

Fast. Accurate. High Sensitive.
Sulfur and Halogen Analysis of Liquid Samples

- ✓ Detect down to **sub-ppm levels**
- ✓ Process **large sample volumes safely**
- ✓ Compliant with **ASTM D7994**



Automatic Quick Furnace for
Combustion Ion Chromatography

AQF-5000V

Vertical Furnace Model

Nittoseiko Analytech Co.,Ltd.

Why AQF-5000V ?

The AQF-5000V simplifies sulfur and halogen analysis by combining high-performance combustion with fully automated operation. Designed for real-world lab environments, it delivers:

- Faster throughput
- Lower detection limits
- Reduced operator workload

Key Benefits

■ Fast Throughput

- Fully automated liquid injection
- No boat programming required
- Typical analysis time: **~10 minutes per sample**

■ Outstanding Accuracy

- Direct injection into the heated furnace
- Minimized contamination and system blanks
→ **More reliable results**

■ High Sensitivity

- Sequential combustion allows larger sample volumes
- Detects **below 1 ppm** and down to ppb-level with IC

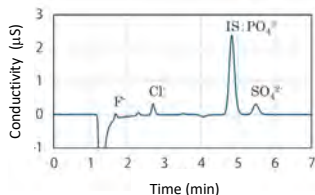
■ Easy and Safe Operation

- No complex setup or programming
- Simply inject the sample
→ **Anyone can operate with confidence**

Typical Applications

- Petroleum products
- Biofuels
- Chemical solvents
- Industrial liquids

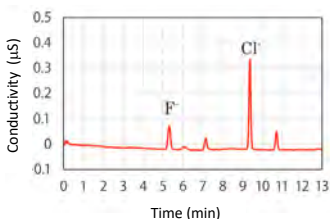
Example (Biodiesel):



Achieves ~10 min per sample using fast-column IC.

Element	Concentration (µg/mL)
F	2.3
Cl	2.0
S	7.1

Performance Example



Stepwise combustion increases sample amount, enabling ppb-level measurement with high-sensitivity IC.

Sample	Concentration (ng/mL)	
	F	Cl
Jet fuel A	2.7	22
Jet fuel B	2.7	54
Jet fuel C	5.9	19

Advanced Automation

■ Auto Dilution & Re-Measurement

- Automatically dilutes absorption solution after IC injection
- Enables accurate analysis of both low and high concentrations in one run

■ Automated Preparation of Calibration Standards

Option

Patent Pending

- Generate multiple calibration standards from a single stock solution
→ **Save time and reduce manual errors**

■ Automatic Solution Switching

- Switch between redox solution and pure water automatically
→ **Optimized for different analytes**

Specifications

VF-500 Furnace

- Up to 1100°C
- Sample volume: up to 250 µL
- Supports gas and liquid samples

GA-500 Absorption Unit

- IC loop: 100 µL (expandable)
- Automated IC triggering

Vertical Furnace VF-500

Target Sample	Liquid, Gas
Sample volume	Max. 250 µL (liquid)
Sample Pyrolysis	High purity quartz tube
Electric Furnace	Open-type electric furnace: 2 heating zones (inlet/outlet) Temperature: Normal use 900 °C, Maximum 1100 °C
Gas Used	Argon (purity 99.98% or higher, 0.3 ± 0.1 MPa) Oxygen (purity 99.7% or higher, 0.3 ± 0.1 MPa)
Power Supply & Consumption	AC 100/115V, 50/60 Hz, 1100VA AC 230/240V, 50/60 Hz, 1800VA
Dimensions & Weight	Approx. W500 × D430 × H500 mm, approx. 35 kg

Gas Absorption Unit GA-500

Measurement Method	Oxidation decomposition, gas absorption method
Gas	Argon gas (purity 99.98% or higher, 0.3 ± 0.1 MPa)
Injection to IC	Loop 100µl (5, 20, 50, 200, 500, 1000 µL option)
Output	Contact signal to start Ion Chromatograph
Power Supply & Consumption	AC 100/115/230/240V, 50/60 Hz, 150VA
Dimensions & Weight	Approx. W250 × D430 × H500 mm, approx. 22 kg (excluding options)

Sample Injector



AUTOMATIC GAS INJECTOR GI-520

- Handles both gas and volatile liquids
- Wide injection range



LIQUEFIED PETROLEUM GAS (LPG) AUTOMATIC INJECTOR GI-560

- Designed for LPG analysis
- Supports gas, volatile liquids, and LPG

AUTOMATIC LIQUID SAMPLER ASC-550L

- Up to 105 samples **unattended**
- Supports multiple vial sizes



ASC-550L (WITH STC-550L)



- Stabilizes volatile samples
→ Improves reproducibility

Gas Absorption Unit



GA-500

Electric Furnace



VF-500

PC



Options for GA-500

ABSORPTION SOLUTION COLLECTOR AC-500

New



Ion Chromatograph

or



- Run combustion independently of IC
- Collect samples for offline analysis

SP-C (calibration)

New



Plug-In

New

ES-500 (selector)

- Automatically switch between up to six calibration standards.

CM-500 (O₂ monitor)

- Optimize combustion conditions by monitoring oxygen concentration in real time.

Optional Modules

■ Automatic Liquid Sampler ASC-550L

Sample	Liquid (non-aqueous, aqueous)
Sample volume	Gastight microsyringes: 25,50, 100, 250 µL
Rinse vial	28 mL vials with septum
Number of samples	50 or 105 bottles
Vial size / Sample tray	6 mL vial / 50 bottles 4 mL vial / 50 bottles 2 mL vial / 50 bottles 2 mL vial / 105 bottles
Power supply	AC 100/115/230/240V, 50/60Hz, 180VA
Dimensions & Weight	Approx. 460 (W) x 320 (D) x 470 (H) mm, approx. 16kg

■ Liquid Sample Temperature Controller STC-500L

Sample	Liquid
STC vial rack	2mL vial / 24 bottles 4 mL vial / 24 bottles 6 mL vial / 24 bottles
Rinse vials	2 pcs. 28 mL
Cooling temperature	STC vial rack: (Room temperature -15 °C) to room temperature STC syringe holder: (Room temperature -10 °C) to room temperature
Power supply	AC 100/115/230/240V, 50/60Hz, 400VA
Dimensions & Weight	Temperature controller Approx. 220 (W) x 375 (D) x 100 (H) mm, approx. 4kg STC vial tray: 2.7 kg STC syringe holder: 0.45 kg

Plug-In Options for GA-500

New

■ Combustion Monitor CM-500

CM-500 measures the oxygen concentration in combustion gases.

Oxygen sensor	Galvanic battery
Measurement Range	0 ~ 100 % O ₂
Dimensions & Weight	Approx. 250 (W) x 80 (D) x 100 (H) mm, approx. 0.5 kg
Power	24VDC supplied by GA-500
Measurement parameters	Pressure: 811 to 1216 hPa Temperature: 5 to 40 degrees Celsius
90% Response speed	About 15 seconds

■ External Solution Selector ES-500

Six types of calibration standards can be automatically switched and injected into the Ion Chromatograph.

External solution selector valve	1-6 way valve Pressure resistance: 15 MPa Connection line diameter: Φ1/16"
Dimensions & Weight	Approx. 80 (W) x 200 (D) x 90 (H) mm, approx. 1 kg
Power	24VDC supplied by GA-500
Temperature Humidity Altitude	15 to 35 degrees Celsius 80%RH or less (No condensation) Less than 2000 m

■ Automatic Gas Injector GI-520

Sample	Non-pressurized gas, Volatile liquid
Injection	1-10 µL liquid 2-25 mL gas (max. 999 mL)
Carrier gas	Argon (purity 99.98 % or more, 300 ± 100 kPa)
Heat	80 °C for vaporization of liquid
Power supply	AC 100-240V, 50/60Hz, 70VA
Dimensions & Weight	Approx. 180 (W) x 360 (D) x 500 (H) mm, approx. 13 kg

■ Liquefied Petroleum Gas (LPG) Automatic Injector GI-560

Sample	1. Gas (Use a gastight syringe) 2. Volatile liquid (Use a gastight microsyringe) 3. Liquefied petroleum gas (Use an LPG cylinder) *Liquefied natural gas (LNG) is excluded.
Injection	Gas: Syringe port (max. 10 mL, max. 10 mL/min) Volatile liquid: Syringe port (max. 10 µL) LPG: 30 µL sampling loop
Carrier gas	Argon (purity 99.98 % or more, 300 ± 100 kPa)
Heater temperature	From room temperature to 105 °C (Recommended value: 85 °C)
Power supply	AC 100/115/230/240V, 50/60Hz, 108VA
Dimensions & Weight	Approx. 220 (W) x 370 (D) x 500 (H) mm, approx. 18 kg

■ Syringe Pump for Calibration SP-C

New

Calibration standards of various concentrations can be prepared automatically from a single stock solution.
This significantly reduces preparation time.

Syringe volume	1 ml
Power supply	DC 24V
Dimensions & Weight	Approx. 108 (W) x 340 (D) x 275 (H) mm, approx. 4kg

■ Absorption Solution Collector AC-500

New

Combustion can be performed continuously without IC.
Collected solutions can be analyzed by any analytical methods.

Number of sample	20 bottles (10 mL vial)
Dimensions & Weight	Approx. 90 (W) x 400 (D) x 500 (H) mm, approx. 10kg
Power supply	DC 24V, 50VA Supplied by GA-500
Expanded function	Up to 3 AC-500 to a system

Example of system layout

connecting 3 units of AC-500, SP-C and GI-560



Manufactured by

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