

Nitrogen & protein determination in dry pet food

KjelDigester K-449, KjelMaster K-375 with KjelSampler K-376:

Accelerated Nitrogen and Protein Determination in dry Pet food with Kjeldahl Tablets and Hydrogen Peroxide

1. Introduction

An easy and reliable method for the determination of total nitrogen and protein in dry pet food using hydrogen peroxide, according to ISO 5983-2, is introduced below. The combination of the accelerated digestion method, using the Kjeldahl Tablet Titanium in combination with hydrogen peroxide, and the KjelMaster system K-375 / K-376 increases the sample throughput.

2. Experiment

Sample:

- Cat food with a labelled protein content of 37 g/100g.
- Rabbit food with a labelled protein content of 15 g/100g.
- Dog food with a labelled protein content of 12 g/100g.

Equipment:

- KjelDigester K-449 (the parameters used are also valid for K-446),
- Scrubber K-415 TripleScrub^{ECO},
- KjelMaster K-375 with KjelSampler K-376

Procedure:

The Samples are homogenized and afterward digested. After the digestion the samples are distilled and titrated.

Table 1. Distillation and titration parameters for the KjelMaster system K-375 / K-376.

Parameters	Settings
Reaction time	5 s
Distillation time	180 s
Titration type	Boric acid
Sensor type	Potentiometric



3. Results

The Results of the determination of the protein content of different dry pet foods are shown in Table 2.

Table 2. Results of the determination of the protein content in different dry pet foods (n=4).

Sample	Labelled protein content [g/100g]	Ø measured protein content [%]	RSD [%]
Cat food	37	38.4	0.2
Dog food	12	12.0	0.3
Rabbit food	15	15.0	0.2

4. Conclusion

The determination of nitrogen and protein in dry pet food using the KjelDigester K-449 and Kjeldahl sampler system K-375 / K-376 provides reliable and reproducible results. These results correspond well to the labelled values of the different pet food with low relative standard deviations (RSD) and a short digestion time of 60 min. For further information please download the full application note from the website.

5. References

- Application Note No. 113/2013: Nitrogen & protein determination in dry pet food
- ISO 5983-2 Animal feeding stuffs –Determination of nitrogen content and calculation of crude protein
- AOAC 976.05 Protein (Crude) in Animal Feed and Pet Food
- KjelCalc App
- Operation Manual of KjelDigester K-446/K-449
- Operation Manual of Scrubber K-415
- Operation Manual of KjelMaster system K-375/K376