

Advanced TOC analyser for determination of Total Organic Carbon and Total nitrogen in water samples

A clean environment is the basis for a healthy life. Whether in water, soil or air, keeping the environment clean for the protection of all species should be the primary responsibility of any society.

Instrumental analysis is a useful tool to measure the status of environmental conditions. Looking at the numbers of possible chemical contaminations (compounds), the group of organic compounds is the largest. With an estimated number of more than 19 million, it is impossible to detect and quantify each and every one of them. TOC (Total Organic Carbon) analysis enables the determination of the sum of all organically bound carbons in the abovementioned organic compounds and is a measure of organic pollution in a matrix. TOC analysis is therefore carried out in a wide variety of environmental matrices: from groundwater to seawater, from drinking water to wastewater, from soils to sewage sludge.

Aquateam COWI is COWI's innovation group in Norway within water and environment. Its main area of competence, are municipal and private water and wastewater treatment, environment and process challenges in the petroleum sector as well as other land based activities. Therefore, monitoring organics in water across a wide range of applications is one of the main routine tasks of the laboratory of this department. Aquateam COWI's main areas of focus within COWI's 2020 strategy are categorized as below where numerous number of TOC analyses will be performed:

- Climate and sustainable water supply, humus and surface water (DRIKKEVANN)
- Sustainable aquaculture and fish processing (FISK)
- Energy and resources in organic waste (AVFAL-SLAM)

The purchase of the new equipment will help Aquateam COWI to be able to handle all samples ranging from clean drinking water to highly contaminated brine solutions. The ability of quick and accurate measurement of TOC in all water matrices can lead to significant cost savings due to reduced operating costs (i.e. no external laboratory cost will be needed) and reduced analysis time (i.e. reduced labor costs). In addition, the instrument is able to measure total nitrogen in water samples, which is of great importance in many industries and is regulated as an effluent parameter for municipal and industrial wastewater treatment plants.