FAITHFUL

Automatic Kjeldahl Nitrogen Analyzer FN680 + Automatic Lifting Curve Temperature Rising Digester FSPH820G

Brand: FAITHFUL

Main Unit of Nitrogen Analyzer

1. Product Introduction

The FN series automatic Kjeldahl nitrogen analyzer adopts the industry-leading 16-bit three-primary color sensor, high-precision fuzzy search titration end point determination technology, combined with an advanced titration system structure to ensure more accurate titration. The unique alkali pump anti-crystallization technology completely eliminates the problem of alkali pump crystallization and improves instrument reliability. The modular structural design and multiple safety protections greatly ensure the stability, reliability and result accuracy of the product, as well as the safety of operators and the instrument. It features a humanized operation interface that is simple and easy to use; a complete experimental configuration

system to meet various experimental requirements; a powerful self-learning function to facilitate users to establish their own experimental databases; the end point color user fine-tuning technology and end point color learning function can not only accurately adapt to various detection occasions, but also bring users a technological and humanized experience.

2. Main Applications

It is used for the analysis of protein and total nitrogen in food, agricultural products, aquatic products, environmental samples and pharmaceuticals, as well as distillation analysis of other volatile components.

3. Overall Machine Functions

3.1 Adopt the national standard Kjeldahl nitrogen determination method: sample digestion in concentrated sulfuric acid environment, steam distillation in alkaline environment, boric acid absorption or concentrated sulfuric acid absorption, and indicator titration end point color determination method;

3.2 Detection range: 0.1-250mg nitrogen; recovery rate ≥99.5%; repeatability error (RSD): ≤0.3%; sample weight for determination: solid ≤5g, liquid ≤25ml;

★3.3 Fully automated detection process: The in-position detection of Kjeldahl tube, acid addition, alkali addition, distillation, titration, digestion tube emptying, receiving cup overflow detection, waste discharge and cleaning, data storage, result calculation and print output are all completed automatically without manual intervention; manual control is also available after suspension;

★3.4 UI built-in user login with configurable user permissions to ensure controllable instrument testing and traceable test results;

★3.5 Adopt a 10-inch 16-bit true color touch LCD, combined with the SmartOneKey operation interface which is simple and easy to use, realizing one-key testing in the true sense;

3.6 Exquisite and reasonable internal structural design to ensure the separation of dry, wet, heat and electricity, avoid interference, ensure the stable operation of the instrument and extend its service life;

3.7 Mute design for the overall machine operation to minimize the working noise of the machine;

3.8 All pipelines and action components are made of anti-corrosion materials with exquisite manufacturing;

★3.9 Interfaces: USB, RS232, WIFI. Users can connect to the computer through any one of them to simplify the configuration and operation process and perform subsequent result processing;

★3.10 Audit trail function that can record 50,000 entries, and operation records can be exported at any time for proof on the operation interface;

3.11 Comply with a number of international standards: The system allows measurement methods to be executed and results to be recorded in accordance with AOAC, EPA, DIN and ISO standards;

3.12 Shell material: Chemically resistant shell made of high-tech polymer;

3.13 Limit of Detection (LOD): The LOD for nitrogen (N) does not exceed 0.1mg;

3.14 Steam generator technology: Built-in steam generator with pressure-free technology, safe and reliable;

3.15 Intelligent water-saving design: Water consumption of tap water is no more than 0.5 L/min at 15°C and no more than 3 L/min at 25°C;

3.16 Key component protection: Equipped with an alkali-resistant protector to effectively protect the condenser from splashing and foaming;

3.17 Titration system cleaning: The titration vessel has an automatic self-cleaning function;

3.18 Visual maintenance: The distiller is equipped with a transparent protective door for easy observation and access to the inside of the equipment for maintenance;

3.19 Comprehensive sensor protection: Equipped with tubular sensors, cooling water flow sensors, visual warning of reagent level and titrator receiver overflow sensor;

3.20 Alarm system: With dual visual and auditory notification functions for errors/faults;

3.21 Extended interfaces: In addition to conventional interfaces, it also supports Ethernet (LAN) and CAN bus connection.

4. Distillation System

★4.1 Original sample dilution and alkali addition method, which can arbitrarily set the alkali addition and dilution links in batches, times and time periods according to different user samples, to prevent sample bumping to the greatest extent and improve the determination accuracy;

★4.2 Original alkali pump anti-crystallization technology, which completely eliminates the alkali pump crystallization problem and maximizes the reliability of the instrument;

★4.3 Steam pre-addition technology: Steam is introduced immediately after adding dilution water to the digestion solution, and the concentrated sulfuric acid in the digestion solution is fully diluted by the stirring effect of steam, reducing the reaction intensity when concentrated alkali is added subsequently and improving the distillation effect; or thermal purging is performed on the solid crystalline digestion solution to accelerate the dissolution process, reduce the reaction intensity and ensure accurate test results. In addition, the steam addition intensity is arbitrarily adjustable in the dilution stage and alkali addition stage to ensure the accuracy of sample determination to the greatest extent;

4.4 Stepless adjustable steam flowrate (1%-100% optional) to achieve better

distillation effect and ensure experimental accuracy;

★4.5 Dual distillation modes: Steam pre-addition distillation mode and delayed distillation mode can be switched arbitrarily;

4.6 Over-temperature alarm for distillate temperature detection with automatic reduction of distillation power level to ensure accurate determination results, prevent nitrogen loss caused by improper operation and ensure accurate and reliable analysis results;

4.7 The distillation generator has multiple protection functions such as pressure protection, overheat protection, liquid level detection and anti-dry heating to ensure the safety of operators and testing;

★4.8 Distillation time: Continuously adjustable from 0 to 9999min.

5. Titration System

★5.1 SuperFast variable speed and variable volume titration-while-distillation technology and adaptive end point judgment technology to ensure accurate and reliable analysis results, shorten analysis time and reduce test costs. Synchronous completion of distillation and titration can be ensured for 70mgN;

★5.2 SuperFast variable speed and variable volume titration-while-distillation technology can automatically calibrate samples with more than 100mgN to ensure higher test speed;

★5.3 End point color learning function, allowing users to identify and adjust the color considered as the end point by themselves;

★5.4 End point color user fine-tuning technology to ensure the adaptability of precise testing, reflecting more humanistic care;

★5.5 Adopt dual-mode titration, the combination of rough and fine titration ensures high accuracy of results;

5.6 External titration cup with observation window for real-time visibility of the experimental process.

6. Technical Parameters

6.1 Determination range: 0.1-250mgN (milligram nitrogen);

6.2 Determination speed: 3-8min/sample;

★6.3 Titration accuracy: Rough titration 1μl/step, fine titration 0.016μl/step;

6.4 Repeatability: Relative error ≤0.3%;

6.5 Recovery rate: More than 99.5% (1-250mgN);

6.6 Automatic titration: Color end point judgment method in accordance with AOAC standards;

★6.7 Data storage: >100,000 sets;

★6.8 Program storage: >10,000;

★6.9 Distillation time length: 1-9999min;

6.10 Steam power level: 1%-100%;

6.11 Sample amount for determination: Solid ≤5g, liquid ≤25ml;

6.12 Circulating water flow: 1.5 L/min;

6.13 USB standard: USB1.0, USB2.0;

6.14 Working voltage: AC220V 50Hz;

6.15 Dimensions: (W)500mm×(L)470mm×(H)750mm.

Digester Part

1. Product Introduction

The F SPH series digester adopts advanced digestion technology, which has the advantages of rapid temperature rise, uniform heating and high thermal efficiency; humanized operation mode, simple and easy to use; combined with high-precision and humanized intelligent temperature and time control technology, it provides maximum convenience for heating digestion. The unique reflux technology ensures the completeness of digestion, and the complete anti-sample cross-contamination technology ensures the independence of each digested sample. The design concept of "safety and environmental protection" is implemented in the product design. The whole machine is completely designed with harmless materials to the human body, and the unique anti-scald heat insulation treatment technology shows humanistic care.

2. Performance Features

★2.1 Automatic sample reflux technology to ensure the completeness of digestion;

2.2 Anti-sample cross-contamination technology to ensure the independence of each digested sample;

★2.3 Harmless material heat insulation design: High-density aluminosilicate and air layer heat insulation technology, free of toxic and harmful materials such as ceramic fiber and asbestos, and prevents scalding to ensure the safety and health of experimental personnel;

★2.4 7-inch LCD touch control screen, simple and easy to use;

2.5 Precise temperature control, continuously adjustable set temperature, and better digestion effect;

★2.6 Capable of configuring 100 sets of curve temperature-rising digestion schemes;

★2.7 Each digestion scheme can set 100 temperature-rising curve segments;

2.8 Time length adjustable for each temperature-rising curve segment: 1–999min;

2.9 High-performance heating element to ensure uniform temperature between digestion holes;

2.10 Well-designed waste gas emission system, which can remove acid gases and adsorb unpleasant and harmful gases.

3. Technical Parameters

3.1 Temperature range: Room temperature - 450℃;

★3.2 Temperature control accuracy: ±0.1℃;

3.3 Over-temperature alarm: Yes;

3.4 Temperature stability at 100℃: ±1℃;

3.5 Temperature stability at 400℃: ±2℃;

3.6 Digestion sample amount: 5g solid, 20ml liquid;

★3.7 Heating element: Graphite or aluminum module (optional);

★3.8 Digestion capacity: 20 pieces/batch;

★3.9 Digestion tube capacity: 300ml;

3.10 Dimensions: (W)400mm×(L)510mm×(H)600mm;

3.11 Automation upgrade: Equipped with automatic sample processing lifter, the automatic lifting function of the test tube rack is controlled by a microprocessor;

3.12 Test tube compatibility: Compatible with various specifications of test tubes, supporting capacity range from 250ml to 300-500ml;

3.13 Shell protection: The shell is made of high-quality materials with anti-corrosion coating, which can withstand high temperature and chemical/acid corrosion;

3.14 Power supply standard: 220 V±10%, 50/60 Hz, standard European standard power cord.

Configuration List

Serial Number	Equipment Name	Main Accessories
I	Automatic Kjeldahl Nitrogen Analyzer KN680 (1 set)	1. 1 main unit; 2. 1 copy of Instruction Manual; 3. 1 Certificate of Conformity; 4. 1 Product Warranty Card; 5. 10 Kjeldahl tubes; 6. 1

		condensation water inlet pipe; 7. 1 condensation water outlet pipe; 8. 1 distilled water inlet pipe; 9. 1 alkali adding pipe; 10. 1 boric acid adding pipe; 11. 1 waste discharge pipe; 12. 1 power cord C14 3x0.75; 13. 20 rolls of printing paper.
II	Curve Temperature Control Digester SPH620 (1 set)	1. 1 copy of Instruction Manual; 2. 1 cooling rack; 3. 1 negative pressure three-way valve; 4. 1 piece of fluororubber tube for waste discharge; 5. 1 piece of silicone rubber tube for waste discharge; 6. 1 set of 20-hole curve temperature-rising digestion furnace; 7. 1 set of 20-hole waste discharge hood; 8. 1 test tube rack; 9. 20 digestion tubes; 10. 1 liquid receiving tray; 11. 1 Certificate of Conformity; 12. 1 Product Warranty Card.

IV. After-sales Service

Two-year free warranty, lifelong technical support, and trade-in service are provided. The equipment will be installed and debugged on site by the manufacturer's engineers free of charge, and training will be provided to ensure that users master basic skills.