

DATA BULLETIN

Organic, inorganic and elemental carbon analysis in soil using the soli TOC cube

The analysis of the different fractions of carbon in soil is an important tool for assessing soil quality. The new soli TOC cube offers users the option of measuring not only total organic and total inorganic carbon, but also determining the total elemental carbon (ROC) using a temperature ramping program. This is important, because elemental carbon is not bio-available.

Different soil samples were weighed into standard reusable steel crucibles without any pre-treatment. For calibration purposes, control standards were analyzed within the same run. All samples were analyzed three times. The average concentrations and the absolute standard deviations of the different carbon fractions are given below.

SAMPLE	TOC ₄₀₀ [%]	ROC [%]	TIC ₉₀₀ [%]
Pararendzina from loess Germany	0.361 ± 0.006	0.299 ± 0.021	3.280 ± 0.028
volcanic ash soil Equador	12.184 ± 0.068	0.500 ± 0.033	0.052 ± 0.001
lime marsh soil Germany	1.480 ± 0.024	0.324 ± 0.009	0.396 ± 0.010
blast furnace sludge Germany	1.823 ± 0.098	3.994 ± 0.142	2.954 ± 0.115

The results show that the different carbon fractions could be analyzed with a very high precision.

The soli TOC cube provides a precise, adjustable temperature profile for reproducible measurements of the different carbon fractions in soil, in compliance with the DIN 19539 standard. Additionally, the use of a post-combustion catalyst ensures that even samples with a high carbon content are quantitatively oxidized and achieve equally high measurement quality.

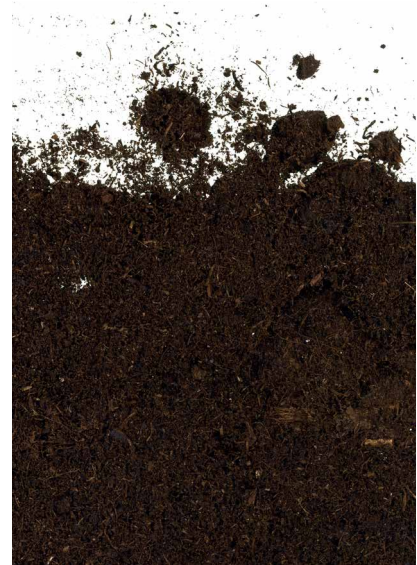
INSTRUMENT:

soli TOC cube

DETAILS:

mode: TOC-ROC-TIC

sample: 50 mg soil



STANDARD:

DIN 19539

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