

Analyses

AnoxKaldnes™ Services

ANOXKALDNES



Accredited analyses and tests

Chemical analyses

- BOD₅, BOD₇, BOD₂₈
- COD, TOC, NVOC (NPOC)
- Ammonium, Nitrite, Nitrate
- Total nitrogen (incl. Devarda's)
- Kjeldahl nitrogen
- Phosphate, Total phosphorus
- TSS, VSS, pH
- AOX

Biodegradation tests

- Aerobic, die away-tests
- Aerobic, respirometric tests
- Anaerobic, methane + CO₂ production

Inhibition assays

- Inhibition of oxygen consumption
- Inhibition of nitrification

In addition to the certified tests and analyses, AnoxKaldnes can offer a comprehensive set of other chemical analytical services.

Analyses, tests and assays

AnoxKaldnes accredited analyses are focused on wastewater treatment parameters.

Chemical analyses are routinely performed using Hach Lange kits, TOC-analyzer, and flow injection analysis (FIA). In addition, gas chromatography (GC) or gas chromatograph/mass spectrography (GC/MS) can be used for more specific analyses.

Tests of aerobic biodegradation either monitor DOC or COD removal, or consumption of oxygen. These accredited batch tests are used to evaluate the biodegradability of a substance or a wastewater. Test of anaerobic degradation is done with an anaerobic sludge and monitored for carbon dioxide and methane production.

It should be noted that poor degradation in a batch test not necessarily means that a wastewater cannot be biologically treated. In some cases, a highly adapted microflora is needed for degradation. To test this, continuous flow bench-scale testing has to be performed.

Inhibition assays either focus on heterotrophic aerobic bacteria or nitrifying bacteria. In both cases inhibition of oxygen consumption can be measured. Nitrification inhibition can also be monitored by the evolution of nitrite/nitrate.

Biodegradation tests

Aerobic degradation is determined by either a die-away-test or a respirometric test. The degradation is monitored by unspecific analyses such as DOC (dissolved organic carbon) or COD (chemical oxygen demand) in die-away-tests. The methods we use are SS-EN ISO 7827:1986/OECD 301A, Zahn-Wellen OECD 302B.

In respirometric analysis microbial activity and degradation are monitored by the production of carbon

dioxide or the consumption of molecular oxygen. Respirometric analysis is typically performed when the contaminant is volatile or when the wastewater foams. The method we use is SS-EN 9408:1993/OECD 301F.

Anaerobic degradation is monitored by the production of methane and carbon dioxide. Anaerobic degradation assays are performed when compounds are difficult to degrade aerobically or when they tend to adsorb to sludge. This test is performed according to a standardized but not yet accredited procedure (ECETOC no 28/ISO 11734).

Inhibition bioassays

An inhibition assay evaluates the effect of different concentrations of a contaminant or a complex wastewater on the bacteria that are responsible for the wastewater treatment.

AnoxKaldnes assesses inhibition of respiration according to the method SS-EN ISO 8192-1995B.

Inhibition of nitrifying microorganisms are evaluated according to two accredited methods, SS-EN ISO 9509-1995 and Nitritox™. The Nitritox™

protocol was developed at AnoxKaldnes and is based on the determination of nitrite production within an immobilized mixed culture of nitrifiers.

In addition, a non-accredited screening method, based on VKI (Danish Water Quality Institute) SNV report 4424, is performed.

Our customers

Some of our industrial customers are Alcro-Beckers, Alfa Laval, AnalyCen Nordic, AstraZeneca, BIM Kemi Sweden, Bioinvent International, Casco Adhesives, Danisco Sugar, Dr Straetmans, DSM Anti-infectives, Eurofins Sweden, Flügger, Gambro, GE Healthcare, Ifö, Isaberg Rapid, Kemira, Lantmännen Agroenergi, Lantmännen Agroetanol, Lyckeby Industrial, M-Real Sweden, Munktell Filter, Novozymes Biopharma, Perstorp Speciality Chemicals, PolyPeptide Laboratories, Premier Manufacturing, Rohm and Haas, Solanum, Smurfit Kappa, Stora Enso, Tetra Pak, Vitrolife Sweden, Weedo, Zefin Chemical, Zschimmer & Schwartz Chemische Fabriken and ÅF.

Several Swedish and Norwegian municipal wastewater treatment plants are also customers.

