

TKN determination in water and waste water

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

Determination of TKN (Total Kjeldahl Nitrogen) in Water and Waste Water according to the Kjeldahl Method

1. Introduction

An easy and reliable method for the determination of total Kjeldahl nitrogen (TKN) in water and waste water, according to ISO 5663, AOAC 973.48 and EPA 351.3, is introduced below.

2. Experiment

Sample:

- Surface water lake constance
- Surface water pond threelinden

Equipment:

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

Procedure:

The samples are digested using the KjelDigester K-449. The distillation and boric acid titration are performed with the KjelMaster K-375 with KjelSampler K-376. The combination of the new KjelDigester and the KjelMaster system K-375 / K-376 increases the sample throughput.

Table 1. Parameter and Settings of the 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 TKN in different water samples is shown in Table 2.

Table 2. Results of the determination of TKN in different water samples (n=5).

Sample	Ø TKN content [mg/L]	RSD [%]
Water of lake constance	0.27	0.86
Water of pond threelinden	16.5	6.2

4. Conclusion

The determination of TKN (Total Kjeldahl nitrogen) in water using the KjelDigester K-449 and KjelMaster system K-375 / K-376 provides reliable and reproducible results. The LOD is 0.014 mg/L and the LOQ is 0.21 mg/L for 200 mL sample volume according to DIN 32 645. For further information please download the full application note from the website.

5. References

- Application Note No. 118/2013: TKN determination in water and wastewater
- ISO 5663 Water quality –Determination of Kjeldahl nitrogen Method after mineralization with selenium
- Method PAI-DK01, Nitrogen, Total Kjeldahl, Block Digestion, Steam Distillation, Titrimetric Detection. Revised December 22, 1994. OI Analytical
- APHA Standard method 4500 Ammonia
- DIN 32 645 Nachweis-, Erfassungs-und Bestimmungsgrenze
- Kjeldahl Calculator App
- Operation Manual of KjelDigester K-446 / K-449
- Operation Manual of Scrubber K-415
- Operation Manual of KjelMaster system K-375 / K376