

Application note

N/Protein determination in grain products using the vario MACRO cube

In the food industry the protein content of food stuff is an important parameter for quality and process control. The vario MACRO cube in N mode is a macro analyzer designed for the fast and accurate determination of N/protein in plant material, food and feed as an environmentally friendly alternative to the classical Kjeldahl method.

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Different grain and flour samples have been analysed using the vario MACRO cube in N mode. The samples were weighed into tin boats and analysed six times. The average N/protein content and its absolute standard deviation are given below.

A protein factor of 6.25 has been used.

The analysis time of each sample is < 5 minutes.

sample (n = 6)	N [%]	protein [%]
soy flour	6.40 ± 0.029	40.0 ± 0.18
wheat flour	1.91 ± 0.009	11.9 ± 0.06
raw wheat	2.03 ± 0.195	12.7 ± 1.22
starch	0.07 ± 0.005	0.43 ± 0.03
gluten	3.54 ± 0.010	22.1 ± 0.06

The results show a very high precision for all homogeneous samples. Obviously, the inhomogeneous raw wheat sample shows a higher standard deviation as the homogeneous wheat flour sample.

If required, the vario MACRO cube can easily be reconfigured to analyze the total C, H, N and S contents simultaneously.

The results show that the vario MACRO cube is very suitable for applications in the grain industry.

instrument:

vario MACRO cube

N mode

sample:

100–150 mg

grain products

solid

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