



## Automatic steam distillation unit Kjeldahl "Pro-Nitro A"



DETERMINATION OF ORGANIC NITROGEN (KJELDAHL METHOD)  
FULLY AUTOMATIC OPERATION. FROM THE REAGENT DOSAGE TO THE TITRATION.



Steam distillation system Kjeldahl, complete with automated "ON-LINE" analysis (evaluation in real time). For systematic precise analysis, with minimum personnel intervention, simple and safe. Adequate for a laboratory with a medium to large throughput of samples.

The Kjeldahl steam distillation unit «PRO-NITRO A» evaluates the distillate at the same time as it is produced ( evaluation «On-Line»), the evaluation and distillation are completed as one operation, reducing drastically the analysis time. This type of evaluation offers the following additional advantages: detects the point where the sample no longer produces Nitrogen, which means that, the distillation stops at the optimum maximum Nitrogen recovery and does not prolong the analysis longer than necessary.

The titration is a colorimetric method and is accepted by AOAC and does not require any periodic calibration.

### FEATURES

Distillation by steam generation.

#### Automatic «On-line» colorimetric evaluation.

Steam generator with safety thermostat, over temperature and over pressure device.

Safety, door closed, that prevents distillation if open.

Detects that a digestion/distillation tube is present. This prevents the dosing of NaOH if there is no tube located.

Universal adapter for MACRO (Ø 42 mm) and MICRO (Ø 26 mm) distillation tubes.

**Space saving in the laboratory:** the reservoirs for the H<sub>2</sub>O, NaOH, Boric Acid and HCl are located inside the unit.

#### Empties the digestion/distillation tubes and the collector automatically.

Automatic stop when distillation is complete.

Large LCD display of 20 x 4 characters.

RS232 output to results printer.

Main system made from stainless steel with an ABS plastic front.

### SPECIFICATIONS

Measuring range: 0.2 to 200 mg Nitrogen.

Nitrogen recovery: > 99.5%

Distillation speed: from 35 to 45 ml/minute

Coolant water consumption: 80 to 100 litres per hour.

Steam generator water consumption: 2.5 Litre/Hr.

Steam generator water reservoir capacity: 6 litres.

NaOH reservoir capacity: 2 Litres.

Boric Acid reservoir capacity: 2 Litres.

Titration reagent reservoir capacity: 2 Litres.

Evaluation precision: 1.5%

Minimum reagent dose 0.01ml.

### ALARMS

Low water level for the steam generator.

Safety door open or no distillation/digestion tube in place.

Steam generator over temperature.

### ADDITIONAL REQUIREMENTS

To complete Kjeldahl Nitrogen analysis a digestion block is also required.

(See Bloc Digest pages 251 and 252).



### MODEL

Part No.	Height / Width / Depth cm	Power W	Weight Kg
<b>4002430</b>	<b>75 50 50</b>	<b>1800</b>	<b>38</b>

Supplied complete with a MACRO Ø 42 mm tube, set of connection tubes, set of reservoirs, 250 ml. of mixed indicator 4.8 and 100 gr. of sulphate ammonium.

### AUTOMATION

Closing and opening of the condenser cooling water in line with the distillation process.

Dosing of Boric Acid.

Dosing of NaOH once the distillation has started.

Select NaOH and Boric Acid volume.

«On-line» evaluation of distillate.

Auto detection of the end of the distillation process.

Special functions to maximise performance.

Special functions for maintenance.

### REAGENTS

All the reagents used in the «PRO-NITRO A» are easily located:

- Solution of 30-40% NaOH.
- Solution of Boric Acid at 1% concentration ( approx.) with mixed indicators (Bromo-cresol green and methyl red).
- Reagent for titration: HCl or H<sub>2</sub>SO<sub>4</sub> from 0.05N or 0.25N adjusted to 0.001 Normal.