

Coordinators Column

After one year of AquaFit4Use it is about time to start sharing the initial results with all persons who are interested in sustainable water use,

especially in industry. So we are very happy to present you this first newsletter.

Since the kick-off meeting of AquaFit4Use in July 2008 in Delft (see picture) a lot has happened and the 32 partners have put much effort in the project and already came up with many interesting results. At this stage most of the results are still preliminary and they are not in a shape for public publication, on the other hand, we are very eager to share them with the potential future users as they could be used in practice already at short term. At this point, it is clear that AquaFit4Use differs from many other research projects and beside the generation of new knowledge the application of the results is already taking place. The partners of AquaFit4Use all have a very close relation to the daily practice and two-third are industrial companies (see below) with a strong focus at the applicability of the solutions. Furthermore, learning from each other is already a reality since it is continuously being pushed by our diffusion and training manager Angeles Blanco.

In the research towards sustainable water use in the different industrial sectors, with a focus at Food, Chemistry, Paper and Textiles, cooperation is very important and this is stimulated by our Scientific Officer Dr. Panagiotis Balabanis. The first Annual meeting (see further in this newsletter) was already attended by several partners of other FP projects, Techneau and Inno-watech, which whom we discussed possible cooperation and these activities will continue.

I am very confident that the AquaFit4Use team will live up to the expectations of this large FP 7 project. I look forward to your reactions.

Willy van Tongeren
TNO—Netherlands
willy.vantongeren@tno.nl

"AquaFit4Use—A flagship project in the area of industrial water technologies"



Kick-off meeting AquaFit4Use: Consortium and Scientific Officer

Many new technologies and concepts investigated in AquaFit4Use

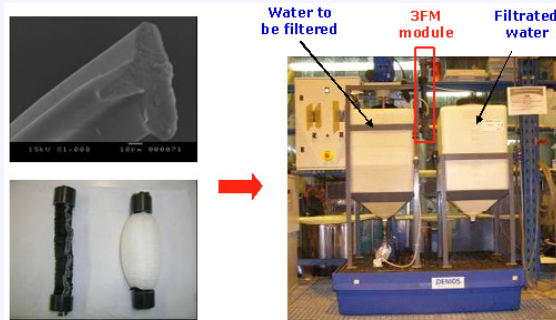
In order to identify the most suitable new water treatment technologies (or combination of technologies) leading to the best solutions to produce the required water quality for re-use in each of the selected industrial sectors, several technologies are tested on a bench scale on effluents from all four sectors:

First pilot tests Denutritor® show promising results

This new technology aims at reducing biofouling in water systems. Denutritor is a biofilter which removes substrates for microbial growth from water (from mg to µg range): microorganisms grow preferentially in the filter and biofilm growth downstream Denutritor is prevented. The source of biofouling is thus removed. The first two weeks of pilot testing performed on effluents from chemical industry did show already a big decrease (70-90%) in biofouling.

First bench scale 3FM tests were encouraging

The 3FM™ system (Flexible Fibre Filter Module) is a new high speed filtration device that can be substituted for conventional solid-liquid separation process such as coagulation, settling and sand filtration. Suspended solids are filtered by flexible fibres in polyamide in a module, which have softness and elasticity. First tests run on effluents from two paper mills show encouraging performances regarding turbidity and TSS content. These results need to be confirmed on a pilot scale.



The 3 FM™ technology: Fibers and bench scale pilot

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participating partners





Upcoming events

17 September 2009

Info Day on Call FP7-ENV-2010
Brussels, Belgium

<http://ec.europa.eu/research/environment/>

18 September 2009

Info Day on Call FP7-AFRICA-2010
Brussels, Belgium

<http://ec.europa.eu/research/environment/>

20-25 September 2009

7th IWA World Congress on Water Reclamation and Reuse

Brisbane - Australia

www.reuse09.org

22-23 September 2009

3rd European Water and Wastewater Management Conference & Exhibition

Birmingham - United Kingdom

www.ewwmconference.com

07-09 October 2009

The Second International Scientific Conference on Applied Natural Sciences 2009

Trnava - Slovak Republic

www.ucm.sk/apv

13-15 October 2009

The Paper Chemistry Pira Symposium 2009

Barcelona - Spain

www.paper-chemistry.com

29-31 October 2009

The IWA Water and Energy 2009 Conference

Copenhagen - Denmark

www.iwaterandenergy2009.org

26-28 January 2010

Final Innowatech - Neptune joint meeting

Gent - Belgium

www.innowatech.org

13-16 June 2010

2nd Annual General Assembly AquaFit4Use

in combination with the Integral Water Cycle: Present and Future, 7th International Congress of ANQUE

Oviedo -Spain

www.anque2010.org

First Annual AquaFit4Use meeting held in San Sebastián

AquaFit4Use held its first Annual meeting in San Sebastián, Spain, on the 3rd and 4th of June 2009, which corresponds to its third General Assembly. It was hosted by CEIT, a non-profit research organisation, set up in 1982 in San Sebastián, under the auspices of the Engineering School TECNUN from the University of Navarra.

During the first day, the Coordinator, Sub Project leaders and Project Manager presented the detailed activities carried out within the first 12 months in order, first, to inform all attendees on the progress made in the project and, second, looking ahead to the activities of the second year.

Dr. Balabanis, Scientific Officer for AquaFit4Use from the European Commission, attended the meeting via tele-conference. He stressed again the importance of the project, and also the need for more external communication: 'raise your voice'. He congratulated us for the networking within the project and the training plans developed under the concept of "learning from each other". Finally, he mentioned the plans of the EC to increase R&D and promote 3 Public Private Partnerships activities (Green Cars, Energy Efficient Buildings and Factories of the Future).

The general conclusion from the meeting was that the project is running very well according to schedule and, in some tasks, even ahead of it. Since a lot of progress has already been made, special attention will be given to external publication of the results in the coming period.

For the second day of the meeting, a workshop was organised together with other related EU projects, Innowatech and Techneau, to seek parallels within the work plans and to start thinking about collaboration opportunities. Presentations from representatives of both projects provided an overview of their objectives as well as a few specific descriptions of their work areas. From these presentations, it is clear that there is a lot of information to share between the projects and a few possibilities were already discussed:

- Joint technical meetings, e.g. a joint meeting between Techneau and AquaFit4Use on modeling;
- Exchange of information via websites, conferences, databases (TKI);
- Dedicated workshops for a specific industrial sector (both Innowatech and AquaFit4Use deal with food and chemical industry).

In conclusion, this first workshop between these three water-related projects was a fruitful start and a good opportunity for knowledge exchange and "learning from each other" outside the project. AquaFit4Use will continue looking for opportunities for inter-project collaboration.



First Annual AquaFit4Use meeting in San Sebastián

Innowatech is a FP6 project with 17 partners (8 SMEs) focused on innovative and integrated technologies for the treatment of industrial wastewater. For more information please visit www.innowatech.org.

Techneau is a FP6 project with 30 partners that challenges the ability of traditional system and technology solutions for drinking water supply to cope with present and future global threats and opportunities. For more information please visit www.techneau.org.

Many new technologies and concepts investigated in AquaFit4Use

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Other performed tests are covering the following treatments and technologies:

Tailor-made combined systems (small and large scale) - reliable and cost-effective systems: biological treatment (anaerobic/aerobic, anaerobic/MBR), AOP (ozone, UV, peroxide) and filtration/membrane steps (3FM[®], MF/UV, NF, RO) are currently tested as possible treatment trains on the effluents of two paper mills partners. Evapo-concentration, electro dialysis and/or controlled precipitation are tested on the produced concentrates.

First lab scale tests have been performed for the **scaling prevention technology** FACT (Filtration Assisted Crystallization Technology). The technology has been tested on chemical and pulp&paper wastewaters (first results look promising). Next steps are on-site tests.

Selective removal of substances: A first screening approach of zerovalent iron (ZVI) has been performed on wastewaters from the 4 industrial sectors. AOX removal was observed at various rates depending of the considered treated water.

Disinfection: A state-of-art on actual disinfection technologies used for reclaimed water has been done with a specific focus on chloramination. Several innovative technologies for disinfection were identified. Among them, ultrasounds efficiency is currently tested on textile wastewaters.

Tests of new **process desalination** (FTC, MDC and evapo-concentration) are currently tested on concentrated streams from paper and chemical industry.

All the results achieved from these lab scale studies will thus be further used and evaluated at on-site pilot scale. More test results of the different technologies and concepts will be discussed in the next newsletter.



Flying start pilot cases in AquaFit4Use

By assessing the current state of water (re-)use – including surveying water circuits – nine company investigations in all four (food, textile, chemical and paper) sectors have been successfully performed. Corresponding knowledge has been gained, e.g. developing procedures for circuit mapping, identifying fresh water saving potential, recommending economical/ecological optimised circuit/technology arrangements, and evaluating alternative CIP technologies.

Based on comprehensive data editing tailor-made simulation studies have been started at the involved companies elaborating several scenarios for waste water reduction whilst assessing of impact of system closure on system loading. In this context first concepts of water circuit narrowing have been discussed covering measures, partly including several alternatives, for reducing specific fresh water consumption.

On-site pre-trials covering separation steps (flocculation, DAF, precipitation, crystallization), AOP (ozone, UV, peroxide), biological treatment (MBR, UASB, denitrator) and pre-filtration/membrane steps (3FM, MF, UV, NF, RO) have been started. By accompanied on-site meetings at water users together with water treatment suppliers and supporting research institutes alternative pilots are under preparation.

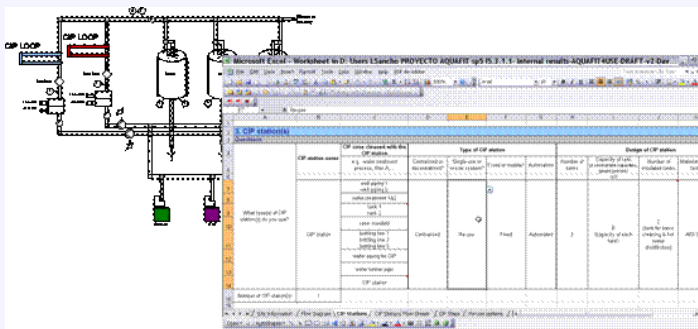


Concluding, based on good progress in the first 15 months of AquaFit4Use we can take stock of the following:

- In-depth system analysis of the production efficiency in paper industry revealed high saving potentials for water and energy;
- The harsh wastewaters in chemical companies are a challenge both for treatment technologies and re-use opportunities;
- Procedures of Cleaning in Place CIP-processes in food industry reveal opportunities for alternative methods in order to enhance these processes;
- Comprehensive factory analysis – representing textile finishing industry in Europe – of production processes revealed high water and energy saving potential.

Consequently we are optimistic that on-site screening, testing, evaluating and implementing within AquaFit4Use will contribute/lead to:

- Enhanced sustainable use of resources in the future of paper making;
- Pinpointing bottle-necks and a roadmap to sustainable use of water in chemical industry;
- New opportunities for saving water and raw materials in cleaning processes in the food industry;
- Enhanced sustainable use of water and energy in the future textile finishing industry.



general AquaFit4Use information

Project title AquaFit4use—Water in industry, Fit-for-use Sustainable

Water Use in Chemical, Paper, Textile and Food Industry

Acronym AquaFit4use

Participants 32

Start date 1 June 2008

Duration 48 months

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Total EC funding 9.650.000 euro

VISIT OUR WEBSITE!

www.aquafit4use.eu

Contact

Willy van Tongeren (TNO)

Telephone

+31 (0)88-8662181

E-mail

willy.vantongeren@tno.nl

