



UASB RETROFIT

EFFECTIVE LIFE SPAN EXTENSION OF YOUR BIOPAQ[®] UASB



The Upflow Anaerobic Sludge Blanket (UASB) process is the most widely applied method for the biological treatment of industrial effluents. Paques has been applying the BIOPAQ[®] UASB technology for more than twenty years and has standardized the reactor into a modular system. A few thousand BIOPAQ[®] UASB modules are operating worldwide, treating more than 2.000.000 m³ of effluent per day.

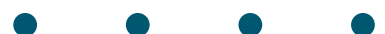
The BIOPAQ[®] UASB modules that were produced by Paques from 1985 till 1996, consisted of polypropylene settlers placed in a frame of high quality hardwood beams. This frame guaranteed long life span under severe corrosive conditions. However, after years of continuous operation, the wooden construction in many older UASBs begins to deteriorate due to severe upthrust by gas pressure. Broken frames between the different modules lead to problems with the discharge of water and biogas, making the waste water treatment plant inefficient and sometimes even unsafe.

As a solution to this problem Paques developed the **UASB Retrofit**. This sustainable upgrade, made of durable poly propylene, replaces the original frame and is fixed to the existing UASB settler. The shape of the new frame matches the old wooden frame, so the existing covers will still fit.

The cost effective **UASB Retrofit** extends the life span and enhances the operational safety of your waste water treatment plant. These benefits, a quick realisation and the fact that it does not interfere with the existing plant layout, characterize the **UASB Retrofit** as a profitable and sustainable solution.

Benefits of the **UASB Retrofit**:

- competitive pricing
- quick realisation
- not interfering with present plant lay-out
- enhancing operational safety
- effective extension life span UASB





A CASE STUDY

The BIOPAQ® UASB at the Norske Skog paper plant (Halden, Norway) has a history of good performance. After twelve years however, the upper part of the wooden frame of the UASB modules became unstable. Being convinced of the benefits of anaerobic waste water treatment and the design of the existing reactor, Norske Skog decided to overhaul the BIOPAQ® UASB modules by a UASB Retrofit.



1. Damaged wooden frames.



2. Removal of a settler module.



3. Putting frame in place.



4. Even and neat surface of the retrofitted reactor.

During a turnaround the reactor was emptied completely. One after the other the modules were disconnected from the water and gas piping, unbolted and lifted from the reactor for retrofitting. Local mechanics under the guidance of an experienced Paques supervisor, performed the job. Within three weeks time all 36 modules were dismantled, retrofitted and mounted back into the reactor. In the following week the system was filled with sludge and the process resumed.

For Norske Skog, this UASB Retrofit effectively extends the life span of the waste water treatment plant.

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