performance of the technology on different industrial effluents.

**The information sheet will be published in the [Eco-Innovation website](#). The EACI reserves the right to edit the information sheet for content and length**