The Anammox® process removes nitrogen from wastewater in a cost effective way. Anammox® offers great advantages compared to conventional nitrogen removal processes including:

- Power consumption is reduced by up to 60% as compared to conventional nitrification/denitrification methodology.
- No additional carbon source needed.
- Overall operational cost reduced by up to 90% compared to conventional nitrification/denitrification methods.
- CO_2 emission reduced by approximately 88%.
- Plant foot print ~50% of conventional plants.
- Proven in full scale plants.

This innovative process is patented and supported by Paques BV of The Netherlands.

The Process:

Anammox Bacteria:

The Anammox® process (for Anaerobic ammonium oxidation) removes ammonium without oxygen and with nitrite as the electron acceptor. The cost of conventional ammonium removal via nitrification-denitrification from sludge reject waters is mainly associated with aeration-cost and the addition of an expensive electron donor (e.g. methanol). The Anammox® process provides an alternative for the nitrification, with no requirement for an extra electron donor. The (generalised) overall reaction of the One Step Anammox® process is:

$$2NH4^{+} + 1.5O_2 \ ? \ N_2 + 2H^{+} + 3H_2O$$

Also, the emission of greenhouse gases is enormously reduced using the Anammox® process. The overall CO_2 emission of a wastewater treatment plant can be reduced by approximately 88% because the Anammox® process itself consumes CO_2. Furthermore, the production of nitrous oxide (N_2O) that can easily be formed as a by-product of conventional denitrification is not emitted using the Anammox® process.

Potential Applications:

- Sludge

digester centrate
- Slaughterhouses/Rendering Plants
- Distilleries
- Potato Processing
- Semi-Conductor Industry
- Tannery
- Fermentation
- Glutamate
- Enzymes
- Ethanol
- Yeast
- Fertilizers

Product and Services:

In cooperation with Paques BV, Aquatec Maxcon can provide a full scale solution for suitable high ammonia streams using the Anammox® technology. We can also provide a pilot plant to test your effluent with the technology.

Please contact us for any queries regarding Anammox®.