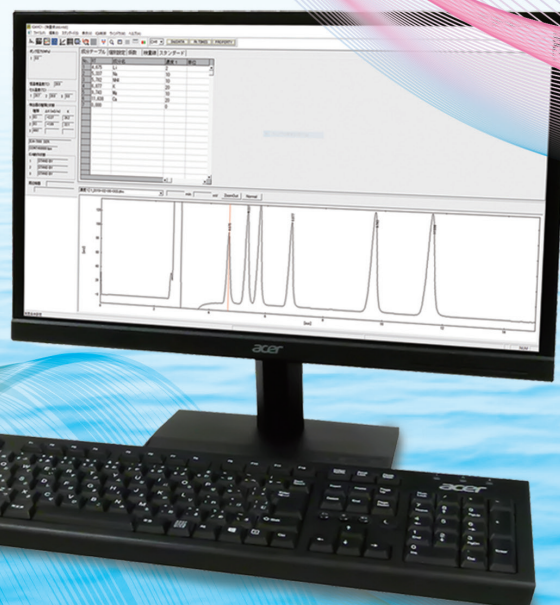




ICA-7000

Ion chromatograph

New model with a variety of functions to support smooth analysis



- ◆ All-in-one, compact design
- ◆ Compatible with both suppressor and non-suppressor systems

DKK-TOA CORPORATION

ICA-7000

Ion chromatograph

Into a new ion analysis environment
and a data processing environment

**All-in-one
compact design**

**Excellent
expandability**

**Suppressor-type
non-suppressor system
Compatible with both**

We meet a wide range of analytical needs.

1

Suppressor pump unit

The maximum storage capacity increased from 1 unit (conventional product) to 2 units.

3

Injector

Can be installed up to 2ch.

2

Thermostatic bath

The column can be stored horizontally to improve maintenance.

An electric conductivity detector is mounted inside.

2

3

Pump unit

Adoption of a new pump prevents air contamination.
Improved stability of liquid feed.
Plunger seal consumables reduction.

4

5

Degassing unit

The new deaeration unit has a standard 2-stream specification.

4

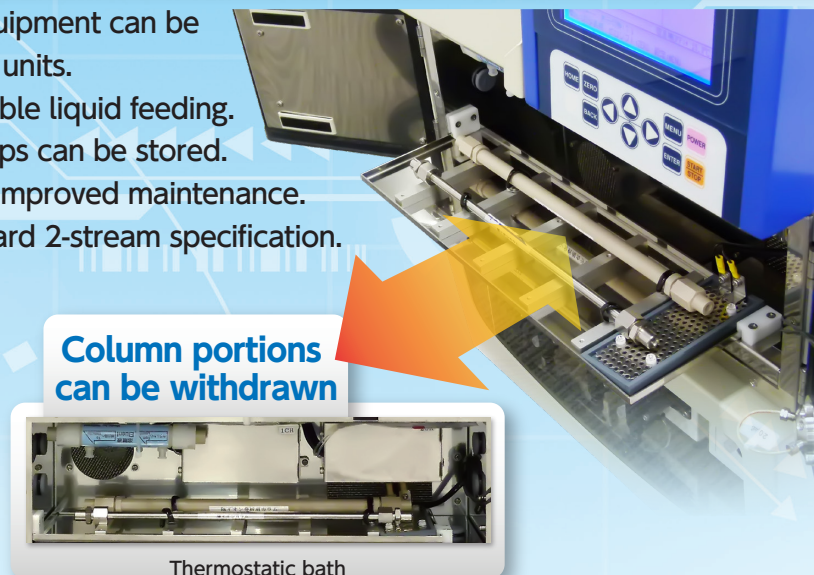
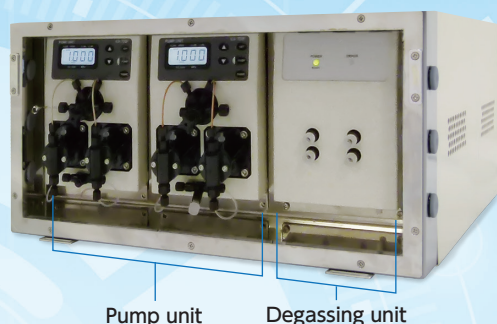
5

All-in-one, compact design Same size-even in 2ch systems.

- ◆ The main unit houses and integrates all units, including the detector, pump, display, operating unit, and column temperature chamber.
- ◆ The installation space for the equipment has been reduced.

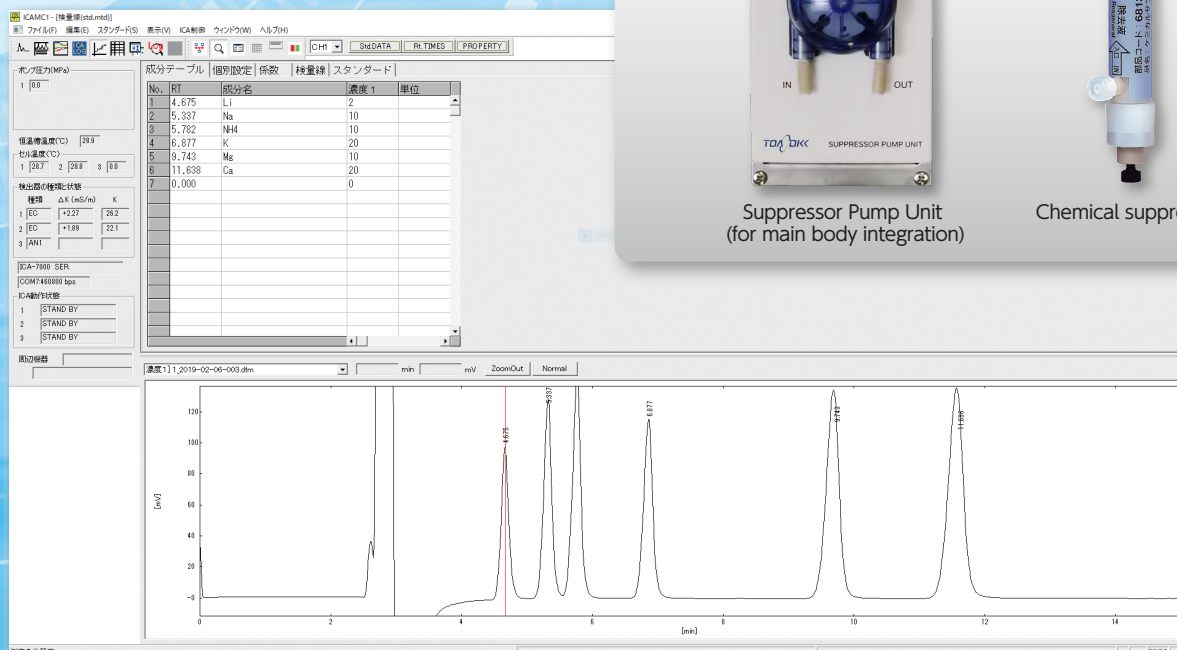
Excellent scalability due to the unitized instrument configuration

- ◆ Up to 3ch of ion chromatography equipment can be constructed with additional pumping units. Adoption of a new pump enables stable liquid feeding.
- ◆ Two suppressor removing liquid pumps can be stored.
- ◆ Horizontal storage of the column for improved maintenance.
- ◆ The new deaeration unit has a standard 2-stream specification.

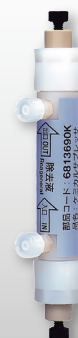


Device control and data-processing by USB

- ◆ Communication between the server and the data processor PC is performed via USB and can be controlled remotely by using a commercially available RS-232C/LAN transmitter adapter.
- ◆ All you need to do is install the dedicated software on a PC.



Realize high-sensitivity analysis by responding to the suppressor system.

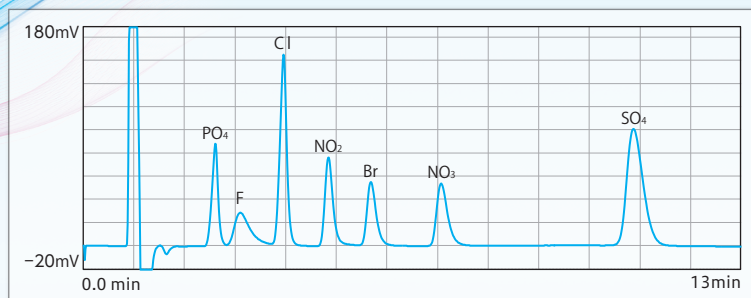
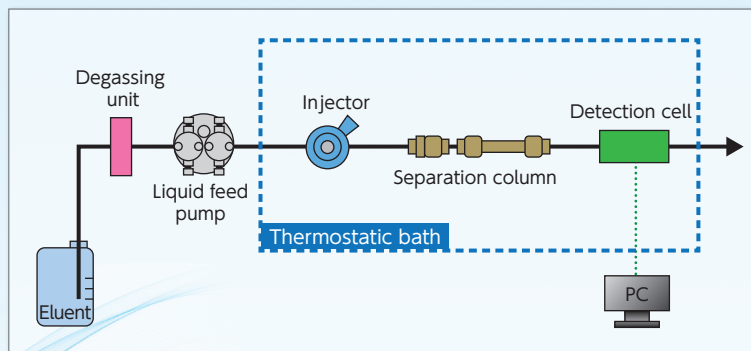


Non-suppressor Anion/Cation analysis

Basic system

★ It is the simplest system of instrument configuration.

Can be used for anion/cation analysis with a non-suppressor.



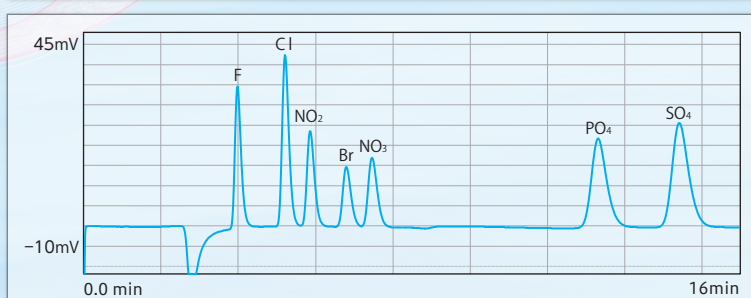
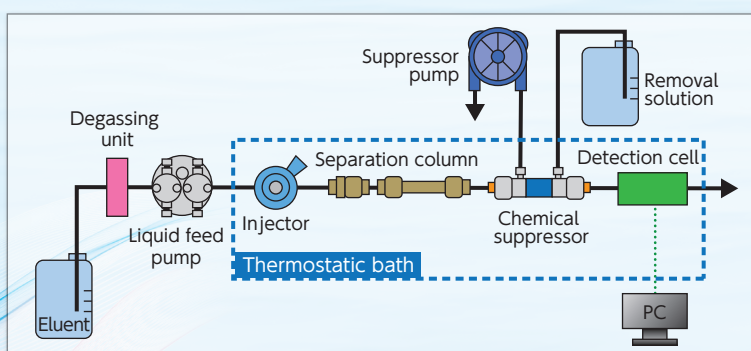
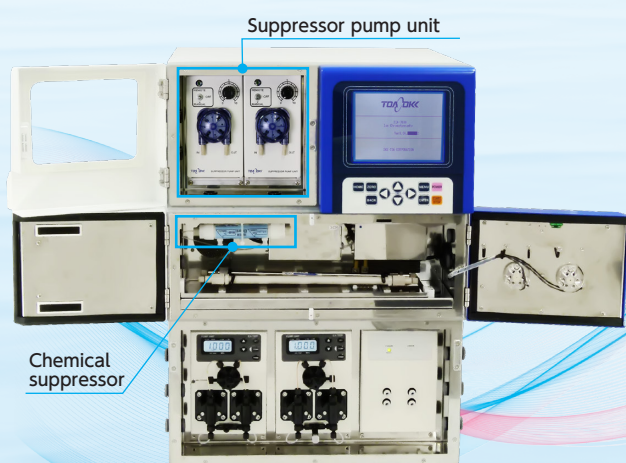
Configuration

- ◆ Main unit* ICA-7000
- ◆ Conductivity cell

High-sensitivity analysis of anions at low cost

Chemical suppressor system

★ A chemical suppressor and pump unit can be incorporated into the basic system to analyze anions with high sensitivity.



Configuration

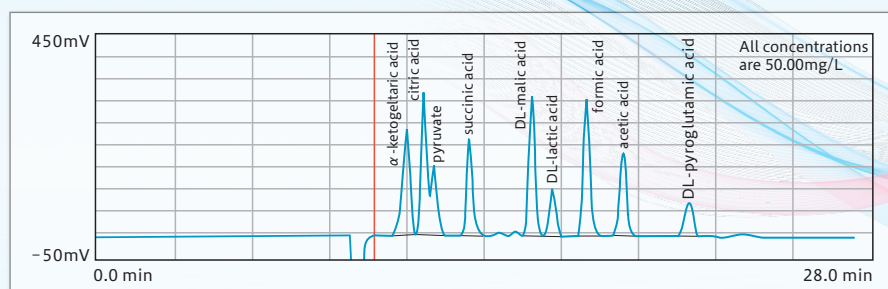
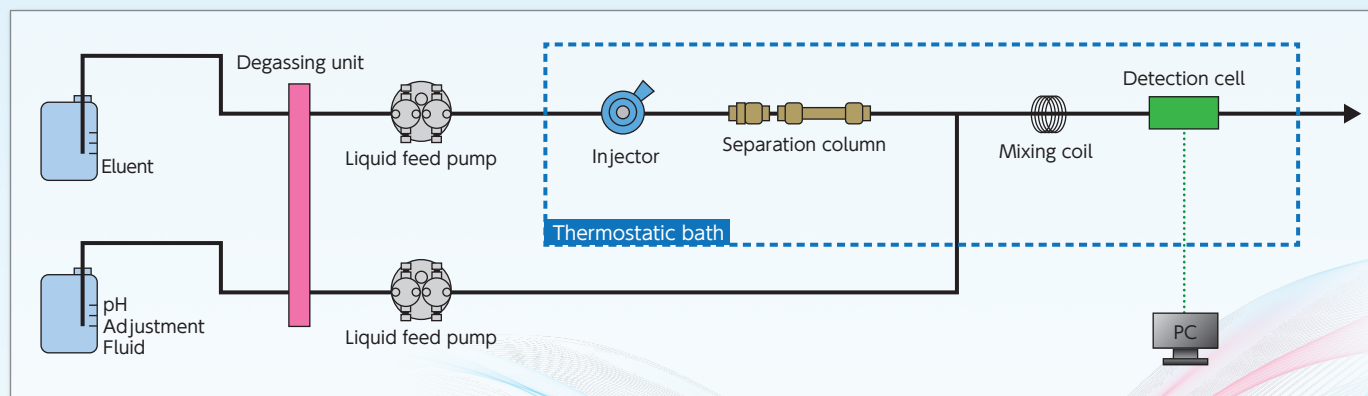
- ◆ Main unit* ICA-7000
- ◆ Conductivity cell
- ◆ Suppressor pump unit 7591950U
- ◆ Chemical suppressor 6813690K

Effective separation and analysis of organic acids

Organic acid and weak acid analysis system

★ Ion-exclusion columns allow specific separation of organic acids.

By using the post-column method, a reactive solution (adjusted pH) is added to the flow path, which enables the determination with an electric conductivity detector.



Configuration ◆ Main unit* ICA-7000 ◆ Conductivity cell ◆ Pump unit ICA-700P

*One pump unit, one deaeration unit, and one injection valve each are included.

Automated analysis of up to 100 samples

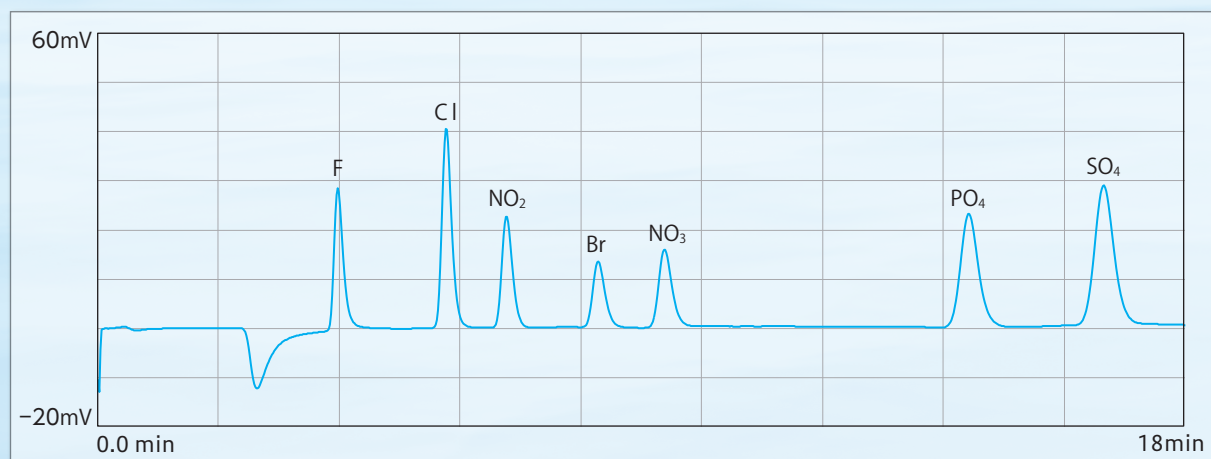
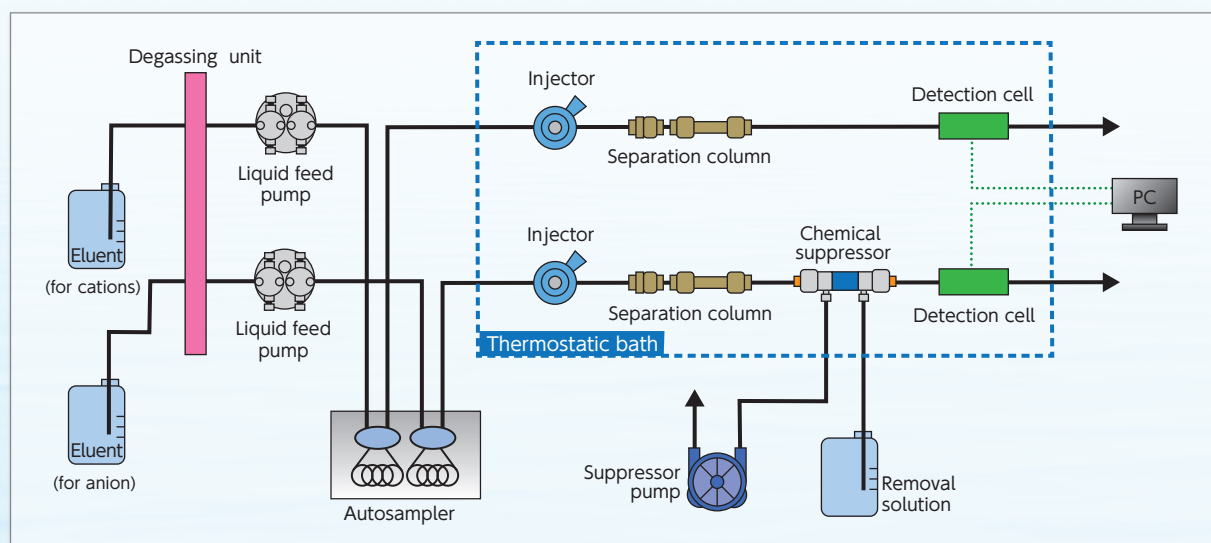
Multi-sample automatic analysis system (chemical suppressor)

★ Multiple negative/positive analyte assays can be performed by combining an autosampler ICA-700AS with a chemical suppressor system.



Configuration

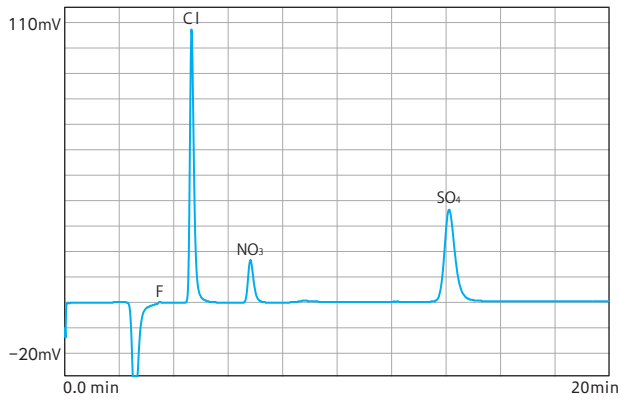
◆ Main unit*	ICA-7000
◆ Conductivity cell	
◆ Pump unit	ICA-700P
◆ Injection valve	7600490U
◆ Degassing unit	
◆ Suppressor pump unit	7591950U
◆ Chemical suppressor	6813690K
◆ Autosampler	ICA-700AS



Example of measurement

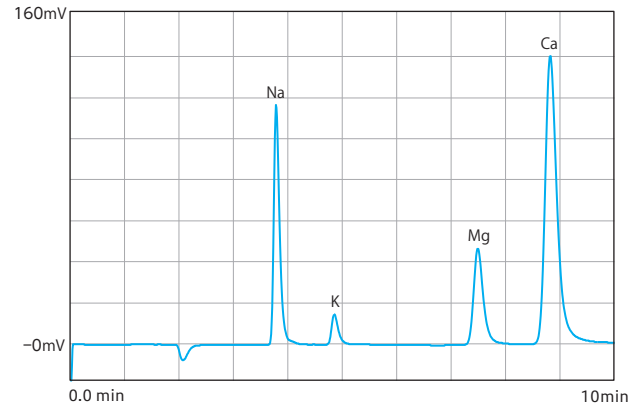
Tap water (anion)

Dilution rate: 10-fold dilution



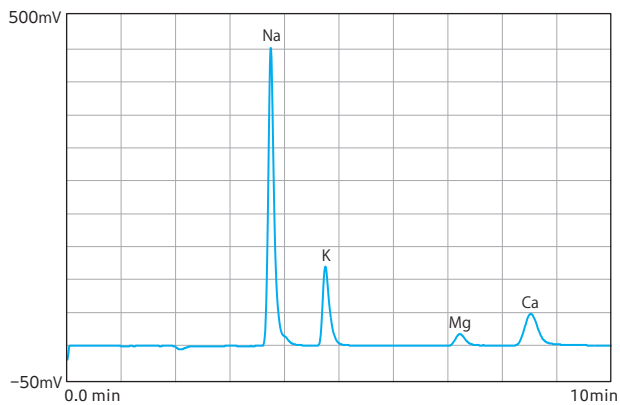
Tap water (cations)

Dilution rate: 10-fold dilution



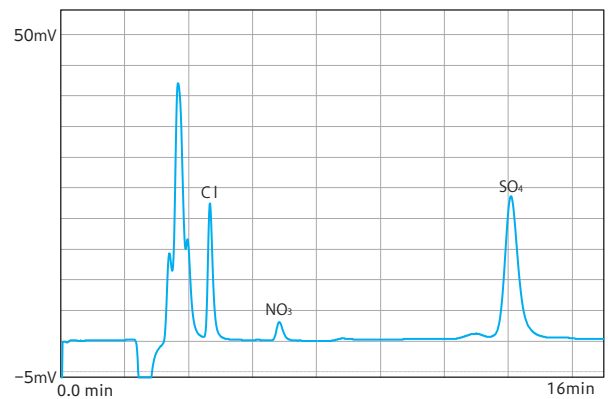
Juice

Dilution rate: 1000-fold dilution

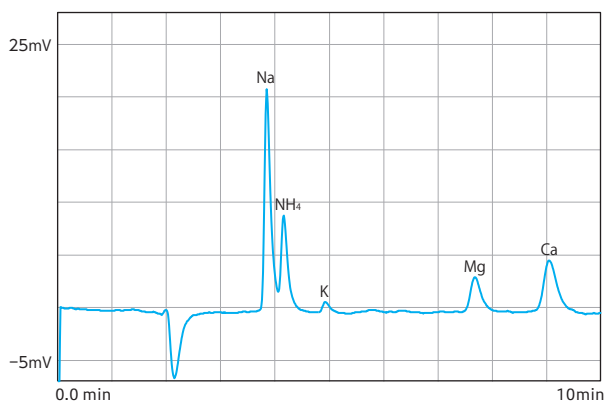


Food ingredients

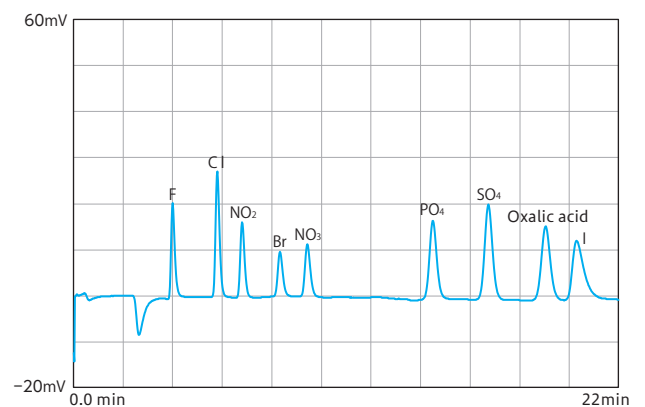
Dilution rate: 100-fold dilution



Rain water



Anion standard solution (9 components)



Sensitive analysis of anions

Chemical suppressor unit

Suppressor pump unit : 7591950U

Chemical suppressors : 6813690K

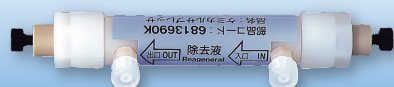
★ Realizes low-cost high-sensitivity analysis.

A combination of a suppressor pump unit for removing liquid delivery and a chemical suppressor enables highly sensitive anion analysis.

Chemical suppressors are for anion analysis that use a high exchange capacity cation exchange membrane (fiber-type).



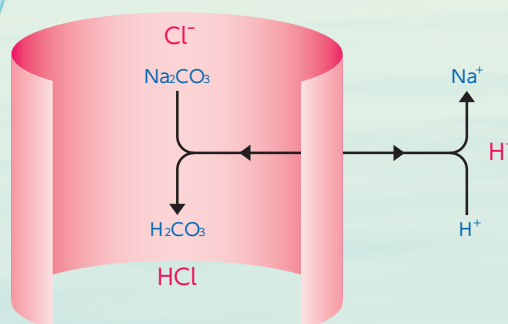
Suppressor pump unit



Chemical suppressor

The removal solution for the chemical suppressor can also be degassed in-line. The fluctuation of the origin baseline for pumping the removal solution is suppressed to ensure more stable measurement.

Suppressor reaction image



When passing through a chemical suppressor, H^+ of cations (Na^+ , etc.) and the remover in the eluent/sample are exchanged. During the analysis, the eluent and the removing solution (strong acid such as sulfuric acid) are fed and used. In addition, the purpose anion (e.g., Cl^-) becomes a strong acid (e.g., HCl) and is more sensitive.

Compatible with continuous measurement of multiple samples.

Autosampler

ICA-700AS

★ Automatic measurement of 100 continuous samples

The vial rack is equipped with two 50 samples as standard.
Samples can be prepared in a separate rack during the measurement.
(One sample is used as a standard solution.)

★ Can be selected from two types of injection methods.

Sample injections can be selected from two types:
loop mode or injection mode.

The injection volume can be set from 1 to 1000 μL in 1 μL steps.

(Loop mode: A fixed volume of loop volume is injected.)
(Injection mode: Injection volume is arbitrarily set.)



Autosampler (Standard Type)

★ Enables control from PC software

★ Optional cooling unit available

For samples requiring cooling, such as the cyanogen measurement system is available.

★ One unit can simultaneously measure 2ch

2ch specification eliminates the standard for additional bulbs and syringes.

(Concerning simultaneous measurement, there are some conditions, so please contact us separately.)



Autosampler with cooling function available (factory option)

*1 Please specify ICA-7000 as the connected model when ordering. If the connection model is not specified, the connection cable is not included. The code for purchasing the connection cable separately is 134H021 and 118G9421.

*2 Vial racks can be purchased additionally for sample preparation.

*3 Use ultrapure water as cleaning water.

*4 The cooler unit is sold separately. The code for purchasing separately is 133A047.

Specifications

◆ Ion chromatography main unit ICA-7000

Display		Backlit monochrome graphics LCD
Setting operation		Key operation or setting operation by PC dedicated software
Material of wet part		Perfect nonmetal
Power supply		AC100V 50/60Hz
Power consumption		Max. 300VA
Dimensions		Approx. 400 (W) × 550 (H) × 471 (D) mm
Mass		1 channel : about 28kg 2 channel : about 31kg
Constant temperature part	Temperature control method	Air circulation system
	Temperature control range	Room temperature +10 to 60°C.
	Temperature stability	±0. 1°C
	Temperature chamber internal dimensions	Approx. 365 (W) × 100 (H) × 113 (D) mm
	Storable column	3 pieces of φ4.6×250mm can be stored at the same time.
	Liquid leak sensor	Built in
	Others	Two electric conductivity cells, two injectors, two suppressors, and a reaction coil can be stored simultaneously.
Sample injection port	Method	Manual sample-injector PEEK syringes with needles
	Material of wet part	PEEK, ceramics
	Pressure resistance	25MPa
	Sample measurement system	Loop cut method
	Built-in number	Maximum of 2 formulas
Degassing part	Method	In-line fluoropolymer gas transmission separation type
	Built-in number	2 flow paths (standard integration)
Pump section	Model name	ICA-700P (dedicated pumping)
	Liquid delivery system	Linear drive double plunger reciprocating system
	Material of wet part	PEEK, sapphire, ruby, PTFE, PCTFE, PFA, ETFE, cullets
	Maximum delivery pressure	20MPa
	Flow rate setting range	0.001 to 9.999mL (setting range in dedicated software: 0.01 to 9.99mL/min)
	1 Head discharge rate	80μL
	Gradient	Isocratic: 1 type, gradient: 2 types
	Built-in number	Up to 3 units (standard built-in: 1 unit)
Detection part	Method	Electric conductivity circuit 2ch, analog input circuit 2ch
	Built-in number	Max. 3ch
Data Processing Control software	OS	Windows11/10/8.1/7 32bit or 64bit
	Communication mode	USB
	Main Control/Monitor Contents	Power ON/OFF, one week timer start/stop Flow rate, pressure, pressure limit,temperature (temperature chamber, cell), conductivity detector sets, measurement signals, etc.
	Data acquisition	Independent 3ch

◆ Recommended PC for use with instrument control/data analysis software (Note: In principle, PC is provided. (sold separately))*1*2

Recommended PC (sold separately)	OS	Windows11/10/8.1/7 32bit or 64bit
	Processor	Intel Core i3 or higher (i5 or higher recommended)
	Memory	2GB or more RAM
	Hard disk	HDD 16GB or more free space
	USB	One or more free USB2.0 interface ports
	Screen resolution	1366×768 pixels or more

◆ Conductivity cell

Built-in models	ICA-7000 main unit
Measurement method	Computational amplification method with 3-pole electrode
Measurement range	0 to 500mS/m
Response	FAST (about 1.5s), MIDD (about 3s), and SLOW (about 5.5s)
Cleaning the cell and Control temperature	30°C, 35°C, 40°C, 45°C, 50°C
Output	Analogs: 0 to 1V Ranges: $\times 100$ 500mS/m $\times 10$ 50.0mS/m $\times 1$ 5.00mS/m $\times 0.1$ 0.500mS/m
Output polarity switching	Exists
Material of wet part	PEEK, Titanium, PCTFE
Cell pressure resistance	1MPa
Dimensions	Approx. 51 (W) × 114 (H) × 59 (D) mm (without protrusions)
Mass	About 0.5kg

◆ Degassing unit

Built-in models	ICA-7000 main unit
Deaeration system	In-line system, fluororesin gas transmission separation type
DETBOlyME	2 flow paths (standard integration)
Dimensions	Approx. 105 (W) × 144 (H) × 199 (D) mm (without protrusions)
Mass	2 flow path: approx. 1.8kg

*1 Please contact our sales representative in advance if you prepare your own PC.

*2 PC with Microsoft Office is standard.

NOTE) ● Windows is a registered trademark of Microsoft Corporation in the U.S. and other countries.

● Intel Core is a registered trademark of Intel Corporation in the U.S.

◆ Pump unit ICA-700P

Built-in models	ICA-7000 main unit
Liquid delivery system	Linear drive double plunger reciprocating system
Material of wet part	PEEK, sapphire, ruby, PTFE, PCTFE, PFA, ETFE, Calretz
Maximum delivery pressure	20MPa
Flow rate setting range	0.001 to 9.999mL (setting range of dedicated software: 0.01 to 9.99mL/min)
1 Head discharge rate	80μL
Gradient	Isocratic: 1 types, gradient: 2 types

◆ Suppressor pump unit 7591950U

Built-in models	ICA-7000 main unit
Liquid delivery system	Peristaltic tube pump
Flow rate range	0 to about 1.0mL/min
Dimensions	Approx. 80 (W) × 140 (H) × 190 (D) mm (without protrusions)
Mass	About 0.9kg

◆ Chemical suppressor 6813690K

Suppressor volume	150μL
Maximum eluent flow rate	2.0mL/min
Operating pressure	1MPa or less
Use pH	pH1 to pH13
Dimensions	φ21.5mm× Length 130mm (Max. dimensions of protrusion: Approx. 30mm)

◆ Autosampler ICA-700AS

Display	Backlit LCD
Sample container	1.5mL dedicated container
Injection volume of sample	1 to 1000 μL (1 μL step)
Number of samples	Up to 100 samples (50 samples × 2), Up to 50 samples in dilution mode
Sample injection type	Loop mode Injection mode (only for 1ch spec.)
Injection volume repeatability	Injection: 0.5%RSD
Material of wet part	PEEK, ETFE, β titanium
Operating temperature range	4 to 35°C
Cool (optional)	Presence/absence
Power supply	AC100 to 240V 50/60Hz
Power consumption	Max. 20VA
Dimensions	263(W) × 220 (H) × 416 (D) mm
Mass	11.8kg

◆Main column specifications

Item	Model name	Application / main target ion	Size(I.D.xlength)mm	Material	Use pH
For anion analysis	PCI-201S	Non-suppressor analysis and inorganic anions	4.6×100	SUS	pH2 to pH8
	PCI-211	Non-suppressor analysis and inorganic anions	4.6×100	SUS	pH2 to pH8
	PCI-205	Suppressor analysis and inorganic anions	4.0×250	PEEK	pH3 to pH12
	PCI-206	Suppressor analysis and inorganic anions (Features are the separation of halogen acid ion)	4.0×150	PEEK	pH2 to pH12
	PCI-230	Suppressor analysis (Features of separation of acetic acid, formic acid and inorganic anion) Can also be used as columns for non-suppressor analysis	4.6×150	PEEK	pH3 to pH12
	PCI-240	Suppressor analysis and inorganic anions (The separation between halogen acid and standard seven anions is advantageous.)	4.0×250	PEEK	pH3 to pH12
	PCI-245	Suppressor analysis and inorganic anions (Features of separation of halogen acid and standard seven anions)	4.0×150	PEEK	pH3 to pH12
	AN1	Suppressor analysis and inorganic anions (Features in the separation of sulfate and sulfite)	4.6×250	PEEK	pH1 to pH14
	AN300B	Suppressor analysis and inorganic anions (Features in the separation of phosphorous acid, phosphoric acid, sulfurous acid and sulfate ion)	4.6×250	PEEK	pH1 to pH13
	PCI-290	Suppressor analysis and inorganic anions (Sodium hydroxide can be used as eluent)	4.0×150	PEEK	pH3 to pH13
Anion guard column	PCI-201SG	Guard columns for PCI-201S	4.6×10	SUS	pH2 to pH8
	PCI-211G	Guard columns for PCI-211	4.6×10	SUS	pH2 to pH8
	PCI-205G	Guard columns for PCI-205/206/230/240/245/290, AN1	4.6×10	PEEK	pH2 to pH12
	AN300BG	AN300B guard column	4.6×50	PEEK	pH1 to pH13
For cation analysis	PCI-302H	Non-suppressor analysis, alkali metal ion and ammonium ion analysis, Analysis of alkaline earth metal ions by changing the eluent	4.6×150	PEEK	pH2 to pH12
	PCI-322	Non-suppressor analysis and simultaneous analysis of alkali metal ions and alkaline earth metal ions. Improved peak shape for magnesium and calcium ions. (Features the separation ability of sodium and ammonium)	4.6×250	SUS	pH2 to pH12
	PCI-390	Suppressor analysis, alkali metal ions, and alkaline earth metal ions	4.0×250	PEEK	pH2 to pH12
Cation guard column	PCI-302HG	Guard columns for PCI-302H	4.6×10	PEEK	pH2 to pH12
	PCI-322SG	Guard columns for PCI-322	4.6×10	SUS	pH2 to pH7
	PCI-390G	Guard columns for PCI-390	4.0×10	PEEK	pH2 to pH12
Column for organic acid analysis	PCI-306	Analysis of organic and weak acids	6.0×250	SUS	pH1 to pH7
Organic acid analysis guard column	PCI-305SG	Guard columns for PCI-306	4.6×50	SUS	pH1 to pH7
Column for saccharide analysis	PCI-510	For saccharide analysis (Sodium hydroxide can be used as eluent)	4.6×250	PEEK	pH1 to pH14

Note(1) Typical items are described for the application and main measurement target ions.

Note(2) The column used may be changed depending on the measurement items and the measurement contents.

Note(3) Please contact us for proper column selection.

Note(4) Improvements to the column will be made without prior notice.



DKK-TOA CORPORATION

Overseas Sales Division:
DKK-TOA Corporation
29-10, 1-Chome, Takadanobaba, Shinjuku-ku,
Tokyo 169-8648 Japan
Tel : +81-3-3202-0225 Fax : +81-3-3202-5685
E-mail : intsales@dkktoa.com



CAUTION

Please read the operation manual carefully before using products.