

Elemental Analysis of CHN

Element Concentration of carbon(C), hydrogen(H), and nitrogen(N) in organic materials is able to be analyzed.



<http://www.elementar.de/en/products/elementar-products/vario-micro-cube.html>

Conc. range : 0.3 ~ 100%

Sample weight : 1mg ~

Meas. Error : $\pm 0.3\%$

- **Liq. sample is applicable.**
- **Wide dynamic range.**

Elementar Analysensysteme GmbH

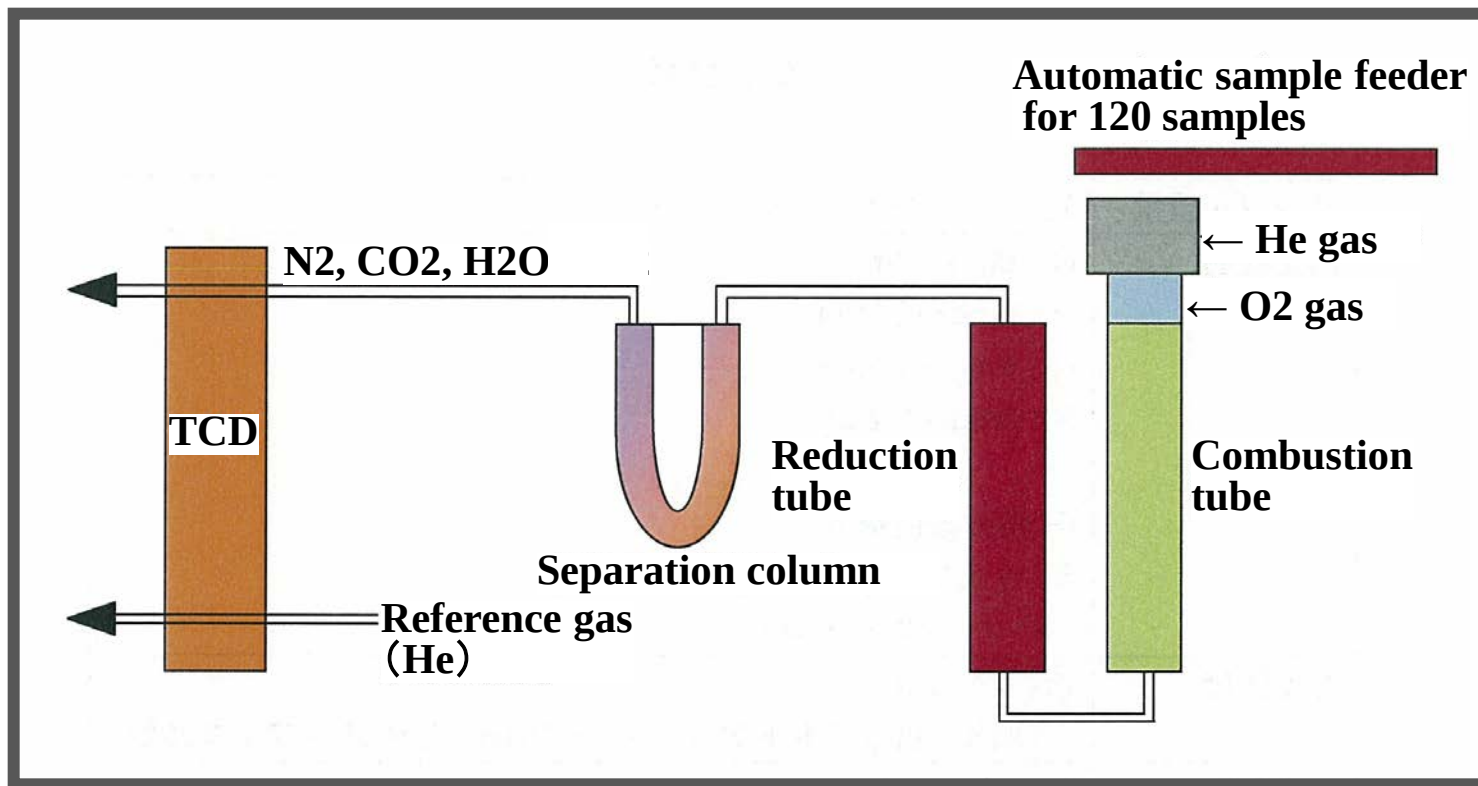
“vario MICRO cube”



Toray Research Center, Inc.

Measurement Principle

- Sample is burned in high temperature under He/O₂ gas flow.
- Each element is oxidized. $C \rightarrow CO_2$ $H \rightarrow H_2O$ $N \rightarrow NO_x$
- NO_x is reduced to N₂ through the reduction tube including reduced Copper.
- CO₂, H₂, and N₂ are separated through separation column and introduced to thermal conductivity detector(TCD).
- Quantitative analysis is performed using the standard materials such as acetanilide.



CHN Element analysis

Sample	Theory	n	Experiment(wt%)		
			N	C	H
Amino acid	N:15.7% C:40.4% H: 7.9%	1	15.9	40.4	7.9
		2	15.9	40.3	7.9
		3	15.9	40.3	7.9
Organic acid	N: 0.0% C: 40.7% H: 5.1%	1	0.0	40.7	5.1
		2	0.0	40.7	5.1
		3	0.0	40.8	5.1
Hydrocarbon polymer	N: 0.0% C:92.3% H: 7.7%	1	0.0	92.3	7.8
		2	0.0	92.3	7.8
		3	0.0	92.3	7.8
Organochlorine compound	N: 0.0% C:53.7% H: 3.2%	1	0.0	53.7	3.2
		2	0.0	53.8	3.1
		3	0.0	53.8	3.1
Organobromine compound	N: 6.5% C: 44.9% H: 3.8%	1	6.6	45.0	3.6
		2	6.6	44.9	3.6
		3	6.6	44.9	3.7
Organosulfur compound	N:16.3% C:41.9% H: 4.7%	1	16.2	41.8	4.5
		2	16.3	41.9	4.6
		3	16.3	41.8	4.6

