

Nitrogen and protein determination in meat products

KjelDigester K-449, KjelMaster K-375 with KjelSampler K-376: Nitrogen and Protein Determination in Meat Products according to the Kjeldahl Method.

1. Introduction

A reliable method for the determination of nitrogen and protein in meat products, i.e., Salami, smoked ham and boiled beef sausage according to AOAC 981.10, is introduced below [1].

2. Experiment

Sample:

- Salami with a labelled protein content of 25.2 g/100 g
- Smoked ham with a labelled protein content of 16.0 g/100 g
- Boiled beef sausage with a labelled protein content of 15.8 g/100 g

Equipment:

- KjelDigester K-449 (the parameters used are also valid for the K-446)
- User protection shield (BUCHI 11057889)
- Scrubber K-415 TripleScrub^{Eco} with TKN Set (BUCHI 11057333)
- KjelMaster K-375 with colorimetric sensor
- KjelSampler K-376 (the parameters used are also valid for the K-377)

Procedure:

The sample is homogenized and afterwards digested. After the digestion the sample is distilled and titrated.



Table 1. Parameters and Settings of K-375 / K-376.

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

3. Results

The Results of the determination of the protein and nitrogen content in different meat samples are shown in Table 2.

Table 2. Results of the determination of nitrogen and protein contents in different meat samples (n=4).

Sample	Labelled Protein content [g/100g]	Ø Nitrogen content [%]	RSD [%]	Ø Protein content [%]	RSD [%]
Salami	25.2	4.38	1.5	27.4	1.5
Smoked ham	14.3	2.28	0.3	14.3	0.3
Beef sausage	15.7	2.52	1.6	15.7	1.6

4. Conclusion

The determination of TKN (Total Kjeldahl Nitrogen) in meat products using the KjelDigester K-449, the KjelMaster system K-375 / K-376 and the colorimetric sensor provides reliable and reproducible results. The found protein content of Salami, smoked ham and boiled beef sausage correspond well to the labelled values of the meat products. For further information please download the full application note from the website.

5. References

- Application Note No. 199/2015: Nitrogen and protein determination in meat products
- [1] AOAC 981.10 Crude Protein in Meat
- Technical Note No.179/2015: Colorimetric titration procedure using Sher indicator