

NAS[®]

Efficient
wastewater
treatment with
anammox



Colsen

water, energy & environment

Application

In a wide range of sectors highly polluted wastewater is produced. One of the main pollutants in such wastewater is nitrogen. Nitrogen removal from wastewater is an energy consuming process generating high costs.

A biological process using anammox is the most cost- and energy effective solution for the removal of nitrogen from such highly polluted wastewater.

The innovative Colsen anammox technology, known as NAS[®], is realized in many configurations to comply with both sidestream and mainstream treatment and the specific needs of each particular wastewater, sector or industry, within:

- ✎ Food and beverage industry
- ✎ Manure processing industry
- ✎ Municipal wastewater treatment

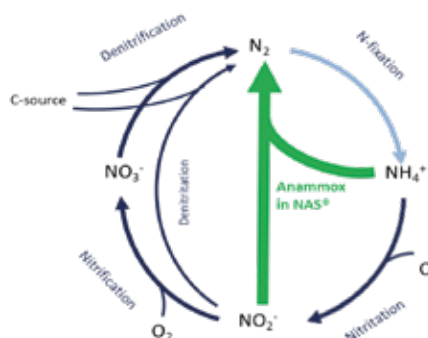
References

Colsen references are applied worldwide and in many sectors since 2002!

Some highlights:

- ✎ Municipal sidestream system NAS[®]-ONE after THP sludge digestion (Lodz, Poland);
- ✎ Industrial NAS[®]-MBR for meeting nitrogen and COD effluent limits of potato factories (Emilia Romagna, Italy)
- ✎ NAS[®]-MBR in combination with UASB for high-end slaughterhouse wastewater treatment (Boxtel, the Netherlands)
- ✎ NAS[®]-SBR followed by MBR for complete purification of liquid fraction from manure treatment (Asturias, Spain)

Anammox: A "shortcut" in the nitrogen cycle!



Process

Anammox micro-organisms convert ammonium in an efficient way, short-cutting the conventional nitrogen cycle.

Colsen's anammox technologies come in many configurations: NAS[®]-MBR, NAS[®]-SBR, NAS[®]-ONE and MAS[®]. Every configuration has its own advantages and applications. In this way, Colsen is able to supply tailor-made anammox systems in a wide range of sectors.

Result

In the field of wastewater treatment systems, NAS[®] generates 40% overall savings in operational costs.

Those savings mainly relate to:

- ✎ Low energy consumption
- ✎ Decreased sludge production
- ✎ Absence of carbon additives

All NAS[®] technologies are equipped with Colsen's cutting edge aeration process control in order to optimise the profits of applying anammox even further!

