

DATA BULLETIN

Determination of the nitrogen content in inorganic fertilizers with the rapid MAX N exceed

Inorganic fertilizers show a difficult combustion behavior due to the lack of combustible organic material. The special multi chamber furnace of the rapid MAX N exceed allows an extreme permanent combustion temperature, which is a prerequisite for quantitative analysis of samples which are difficult to combust. The instrument utilizes the innovative EAS REGAINER® technology, reducing costs of analysis and maintenance significantly.

The samples were weighed into standard reusable open crucibles without pre-treatment/homogenization. Glucose was added to the inorganic fertilizer samples in a ratio of 1:1 to ensure the complete depletion of nitrogen to N₂.

Analyses were run using a standard method implemented in the instrument software, with a total analysis time of about 5 minutes and helium as carrier gas.

One solid and one liquid fertilizer sample and a pure ammonium nitrate sample have been analyzed on the rapid MAX N exceed. All samples have been analyzed six times. The average nitrogen content, and absolute and relative standard deviations are given below.

SAMPLE	WEIGHT [mg]	N [%]	RSD [%]
ammonium nitrate	100	34.8 ± 0.12	0.35
fluid fertilizer	200	5.66 ± 0.06	1.0
NPK fertilizer	100	10.6 ± 0.05	0.48

The results clearly demonstrate the excellent analytical performance of the rapid MAX N exceed. All samples could be analyzed well within the required precision of the international standard AOAC 993.13 (total nitrogen in fertilizers, combustion method).

The rapid MAX N exceed offers fast nitrogen determination with minimal maintenance, resulting in a high sample throughput, ideal for applications in industrial quality control in the fertilizer industry.

INSTRUMENT:

rapid MAX N exceed

DETAILS:

carrier gas: helium

sample: 100-200 mg inorganic fertilizer



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