



Equipment for digestion in the organic nitrogen determination by the Kjeldahl method "Auto-digest 20"



Totally automatic digestion process with a lift and descend system of the sample holder rack.

THE EQUIPMENT FOR ORGANIC NITROGEN DETERMINATION IS COMPOSED OF TWO BASIC ELEMENTS:
 - THE DIGESTION BLOCK "AUTO-DIGEST 20" (MINERALIZATION) WITH PROGRAMMABLE TEMPERATURE CONTROL AND GLASSWARE.
 - KJELDAHL PRO-NITRO DISTILLATION UNITS.



Equipment with metallic structure and with automatic sample holder epoxy coated. Tube support rack made of chemically treated no corrosive dur-al.

FEATURES

Sample automatic manipulation.
 Uniform heating.
 Automatic control unit with a capacity of 20 programs of temperature and time, sample lift when digestion is finished and start/stop of "Scrubber". RS-232 port for temperature register and digestion programming from a PC.
 Gas collection system that does not require special water jet jumps.

Supplied complete with:

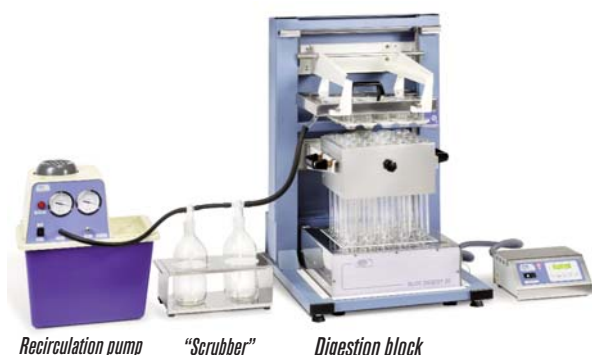
- 1 metal heater block of 20 positions.
- 1 automatic sample rising system.
- 1 "Rat-2" programmer for time and temperature.
- 1 tube support rack.
- 1 gas collector.
- 20 tubes for digestion of 250 ml volume.



MODEL - COMPLETE UNIT

| MACRO | Part No. | No. of positions | Height/Width/Depth Cm | Power W | Weight Kg |
|----------------|----------------|------------------|-----------------------|---------|-----------|
| Auto-digest 20 | 4003631 | 20 | 94 55 58 | 2548 | 36 |

EXTRACTION SYSTEM AND NEUTRALIZATION OF VAPOURS



Specially designed to absorb and neutralize acid vapours generated in the Kjeldahl digestion processes of 20 positions. It is composed of two "Scrubber" units that block the passage and neutralize the acid condensations, and a re-circulation water pump that provides a great vacuum flow for vapours aspiration. The gas collector is composed of two outputs to guarantee a complete absorption of gases generated by the digestion. Every outlet goes through a Scrubber unit, by one of the two inputs of the re-circulation pump.

It is essential to place the "Scrubber" units with the neutralizer solution between the digestion block and the re-circulating pump.

FEATURES

- No water consumption.
- No connection to the water piped supply.
- Prevents vapours emissions and water contaminants.
- Low noise level (< 65 dBA).
- Re-circulation pump made from chemically resistant materials.
- Two aspiration inlets available.

"Scrubber" units (two needed):

| Part No. | Height/Width/Depth (exterior) cm | Weight Kg |
|----------------|----------------------------------|-----------|
| 4001611 | 32 31 16 | 2 |

Supplied with 3 kg. of acid vapours neutralizer solution.

Spare part:

3 Kg. of acid vapours neutralizer solution.

Part number **4001610**

Water re-circulation vacuum pump:

| Part No. | Height/Width/Depth (exterior) cm | Vacuum flow litres/minute | Weight Kg |
|----------------|----------------------------------|---------------------------|-----------|
| 4001612 | 44 39 28 | 10 | 10 |

Note: Equipment for non-automatic organic nitrogen determination "Macro" and "Micro" series for 6, 12, 20 and 40 positions. Ask for information.

PARTS LIST AND ACCESSORIES

NOTA

During the digestion progress and due to the large number of tubes, it is possible that any moment the gas absorption system is not enough.

We recommend to make the digestion inside a hood, otherwise, the absorption rate should be increased by using two inlets of the re-circulation pump, with another additional Scrubber unit, **Part No. 4001611** and install a dual outlet with two glass collectors in the fume extraction unit, as shown in the picture.

Glass collector 2 in 1 for dual outlet, Part No. 4047007



Process programmer for time/temperature RAT-2.
Part No. **4001538**

Features

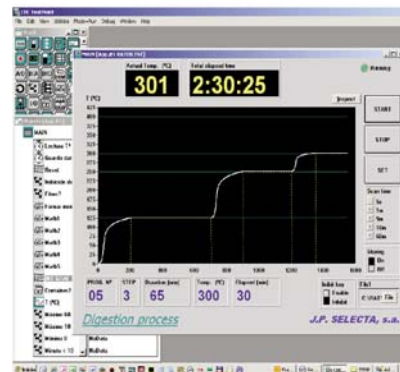
- Temperature range from 45 to 450 °C.
- Memory for 20 programs of 4 steps.
- Maximum time per step: 600 minutes.
- Acoustic indication for digestion end of program.
- Two selectable temperature gradients: Kjeldahl / D.Q.O.
- Temperature sensor breakage alarm.
- Temperature independent control.
- Bidirectional RS-232 serial connection. For temperatures registration and digestion program edition with the RAT connected to a PC.
- Software included with the digestion unit.
- Re-circulation pump control connection.
- Sample elevator control connection.



Electronic controller RAT-2.

Control panel

The RAT-2 control panel and the display allow the creation and execution of the digestion program. During the digestion, it shows the block temperature, the elapsed time and the program step.



The software included makes easier the digestion program edition and the digester temperature register.

Heating Blocks

For a correct operation, it is important to include the process programmer unit for time/temperature RAT-2, as the blocks should not be directly connected to the mains.



| Part number | No. of positions | Power W | Weight Kg |
|----------------|------------------|---------|-----------|
| 4000509 | 20 | 2500 | 31 |

Tube support rack

Made of a special chemically treated non corrosive dur-al, with handles and side panels to prevent heat loss.



Fume collector

It is composed of a multiple collector and a support. It is made in stainless steel, with borosilicate glass sensors.



| Part No. | No. of positions | Height /Width / Depth (exterior) cm |
|----------------|------------------|-------------------------------------|
| 4005091 | 20 | 15 28,5 23,5 |

| Part No. | No. of positions | Height /Width / Depth (exterior) cm |
|----------------|------------------|-------------------------------------|
| 4005092 | 20 | 15 29 23 |

Digestion and distillation tube MACRO series of 250 ml volume.
Graduated up to 100 ml, 42 Ø and 300mm high. Part number **4042300**



Kjeldahl distiller units for organic nitrogen determination



Distillation unit Kjeldahl "Pro-Nitro M".
Automatic dosing of NaOH and timed stop.
Part No. **4002627**



Distillation unit Kjeldahl "Pro-Nitro M".
Automatic dosing of NaOH and timed stop.
Part No. **4002851**



Automatic distillation unit Kjeldahl "Pro-Nitro A"
Automatic operation from reagents dosing to titration.
Part No. **4002430**

ASK FOR INFORMATION