

Oxygen determination in chemical reagents with the vario MICRO cube

Task

The vario MICRO cube can easily be converted into a high performance O-analyzer in which all oxygen in the sample is converted to CO by means of pyrolysis and analyzed with the thermal conductivity detector or optionally an infrared detector.

Instrument	Sample
Basis: vario MICRO cube	Quantity: 4 mg
Mode: O (with IR detector)	Consistency: solid
Periphery: oxygen upgrade kit	Preparation: not necessary

Specification

The vario MICRO cube is reconfigured to an O-analyzer using the oxygen upgrade kit. Reaction and reduction tubes are replaced with the pyrolysis tube filled with carbon black, operated at 1150 °C.

Procedure

Two chemical reagents with a known O-content (12% and 6%) have been analyzed. The samples have been weighed into silver boats and the daily factor has been determined using benzoic acid.

All samples have been analysed four times. The average oxygen content and its absolute and relative standard deviations are given below.

sample (n = 4)	O [%]	abs. SD [%]	rel. SD [%]
chemical-1 (O = 12%)	12.4	0.029	0.24
chemical-2 (O = 6%)	6.26	0.021	0.34

Results

The oxygen content of the chemicals could be determined with a very high accuracy and precision using the vario MICRO cube.

The oxygen upgrade kit is compatible with all instruments in the *Elementar* cube series. Therefore, the same results will be achieved by using the vario EL cube and vario MACRO cube.