DATA BULLETIN

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EXCELLENCE IN ELEMENTS

Nitrogen analysis in various polymers with the rapid MICRO N cube

The rapid MICRO N cube measures low level nitrogen concentrations with a detection limit of 10 mg/kg using the Dumas method. After reduction of the oxides of nitrogen the resulting N_2 is measured using a thermal conductivity detector. Until now such low level concentrations were measured via oxidation to NO followed by chemiluminescence detection. This method is, however, matrix dependent and needs a matrix dependent calibration.

INSTRUMENT:
rapid MICRO N cube

DETAILS:
carrier gas: helium
sample: 20 mg polymers

Solid polymer samples have been weighed into tin boats. After closing the sample they have been pressed with a manual pressing tool in order to remove remaining air from the sample. The sample weight of the polymer samples was about 20 mg.

SAMPLE	N [mg/kg]	SD [mg/kg]	RSD [%]
polypropylene granulate	122	13	11
polyethylene granulate	1985	25	1
polyethylene foil	56	4	7
HDPE granulate	342	13	4

The results show that the rapid MICRO N cube is very well suitable for the analysis of nitrogen concentrations in polymer samples. Nitrogen concentrations down to 56 mg/kg have been analyzed with a high precision.

The rapid MICRO N cube offers the matrix independent Dumas method in combination with high sensitivity, ideal for applications in the polymer industry.

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