

SU-300

Sugar Analyzer

From monosaccharide,
disaccharide to
polysaccharide

Easy
Measurement



SU-300 can simultaneously measure concentrations of various sugar with simple pretreatment!

Ion chromatography is one of the general sugar analysis methods and a reliable method as adopted for official testing method for specific health food. SU-300 enables everyone to measure sugar with easy operation, taking advantage of the features of ion chromatography. As "electrochemical detection method" is adopted for the sugar detector, specific sugar can selectively be detected. As this measuring method is hardly affected by foreign substance co-existing in sample, only simple pretreatment such as elimination of solid substance and fat, and dilution, is needed before injecting samples to the analyzer.

Features

Simultaneous measurement of 5 kinds of sugar and ethanol or 7 kinds of sugar alcohol

As ion chromatography is adopted, several kinds of sugars can be simultaneously measured. Ethanol can be measured in addition to monosaccharide and disaccharide at "Sugar Mode" of the analyzer. As alcohol and sugar are separately detectable, alcohol in liquor and sugar can be simultaneously analyzed. 7 kinds of sugar alcohol are simultaneously detectable at "Sugar alcohol mode" of the analyzer.

Measuring mode	Measuring objects
Sugar Mode	Monosaccharide : Glucose, Fructose Disaccharide : Lactose, Saccharose, Maltose Alcohol : Ethanol
Sugar Alcohol Mode	Inositol, Erythritol, Xylitol, Arabitol, Sorbitol, Mannitol, Multitol

Simple & easy pretreatment

As "Pulsed amperometry" being adopted, sugar can be selectively detected. Because it is hardly affected by foreign substance in the sample, only simple pretreatment such as dilution, is required before injecting the sample.

Simple flow composition

As the columns and detector that allow direct flow of alkali solution, are employed, separation and detection is easy. And as the solution is non-organic solvent, only pH treatment of neutralization with acid is required for waste solution treatment.

No need of PC: Analyzer automatically analyzes & calculates

The measurement is easy, just injecting the sample to the analyzer. As automatic data processing function is integrated in the analyzer, the analyzer automatically analyzes, calculates, then indicates and prints out the measurement results. It eliminates what was required before - manual operation of PC for data processing.

Easy maintenance

All of maintenance work such as exchanging columns and connecting tubes can be done from the front side. "Maintenance mode" facilitates easy-to-understand maintenance and trouble shooting with visual support on the display. Maintenance is easy. Special tools are not required in release of working electrode and reference electrode from the detector cell.

Manpower saving system

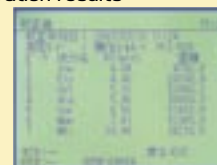
Auto-sampler (option), if added to the analyzer, enables multi-sample automated measurement.

Examples of Measurement

Calibration data

The result of calibration is displayed and printed out after calibration

Example of the calibration results on the displayN:



Example of printout

```

DOKK
DKK-TOA CORPORATION
SUGAR ANALYZER SU-300
Version Build 7.05.29.1
Serial No. :-1
2007/07/20 Fri. 15:15
-----
2007/07/18 Wed. 11:24
Column :PCI-520
          :1294567
          :PCI-5106
          :ABCDEFG
Eluent  :NaOH
Flow    :0.5 mL/min
RANGE  :Lower
Std. Sol.:Std.3
Plate   :2315 (MCI)
Rs      :1.0 (Ely-Xyl)
Current :003.6uA
Temp.   :39.8 C
Press S :4.6 MPa
Press H :4.6 MPa
Press E :4.6 MPa
-----
RT      Area
1 Ino  4.04  4792.8
2 Ely  4.90  25100.9
3 Xyl  5.33  52093.2
4 Ara  5.96  50689.3
5 Sor  6.56  51801.0
6 Man  7.41  52365.0
7 Mti  10.90 34218.5
-----
Calibration OK (1)
-----
645 mV
-64 mV
18 min
    
```

Header

Date of calibration

Measuring condition

Kind of eluent

Current flow rate setting

Measuring range

Kind of calibration solution

Logical steps of column

Separation level

Current magnitude at base line

Temperature of preheater

S: Pressure at the time of measurement start

H: Pressure during measurement

E: Pressure at the time of end of measurement

Calibration results

Retention time

Peak area

Judgment results of calibration

(1) Column(s) is usable

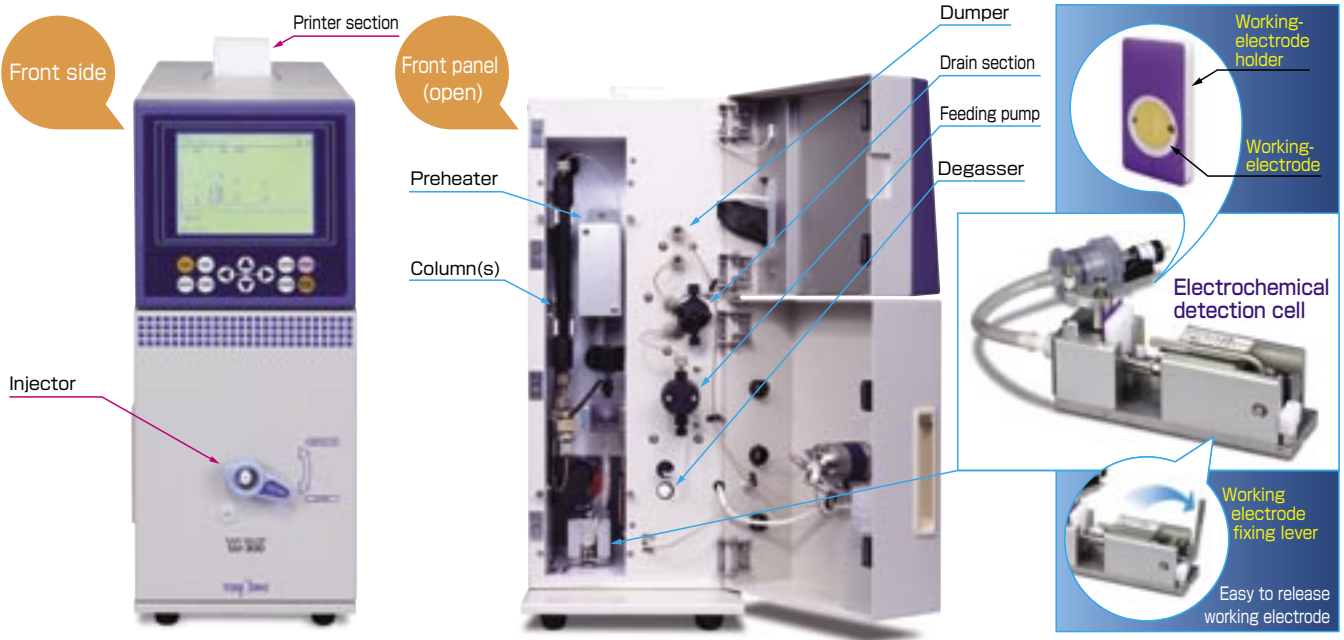
(2) Column(s) is recommended to replace soon

(3) Column(s) must be replaced.

Chromatogram

Composition of analyzer

Ion chromatography function (feeding pump section, sample injection section, detector, data processing section, printer section and etc.) is put into one package for SU-300. Just one injection of sample to the analyzer gets the concentration of the object sugar.



Measurement Data

Measurement data

Sugar calibration solution

Example of the measurement results on the display :



Example of printout

No. 005	Sample No.
2007/07/13 Fri. 10:51	Date of measurement
7x	Sample name
Column : PCI-520	Measurement conditions
: 1234567	
: PCI-510G	
: ABCDEFG	
Eluent : NaOH	Measurement results
Flow : 0.7 mL/min	
RANGE : Lower	
Std. Sol. : Std. 1	
Current : 003.4uA	
Temp. : 39.9°C	
Press S: 6.0 MPa	
Press H: 6.0 MPa	
Press E: 6.0 MPa	
1 Eta 1.94 g/L	Chromatogram
2 Glu 20.2 mg/L	
3 Fru 41.0 mg/L	
4 Lac 40.6 mg/L	
5 Suc 50.5 mg/L	
6 Mal 51.5 mg/L	

Examples of actual sample

<p>■ Raw material for food : Sugar mode</p> <p>No. 061 2007/03/07 Wed. 21:33</p> <p>Column : PCI-520 : 1234567 : PCI-510G : ABCDEFG</p> <p>Eluent : NaOH Flow : 0.7 mL/min RANGE : Lower Std. Sol. : Std. 1 Current : 003.1uA Temp. : 39.7°C Press S: 6.0 MPa Press H: 5.9 MPa Press E: 6.1 MPa</p> <table border="1"> <tr><td>1</td><td>Eta</td><td>0.000</td><td>mg/L</td></tr> <tr><td>2</td><td>Glu</td><td>80.2</td><td>mg/L</td></tr> <tr><td>3</td><td>Fru</td><td>99.8</td><td>mg/L</td></tr> <tr><td>4</td><td>Lac</td><td>18.7</td><td>mg/L</td></tr> <tr><td>5</td><td>Suc</td><td>8.77</td><td>mg/L</td></tr> <tr><td>6</td><td>Mal</td><td>32.8</td><td>mg/L</td></tr> </table>	1	Eta	0.000	mg/L	2	Glu	80.2	mg/L	3	Fru	99.8	mg/L	4	Lac	18.7	mg/L	5	Suc	8.77	mg/L	6	Mal	32.8	mg/L	<p>■ Alcohol beverage : Sugar mode</p> <p>No. 054 2007/05/25 Fri. 17:51</p> <p>Column : PCI-520 : 1234567 : PCI-510G : ABCDEFG</p> <p>Eluent : NaOH Flow : 0.7 mL/min RANGE : Lower Std. Sol. : Std. 1 Current : 004.2uA Temp. : 40.0°C Press S: 6.2 MPa Press H: 6.1 MPa Press E: 6.2 MPa</p> <table border="1"> <tr><td>1</td><td>Eta</td><td>826</td><td>mg/L</td></tr> <tr><td>2</td><td>Glu</td><td>5.16</td><td>mg/L</td></tr> <tr><td>3</td><td>Fru</td><td>2.87</td><td>mg/L</td></tr> <tr><td>4</td><td>Lac</td><td>32.0</td><td>mg/L</td></tr> <tr><td>5</td><td>Suc</td><td>581</td><td>mg/L</td></tr> <tr><td>6</td><td>Mal</td><td>2.76</td><td>mg/L</td></tr> </table>	1	Eta	826	mg/L	2	Glu	5.16	mg/L	3	Fru	2.87	mg/L	4	Lac	32.0	mg/L	5	Suc	581	mg/L	6	Mal	2.76	mg/L				
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6	Mal	2.76	mg/L																																																		
<p>■ Soft drink : Sugar mode</p> <p>No. 041 2007/01/19 Fri. 23:22</p> <p>Column : PCI-520 : 1234567 : PCI-510G : ABCDEFG</p> <p>Eluent : NaOH Flow : 0.7 mL/min RANGE : Lower Std. Sol. : Std. 1 Current : 003.3uA Temp. : 39.5°C Press S: 5.6 MPa Press H: 5.6 MPa Press E: 5.6 MPa</p> <table border="1"> <tr><td>1</td><td>Eta</td><td>0.000</td><td>mg/L</td></tr> <tr><td>2</td><td>Glu</td><td>29.8</td><td>mg/L</td></tr> <tr><td>3</td><td>Fru</td><td>19.8</td><td>mg/L</td></tr> <tr><td>4</td><td>Lac</td><td>0.000</td><td>mg/L</td></tr> <tr><td>5</td><td>Suc</td><td>81.5</td><td>mg/L</td></tr> <tr><td>6</td><td>Mal</td><td>0.000</td><td>mg/L</td></tr> </table>	1	Eta	0.000	mg/L	2	Glu	29.8	mg/L	3	Fru	19.8	mg/L	4	Lac	0.000	mg/L	5	Suc	81.5	mg/L	6	Mal	0.000	mg/L	<p>■ Nutritious drink : Sugar alcohol mode</p> <p>No. 074 2007/01/22 Mon. 21:29</p> <p>Column : PCI-520 : 1234567 : PCI-510G : ABCDEFG</p> <p>Eluent : NaOH Flow : 0.5 mL/min RANGE : Lower Std. Sol. : Std. 3 Current : 003.8uA Temp. : 40.0°C Press S: 4.2 MPa Press H: 4.2 MPa Press E: 4.2 MPa</p> <table border="1"> <tr><td>1</td><td>Ino</td><td>0.380</td><td>mg/L</td></tr> <tr><td>2</td><td>Ely</td><td>0.000</td><td>mg/L</td></tr> <tr><td>3</td><td>Xyl</td><td>0.000</td><td>mg/L</td></tr> <tr><td>4</td><td>Ara</td><td>0.000</td><td>mg/L</td></tr> <tr><td>5</td><td>Sor</td><td>35.3</td><td>mg/L</td></tr> <tr><td>6</td><td>Man</td><td>0.000</td><td>mg/L</td></tr> <tr><td>7</td><td>Mtl</td><td>46.1</td><td>mg/L</td></tr> </table>	1	Ino	0.380	mg/L	2	Ely	0.000	mg/L	3	Xyl	0.000	mg/L	4	Ara	0.000	mg/L	5	Sor	35.3	mg/L	6	Man	0.000	mg/L	7	Mtl	46.1	mg/L
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Specifications

Model	SU-300			
Measuring method	Ion chromatography electrochemical detection method			
Measuring mode	2 kinds (Sugar mode, sugar alcohol mode)			
Measuring item/range	Sugar mode	Measurement parameters	Low concentration range	High concentration range
		Ethanol	0.2 - 4 g/L	4 - 30g/L
		Glucose	10.0 - 100mg/L	100 - 300mg/L
		Fructose, Lactose	10.0 - 100mg/L	100 - 750mg/L
	Sugar Alcohol mode	Saccharose, Maltose	20.0 - 100mg/L	100 - 750mg/L
		Inositol, Erythritol	10.0 - 100mg/L	
		Xylitol, Arabitol Sorbitol, Mannitol Multitol	10.0 - 200mg/L	
Repeatability	Within C.V. 3% at the concentration of calibration solution			
Sample injection	Manual sample injection and manual change-over valve			
Sample volume measurement	Loop cut method Loop capacity 10 μ L			
Measurement time	Sugar mode: 30 min./ batch, Sugar Alcohol mode: 18 min./ batch			
Calibration	One point calibration by specified concentration of calibration solution			
Column temperature bath	Room temperature			
Column	Anion exchange column PCI-520			
Data processing	Integrated			
Detector section	Method : Pulsed amperometry method (gold electrode) Cell Part : Room temperature, a preheater is arranged at previous step to cell (40°C)			
Indication	Graphic LCD			
Printer	Thermal printer is integrated			
Ambient temperature	10 - 32 °C subject to no sudden temperature change			
Output	Analog : 0 - 1V Digital : RS-232			
Terminal to Auto-sampler	Provided as standard			
Power Source	AC line 50/60Hz			
Power Consumption	Max. 130VA			
Dimensions, Weight	Approx. 190 (W) x 469 (H) X 530 (D)mm, Approx. 17 Kgs			

Standard Accessories

• 1 mL disposable syringe	• Cell spacer (5 pieces)	• Gold electrode
• Injection needle	• Plunger seal replacement jig	• Electrode polishing kit
• Sample loop (10 μ L)	• Tank introduction tube	• Power cord
• Air removing syringe set	• Printer paper (2 rolls)	• 2P converter adapter
• Spanner (6x8,8x10: each 1)	• Saturated KCl solution (100mL)	• Ground cable
• Hexagonal wrench (1.5mm, 2.5mm, 3mm : each 1)	• Reference electrode	• Instruction manual

Essential Accessories (Separate order)

Description	P/ No.
Sugar analysis column	PCI-520
Guard column for sugar analysis column	PCI-510G

Other Accessories

Description	P/ No.	Remarks
Replacement disc for PCI-510G	PCI-510GD	Replacement disc for PCI-510G (5 pieces of disc)
Printer chart paper (5 rolls)	PAP-HCS	Thermal chart paper
Connection cable to ICA-200AS Auto-Sampler	118B412	Connection cable for 1 unit of SU-300
Connection cable to ICA-200AS Auto-Sampler	118B413	Connection cable for 2 units of SU-300



Peripheral Equipment

Auto-Sampler ICA-200AS

- Automated measurement for max. 80 samples
- Cooler function (factory option)

DKK-TOA CORPORATION



Do not operate products before consulting instruction manual.

International Operations:

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<http://www.toadkk.co.jp>

Information and specifications are for a typical system and are subject to change without notice.