Automated Chemical Analysis System for Salts and Seawater
Using FIA System:(A)Determination of Trace Iron in Various
Salts by Spectrophotometric Detection with Nitro-PAPS and
(B)Determination of Trace Ammonia Nitrogen in Seawater and
Concentrated Sodium Chloride Solution by Gas-Diffusion
Separation and Spectrophotometric Detection

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Summary

(A) A flow injection system is presented for the determination
of trace iron in various salts which is based on the formation
of iron complex with Nitro-PAPS having large molar absorpti-
vity of 8.5×10^4 and subsequent spectrophotometric detection
at 582 nm.   In order to allow direct injection of sample
solution containing high concentration of salt, simple and
new technique was proposed for elimination of blank peak
effect.
(B)For the determination of trace ammonia nitrogen in seawater
and salts a flow injection system is also studied.   The gas
diffusion separation by porous PTFE membrane tubing is
directly on-line coupled with spectrophotometric detection
with 1-naphthol and sodium hypochlorite in a continuous flow
system.   Seawater sample can be directly injected.
The limit of detection for iron is 0.05 ppm supposing that
1 g salt is dissolved in 100ml as sample solution and 0.01
ppm for ammonia in seawater.   The analysis time is about
4-6 min for one sample.   The most appealing feature of the
proposed FIA system is that the analysis is achieved in a
continuous and closed system without complicated manual
operations, which can afford simple and rapid as well as
accurate and precise determination.