

Experts in

# Nitrogen Estimation

By Kjeldahl method

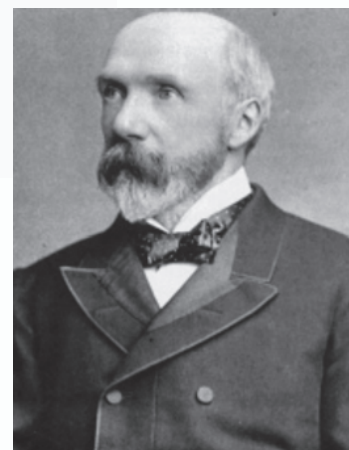


LABQUEST  
BY BOROSIL®

SMART • RUGGED • PRACTICAL

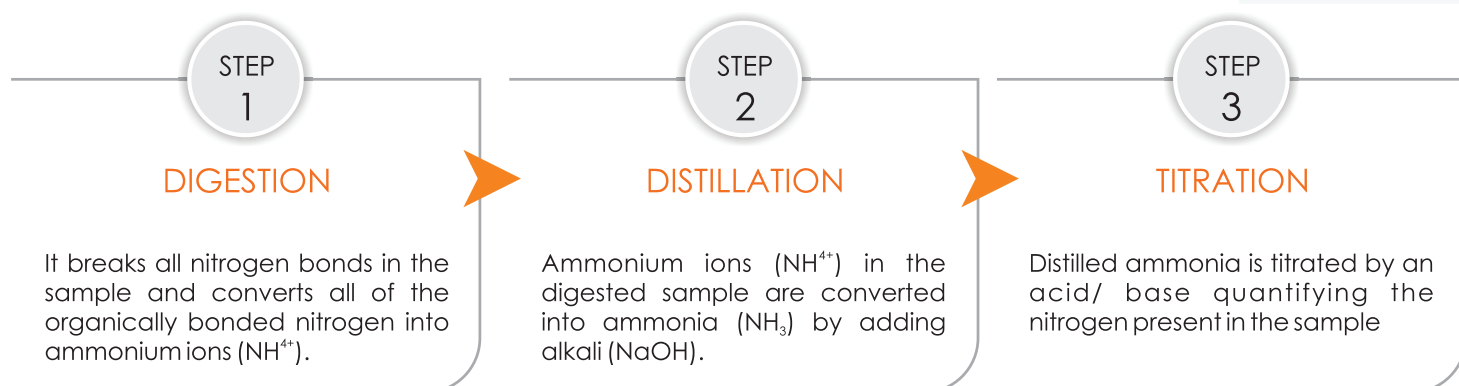
John Kjeldahl was the first one to present his analytical method for determining nitrogen in organic substances to the world. Traditionally done using glass assembly is commonly known as a Kjeldahl flask, the modified method uses steam distillation.

His laboratory technique for nitrogen and protein analysis is still the universally accepted method for this analysis. Although other methods claim to be faster and more efficient, none can cope with the variety of sizes or conditions of samples than Johan Kjeldahl's original method. Kjeldahl equipment is used extensively all over the world.



Kjeldahl is the leading method for Nitrogen and Protein estimation in samples. Kjeldahl method can be used flexibly and universally, with homogenous and non-homogenous samples and always provides desired results

### Three steps for Nitrogen estimation via Kjeldahl



CKD065

# Kjeldahl Oracle Digesters



The aluminium block protection grid provides enhanced heating performance and protects the heating block from splashes and chemicals.

The automatic lift function ensures comfortable and safe lifting and lowering of test tube rack.

Excellent corrosion protection thanks to the front acid-proof structure

Priority for chemist safety- Safe to touch insulation, Hot surface warning.

Accurate temperature control with the programmed profile.

Graphical representation and monitoring of process parameters, pre-set sample cycles, plot ramp rate and digestion time.

Reproducible digestion due to refined thermal homogeneity.

Printer portal for documentation of sample time, temperature and other process parameters with print and PC data transfer ports.

Delayed scrubber start ensures safe unattended operation and complete fume evacuation.

Cooling stations increase throughput by decreasing the cooling time post digestion.

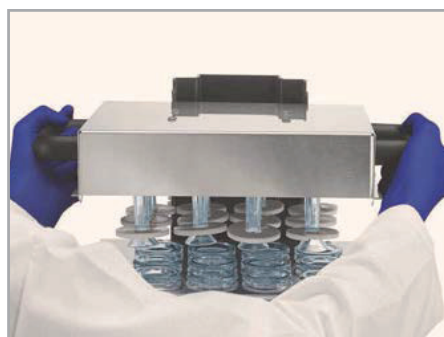
# Kjeldahl Magnus Digesters

Automatic Kjeldahl digestion unit with 8 / 12 / 20 heating positions of aluminum heating block offers excellent thermal homogeneity and stability

The digesters are easy to use and perform where the user can prepare the samples and leave them unattended after setting the temperature and time. Sulfuric acid used for digestion helps in breaking the bonds of nitrogen. An adequate concentration of catalysts and salt is added to speed up the digestion process. The scrubber system removes the sulfur dioxide fumes keeping the salt : acid ratio undisturbed. Bumping or foaming of samples in tubes is nature dependent and can be avoided by the addition of glass beads or a few drops of hydrogen peroxide.



250 ml straight sample tube provided with the unit is used for sample preparation



Load the manifold for evacuation of digestion fumes



Select the preferred program from data library



Cooled samples are ready for distillation process



Magnus block digester takes over the documentation process from you.



The tube rack with manifold is automatically lowered into the digester and can be lifted automatically in between to check the completion of digestion

The digestion process involves release of pungent sulfur dioxide fumes. Hence the digester is recommended to the use with a fume scrubber only.

# Magnus & Oracle Digester

## Technical Specifications

Model Name	KBD083	KBD123	KBD203	KBD062	KBD082	KBD122
No. of positions	6	12	20	6	8	12
Tube capacity (ml)	250					
Temperature Range	Ambient to 470°C					
Timer Range	1-300 mins					
Temperature Precision	±1°C					
Ramp and Hold	upto 4					
Presets	upto 50					
Auto scrubber ON/OFF	Yes					
PID Autolift	Yes			No		
Auto OFF after achieving set time	Yes					
Temperature Calibration	Yes, single and two point					
PC & Printer Connectivity	Yes					
Display	Graphical LCD					
Body	Stainless steel with GRP control panel					
Current	6A	8A	12A	6A	6A	8A
Power rating	1400W	1600W	2800W	1400W	1400W	1600W
Dimensions (W × D × H)	427 x 490 x 665	415 x 560 x 700	415 x 635 x 740	427 x 490 x 665		415 x 635 x 740
Ordering Code	BLFAKBD083 00000000	BLFAKBD123 00000000	BLFAKBD203 00000000	BLFAKBD062 00000000	BLFAKBD082 00000000	BLFAKBD122 00000000

Kjeldahl

# Magnus Distillation System



Steam distillation compatible for Nitrogen estimation with sophisticated features makes distillation easy.

Easy step by step user modification helps to determine Nitrogen content in the sample.

Soft controls allow the user to manage addition of alkali, boric acid, distilled water and steam with all the other processes being monitored automatically.

Traditionally done using an Allihn's condenser mounted with a Kjeldahl trap, leads to insufficient cooling and extraction of nitrogen and subsequent protein.

The steam distillation using a Friedrichs condenser provides more surface area for cooling.

Steam purged into the sample allows thorough mixing for complete nitrogen extraction.

# Kjeldahl Magnus Distillation System

Smart distillation systems for labs. Excellent value for money with high reliability and advance performance.

- Sophisticated construction protects against involuntary contact with hazards acids and chemicals.



- Easy and quick Kjeldahl distillation  
Automated addition of chemicals, distillation time, steam output with a soft start



- Safety a top priority with tube reader, boiler reagent and door level sensor



- A drip tray that protects unit interior

Kjeldahl

# Oracle Distillation System

Smart, efficient distillation systems primarily for kjeldahl analysis with simple and reliable features.



\*Accessories in the image may not be part of the stranded equipment



# Kjeldahl Oracle Distillation System

Single knob control function. ▶

Single press precise addition of alkali anytime during the distillation cycle. ▶



▶ Tube sensor that enables safe operating conditions in event of tube damage.

▶ Process kill switch to halt the process in case of accidental door opening.

▶ Detachable bottom drip tray for extra protection against acidic attack during sample loading.



▶ Reagent refill level sensor to avert reagent dry out.

▶ Acid and alkali pump calibration for accurate reagent dosing.

▶ Documentation of no. of cycles and hours of usage with auto service and maintenance alerts.

# Magnus & Oracle Distillation

## Technical Specifications

Feature/ Model	KDI050	KDI040
Steam addition	Automatic	
Distilled water addition	Automatic	
Alkali addition	Automatic	
Boric acid addition	Automatic	
Tube Drain	Automatic	NA
Display	7" colored touch screen	LCD
Tube Capacity (ml)	250 / 400ml	
Steam power (Adjustable)	25-100%	10-100%
Minimum distillation time (mins)	5	
Reagent level sensor	Yes	
Anytime alkali addition	Yes	
Tube error detection	Yes	
Door open sensor	Yes	
Process resume from stop	Yes	
One point alkali and distilled water	Yes	
Two point calibration for acid pump	Yes	
Real time monitoring of process parameter	Yes	
SELV protection	Yes	
Programs	pre set as well as user editable	
PC Connectivity	40 preset, 30 user editable	>99.5%
Nitrogen recovery	>99.5%	
Nitrogen reproducibility	±1 %	
RSD	<1%	
LOD	1-200mg with of $\approx$ 0.1 mg of Nitrogen	
Current	10A	5.5A
Power rating	1500 W	1000 W
Dimension (L x B x H) mm	(480 x 470 x 820) mm	(650 x 350 x 725) mm
Ordering Code	BLFAKDI05000000000	BLFAKDI04000000000

# Kjeldahl Distillation with Autotitrator

PRACTICAL

RUGGED

SMART



## Technical details

Model Name	KDI060
Steam Addition	Automatic
Distilled water addition	Automatic
Alkali addition	Automatic
Residue drain	Automatic
Display	7" colored touch screen
Tube Capacity (ml)	250 / 400ml
Steam power regulation (Adjustable)	10 to 100%
Minimum distillation time (mins)	5
Reagent level sensor	Yes
Anytime alkali addition	Yes
Tube error detection	Yes
Door close sensor	Yes
Process resume from stop	Yes
One point alkali and distilled water pump	Yes
Two point calibration for acid pump	Yes
Real time monitoring of process parameter	Yes
SELV protection	Yes
Programs	40 preset, 10 user editable
PC Connectivity	Yes
Nitrogen recovery	>99.5%
Nitrogen reproducibility	0.01
RSD	<1%
LOD	1-200mg with of =0.1mg of Nitrogen
Titration Type	pH base
Water Addition	Automatic
Distillation Residue Removal	Automatic
Titration Cleaning Vessel	Automatic
Detection Limit	0.1ml
Analysis time	upto 1min
Titration Residue Removal	Automatic
Boric Acid Addition	Automatic
Burette Resolution	0.03ml/drop
Power Supply	230V/50Hz
Current Consumption	10A
Power Consumption	1800 W
Dimension (L x B x H) mm	(480 × 470 × 820) mm
HS Code	84198990
Ordering code	BLFAKDI06000000000