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- Colsen twin Bidox® in US
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Colsen twin BIDOX® in USA

The first Colsen **BIDOX®** installation was recently commissioned in the USA. This installation was predesigned in Hulst (NL) and realized at a new paper mill in Niagara Falls in the US by Voith Meri. For this project Voith Meri furnished the complete WWTP including the R2S reactor. Through this collaboration Colsen is capable of introducing her technology for sulphur removal from gas worldwide within the paper industry.

The installation is configured as a twin **BIDOX®**, capable of desulphurizing 1.200 - 1.400 m³ gas per hour, while reducing the H₂S concentration from around 6.000 ppm to a level of less than 250 ppm. The startup of the installation took place in July 2013. According to expectation the installation will be able to handle the full design load by the end of 2013. In the meantime a next **BIDOX®**-installation is being designed for this customer. The realization thereof is foreseen for the end of 2013 and beginning of 2014.



Twin **BIDOX®** with R2S reactor (background)

Water reuse and sustainable energy at VION



Colsen (on behalf of Hydrobusiness) has started preparations for the realization of a new waste water treatment plant (WWTP) for the production location of VION in Boxtel (NL). The project comprises the refurbishment of the current physical chemical water treatment system by a biological water purification system in which, biogas is produced via anaerobic digestion. An MBR-NAS® installation ensures further water purification for re-use by VION in its production process. In a separate step the biogas is biologically desulphurized using **BIDOX®** and further used in sustainable energy generation for the VION production process. The preparations comprise drafting of the necessary permits as well as detailed engineering for the project. After this phase a contract will be concluded with Hydrobusiness for the realization of the installation by Colsen. According to the preliminary schedule the new facilities should be in operation in the middle of 2014.

Water purification for the fruitsector in South-Africa

Colsen, Unica and Aquest have combined efforts and realized a water purification system for a citrus fruit packhouse in South Africa. The purification consists of a biological step (trickling filter), sand filtration, UV disinfection and reversed osmosis. The realization is part of research efforts supported by the Dutch government (Partners for Water). The test period coincides with the harvesting season and will end in 2014.

The test installation is capable of reducing packhouse water consumption with 50%. In addition the removal of spores of the green mold is addressed. This *Penicillium digitatum* is the cause of moldy citrus fruit. Currently chlorine dosing is applied to cope with this plague. The new approach will eliminate use of chemicals for sanitation. The installation was started up in June 2013. In S-A a lot of interest exists for the new technology and the research efforts. The local trade association is involved in the validation of the test results and will create a sound basis for further technology introduction.



Control cabinet & trickling-filter at the packhouse

i-UASB for dairy plant in Roemenia



*Control cabinet & reactor
at Covalact*

Colsen International b.v. and H. Van den Hul b.v. have successfully started up the in house developed **i-UASB** (integral UASB treatment) at the Covalact dairy plant in Sfantu Gheorghe (Romania). The pilot installation is running for 2 months now in different modes: traditional reactor operation, under high load conditions and even without pre-treatment. The different configurations of the pilot facilitate treatment of a wide variety of waste water streams, while generating biogas for energy production. The pilot is fully automated and is monitored by Colsen from its home location in Hulst (NL). The i-UASB will be in operation at least till the end of September 2013. At that point the results will be translated into a full scale design for the dairy plant. The pilot is supported by the Partners for Water program (of the NL government).

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