PRODUCT INFORMATION

marine analytics and data

Dissolved inorganic carbon in seawater with infrared detection (AIRICA):

The **AIRICA** (Automated Infra Red Inorganic Carbon Analyzer) is based on the IR-detection of CO_2 purged from an acidified sample and is also suited for smaller sample size.
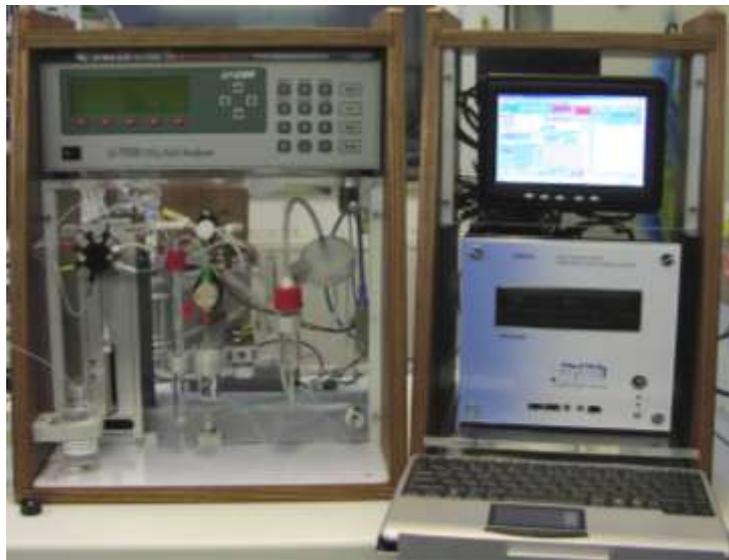
AIRICA with LI-COR 7000

A high precision syringe pump is used to deliver the sea water sample into the stripper. The CO_2 is liberated after acidification and transferred to the non-dispersive Infra Red analyzer and the signal is integrated. Depending on number of replicates and rinsing procedures, less than 10 ml of sample is required.

The gas stream is dried with a combination of chemical absorbers, permeation tubes (Nafion™) and Peltier cooler (option). A modified control PC is integrated in the system. The software is written in a graphical programming language (LabVIEW™).

The AIRICA works with LI-COR models 7000, 6262, and 6252. Precision of $\pm$ 1.5 - 2 µmol/kg can be reached (also depending on the LI-COR model). Though generally higher precision can be obtained with larger volumes and coulometric methods (VINDTA 3C, VINDTA 3D, SOMMA), the IR method is ideal, where required precision is lower due to higher gradients (e.g. coastal ocean), sample volume is limited (e.g. pore water, sub-samples from culture experiments) and higher sample throughput is desired (analysis time is 5-10 minutes/sample).

features:

- determines dissolved inorganic from small sample volumes
- high sample throughput (6-10 samples/hour)
- easily transportable and sea-going
- precision typically ± 1.5 µmol/kg
- no hazardous chemicals required (compared coulometric methods)
- user friendly software interface using LabVIEW™
- control PC with integrated hardware and with all software and drivers installed

Additional hardware required or recommended:
LI-COR infra-red-analyzer, model 7000, 6262, 6252. The smaller detectors 850, 840, 830, and 820 can also be used, but with lower precision. The 7815 Laser detector can <u>not</u> be used.
carrier gas supply (nitrogen or dry and CO_2-free air)