

## CHN Determination in Coal Samples with the Elemental Analyzer vario MACRO CHN

*CHN determinations in coal are part of the standard methods when it comes to determine the quality of solid fossil fuels. Accuracy and precision are crucial for the cost effectiveness of the instrument use.*

Task

	Instrument		Sample
Basic device:	vario MACRO	Size:	approx. 100 mg
Mode:	CHN	Consistency:	fine
Periphery:	-	Preparation:	none

Specification

The standard instrument parameters were used. For the oxygen dosing time the method "coal" was used.

Procedure

Phenylalanine (8.48%N; 65.44 % C; 6.71%H) was used as a standard.

A 5-fold determination was done for each sample.

Probe	C [%] ± SD. abs.	H [%] ± SD. abs.	N [%] ± SD. abs.
Coal I	56.11 ± 0.09	5.146 ± 0,006	1.085 ± 0.007
Coal II	64.22 ± 0.030	5.293 ± 0,03	0.594 ± 0.029
Coal III	76.25 ± 0.051	4.945 ± 0,017	1.899 ± 0.014
Coal IV	79.44 ± 0.034	3.930 ± 0,004	1.710 ± 0.022
Coal V	80.26 ± 0.040	4.581 ± 0,008	1.557 ± 0.013
Coal VI	82.59 ± 0.024	3.930 ± 0,004	1.710 ± 0.022
Coal VII	58.90 ± 0.018	5.150 ± 0,006	0.452 ± 0.009
Coal VIII	61.83 ± 0.094	5.483 ± 0,043	0.843 ± 0.009

Results

The high precision of all simultaneously determined elements has to be emphasized. In particular the results for H at 100 mg sample weight require a high performance instrument.