Pulsed Amperometric Detector

For Analysis of Carbohydrates and Polyols!

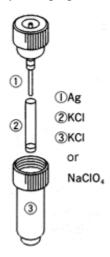


Optimum for High-sensitivity Analysis of Carbohydrates and Polyols!

Derivatization and other complex pretreatments are not necessary. The sensitivity is about 10 to 100 times greater than that of a differential refractometer.

Double-layered Reference Electrode (Patent Pending)

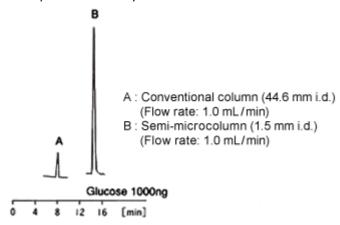
The detector has a double-layered reference electrode so that (1) will not be placed in direct contact with the mobile phase. Therefore, an organic solvent can be used for the mobile phase simply by changing the outer cylinder liquid to NaCIO4 solution.



Excellent Sensitivity with Cell Developed for Semi-microcolumn

A cell structure suitable for semi-microcolumn HPLC is adopted. Compared with a conventional column (4.6 mm i.d.), the analysis sensitivity is about 5 times greater.

Example of sensitivity increase in semi-microcolumn HPLC



The detector can also be used as a conventional high-sensitivity electrochemical detector by changing the mode.

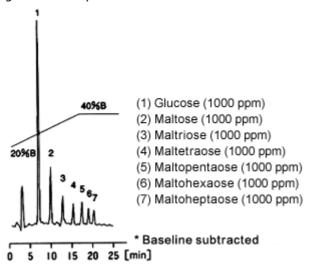
Since ordinary amperometric mode is also supported, the detector can be used for conventional electrochemical detector applications.

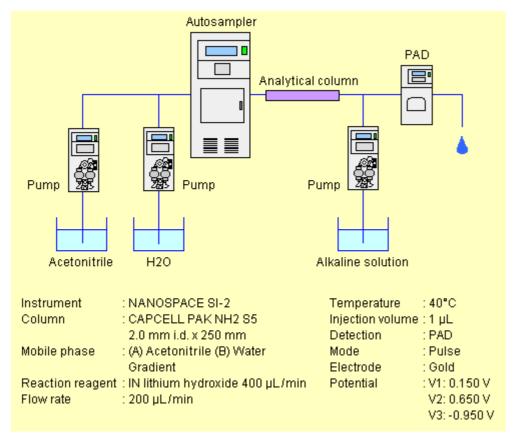
Easy Maintenance

The unique electrode design allows maintenance with no tools.

Gradient Analysis

The unique reference electrode design permits the mobile phase of non-water solvent and gradient analysis.

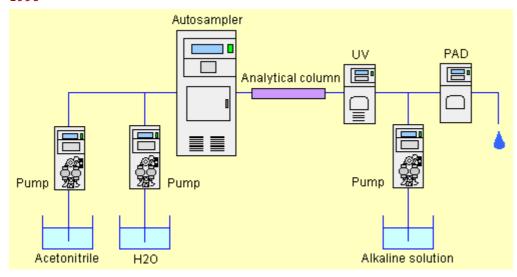




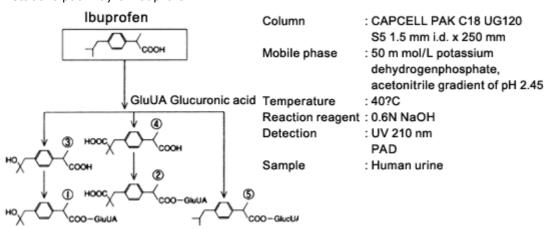
Selective detection of glucuronate conjugation in metabolite using pulsed amperometric

detector

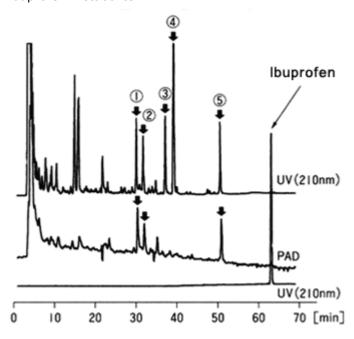
*Presented at the 116 Annual Conference of The Pharmaceutical Society of Japan in March 1996



Metabolic pathway of Ibuprofen



Ibuprofen metabolite



Specifications

Product Name System Triple-electrode potentiostat Measurement Mode Applied Voltage Setting Compensating Current ±60 nA (Measuring sensitivity x 0.1) ±60 μA (Measuring sensitivity x 10) ±60 μA (Measuring sensitivity x 100) Measurable Current Pulse Setting Pulse Width 1 to 999 ms x 3 Current Measurement Moving Time Current Measurement Time Working Electrode Electrode Counter Electrode Counter Electrode Counter Electrode Counter Electrode Counter SUS316 Electrode Coll Volume 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Range Output Range Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator Sant, auto-zero, and start Power AC 85 to 264 V, 50/60 Hz, 100 W	Product No.	3016
Measurement Mode Pulse mode, Amperometric mode Applied Voltage Setting Digital setting of ±3990 mV in 1 mV steps Compensating Current ±60 nA (Measuring sensitivity x 0.1) ±600 nA (Measuring sensitivity x 10) ±60 μA (Measuring sensitivity x 100) ±600 μA (Measuring sensitivity x 1000) Measurable Current ±60/600 nA, ±6/600 μA Current Measurement Moving Time 3-level pulsed voltage setting by T1 to T3 Pulse Width 1 to 999 ms x 3 Current Measurement Time TW: 1 to 999 ms Working Electrode Gold (Option: Platinum, gold, and silver) Reference Electrode Silver/Silver chloride Counter Electrode SUS316 Electrode 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s VISW: 16 s For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	Product Name	Pulsed amperometric detector
Applied Voltage Setting Digital setting of ±3990 mV in 1 mV steps Voltage Setting Compensating Current \$\pmathcal{\pmathcal	System	Triple-electrode potentiostat
Voltage Setting Compensating Current ±60 nA (Measuring sensitivity x 0.1) ±60 µA (Measuring sensitivity x 10) ±60 µA (Measuring sensitivity x 10) ±60 µA (Measuring sensitivity x 100) ±600 µA (Measuring sensitivity x 1000) Measurable Current Pulse Setting 3-level pulsed voltage setting by T1 to T3 Pulse Width 1 to 999 ms x 3 Current Measurement Moving Time Current Measurement Time Working Electrode Reference Electrode Counter Electrode Counter Electrode Counter Electrode Cell Temperature Cell Volume 3.5 µL Output Range O.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA vo.1, x1, x10, x 100, x 1000 Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator start, auto-zero, and start		Pulse mode, Amperometric mode
Current ±600 nA (Measuring sensitivity x 10) ±6 μ A (Measuring sensitivity x 100) ±60 μ A (Measuring sensitivity x 1000) ±600 μ A (Measuring sensitivity x 1000) ±600 μ A (Measuring sensitivity x 1000) Measurable Current ±60/600 nA, ±6/600 μ A Pulse Setting 3-level pulsed voltage setting by T1 to T3 Pulse Width 1 to 999 ms x 3 Current Measurement Moving Time TW: 1 to 999 ms Current Measurement Time Gold (Option: Platinum, gold, and silver) Working Electrode Silver/Silver chloride Counter Electrode Sus316 Cell Volume 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity x0.1, x1, x10, x 100, x 1000 Time Constant Sex Sus	Voltage	Digital setting of ±3990 mV in 1 mV steps
Current Pulse Setting 3-level pulsed voltage setting by T1 to T3 Pulse Width 1 to 999 ms x 3 Current Measurement Moving Time TW: 1 to 999 ms Current Measurement Time Gold (Option: Platinum, gold, and silver) Electrode Silver/Silver chloride Electrode SUS316 Cell Counter Electrode Gold Volume Substitution Subst	· -	±600 nA (Measuring sensitivity x 1) ±6 μA (Measuring sensitivity x 10) ±60 μA (Measuring sensitivity x 100)
Pulse Width 1 to 999 ms x 3 Current Measurement Moving Time TS: 1 to 999 ms Current Measurement Time TW: 1 to 999 ms Working Electrode Gold (Option: Platinum, gold, and silver) Reference Electrode Silver/Silver chloride Counter Electrode SUS316 Cell Temperature 30°C Cell Volume 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity x0.1, x1, x10, x 100, x 1000 Time Constant STD: 4 s SLOW: 8 s VSLW: 16 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start		±60/600 nA, ±6/600 μA
Current Measurement Moving Time Current Measurement Time TW: 1 to 999 ms Gold (Option: Platinum, gold, and silver) Electrode Reference Electrode Counter Electrode Cell Temperature Cell Volume 3.5 µL Output Range Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal TW: 1 to 999 ms Tw: 1 to 990 ms Tw: 1 to 999 ms Tw: 1 to 999 ms Tw: 1 to 999 ms Tw: 1 to 99 ms Tw: 1 to 999 ms Tw: 1 to 990 ms Tw: 1 to 999 ms Tw: 1 to 99 ms Tw: 1 to 99	Pulse Setting	3-level pulsed voltage setting by T1 to T3
Measurement Moving Time Current Measurement Time Working Electrode Reference Electrode Counter Electrode Cell Temperature Cell Volume Output Range Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator start, auto-zero, and start	Pulse Width	1 to 999 ms x 3
Measurement Time Working Electrode Gold (Option: Platinum, gold, and silver) Reference Electrode Silver/Silver chloride Counter Electrode SUS316 Cell Temperature 30°C Cell Volume 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity x0.1, x1, x10, x 100, x 1000 Time Constant STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	Measurement	TS: 1 to 999 ms
ElectrodeSilver/Silver chlorideReference ElectrodeSUS316Counter Electrode30°CCell Temperature3.5 μLOutput Range0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nAOutput Sensitivityx0.1, x1, x10, x 100, x 1000Time Constant STD: 4 s SLOW: 8 s VSLW: 16 sSLOW: 8 s VSLW: 16 sExternal I/O SignalFor recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	Measurement	TW: 1 to 999 ms
Electrode Counter Electrode Cell 30°C Temperature Cell Volume 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	_	Gold (Option: Platinum, gold, and silver)
Electrode Cell 30°C Temperature Cell Volume 3.5 μL Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start		Silver/Silver chloride
Temperature Cell Volume 3.5 μ L Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output x0.1, x1, x10, x 100, x 1000 Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start		SUS316
Output Range 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA Output		30°C
Output Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	Cell Volume	3.5 μL
Sensitivity Time Constant FAST: 1 s STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	Output Range	0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 nA
STD: 4 s SLOW: 8 s VSLW: 16 s External I/O Signal For recorder (10 mV) For integrator Error, integrator start, auto-zero, and start	•	x0.1, x1, x10, x 100, x 1000
Signal For integrator Error, integrator start, auto-zero, and start	Time Constant	STD: 4 s SLOW: 8 s
Power AC 85 to 264 V, 50/60 Hz, 100 W		For integrator
	Power	AC 85 to 264 V, 50/60 Hz, 100 W

Dimensions 120(W) x 230(H) x 479(D) mm

Weight About 9 kg