

DATA BULLETIN

TOC and TNb analysis in soil extracts using the vario TOC cube

Soil extracts are chemically analyzed in order to determine the availability of nutrients to plants. Using the vario TOC cube the total organic carbon and nitrogen content of soil extracts can be analyzed simultaneously. The instrument's unique particle mode is capable to analyze particle containing soil extracts with nearly the same precision as particle free samples.

Soil samples were dried, ground and dissolved in distilled water. After heating for 60 minutes magnesium sulfate was added for more efficient separation and the solution was centrifuged. The supernatant was further acidified with HCl to pH < 2 for increased stability.

The remaining soil extract, containing small particulates, was analyzed using the vario TOC cube's unique particle mode, ensuring that the particulates are measured rather than settling in the syringe, as is the case for alternative instrumentation.

All samples were analyzed three times, resulting in the average TOC and TNb content and corresponding absolute standard deviations given below.

SAMPLE	TOC [mg/l]	TNb [mg/l]
soil extract - 1	178.5 ± 0.30	30.7 ± 0.65
soil extract - 2	344.2 ± 1.25	54.4 ± 1.65
soil extract - 3	141.7 ± 0.36	19.4 ± 0.23
soil extract - 4	159.5 ± 0.71	20.5 ± 0.43

Results show that using Elementar's vario TOC cube to determine soil extractions from the Haney Soil Method or similar methodology yield precise results including the full TOC and TNb concentrations.

INSTRUMENT:

vario TOC cube

DETAILS:

carrier gas: synthetic air

sample: 0.2 ml soil extract



Elementar Analysensysteme GmbH
Elementar-Straße 1
63505 Langenselbold (Germany)
phone: +49 (0) 6181 9100-0
info@elementar.de | www.elementar.de

