

KJELDAHL METHOD FOR NITROGEN QUANTITATIVE DETERMINATION

Johan Kjeldahl was a Danish chemist who while studying the changes of protein content during the transformation of barley into malt process developed the method for determining nitrogen, which then took its name from him.

Thanks to its high degree of precision, reproducibility and versatility, the Kjeldahl method is used today to determine the content of nitrogen and proteins according to the official methods (AOAC, EPA, DIN, ISO).

The Kjeldahl method is used as the **official method** for determining nitrogen and protein contents in:

- Foods (raw materials and finished products – e.g. milk, cereals, meat, etc.);
- Animal feeds;
- Soils, fertilizers, etc.;
- Wastewater, sludge, etc.;
- Lubricants, fuel oils, etc.

Velp Scientifica offers a **complete package** for Kjeldahl analysis, made up of a mineralization unit, suction and fume neutralization systems and distillation/titration units.

The method's principle

The Kjeldahl method lets you determine the nitrogen content of organic and inorganic substances. Three main phases stand out:

1) Digestion

The sample is heated at a high temperature after having been mixed with concentrated sulfuric acid and other reagents. An ammonium sulfate solution is obtained from this reaction.

2) Distillation

The sulfuric acid used for the digestion is neutralized with concentrated sodium hydrate solution. By adding an excess of alkali, the balance is shifted from ammonium ions to free ammonia (NH₃) which separates through distillation in a current of steam and is collected in a suitable solution.

3) Titration

The quantitative determination of the ammonia produced can be done by means of acid base titration (colorimetric, potentiometric, etc.) or other systems. Afterwards, it will be easy to calculate the quantity of nitrogen (% proteins).



Description

Power Supply	220V or 115V
Power W	1100
Dimensions (WxHxD) mm (in)	293x152x339 (11.5x6x13.3)
Weight Kg (lb)	10 (22)
Display LCD	YES
N° of samples	6 samples in 300ml test tubes with Ø 42mm
Temperature range	from room temp. to 450°C
Temperature precision	± 0.5°C
Temperature measurement unit	°C or °F
Digestive time range	from 001 to 999 minutes
N° of programs	20
Temperature ramps	from 1 to 4 ramps for each program
Acoustic signal at the end of the cycle with an automatic switching off interface	YES
	RS232

DK II

DK III

Power Supply	230V or 115V
Power W	1350
Dimensions (WxHxD) mm (in)	233x152x448 (9x6x17.6)
Weight Kg (lb)	11 (24.2)
Display LCD	YES
N° of samples	8 samples in 300ml test tubes with Ø 42mm
Temperature range	from room temp. to 450°C
Temperature precision	± 0.5°C
Temperature measurement unit	°C or °F
Digestive time range	from 001 to 999 minutes
N° of programs	20
Temperature ramps	from 1 to 4 ramps for each program
Acoustic signal at the end of the cycle with an automatic switching off interface	YES
	RS232

DK 100

Power Supply	230V
Power W	1300
Dimensions (WxHxD) mm (in)	329x152x516 (13x6x20.4)
Weight Kg (lb)	22.5 (49.5)
Display LCD	YES
N° of samples	20 samples in 300ml test tubes with Ø 42mm
Temperature range	from room temp. to 450°C
Temperature precision	± 0.5°C
Temperature measurement unit	°C or °F
Digestive time range	from 001 to 999 minutes
N° of programs	20
Temperature ramps	from 1 to 4 ramps for each program
Acoustic signal at the end of the cycle with an automatic switching off interface	YES
	RS232