Always Improving technologies for Air Analysis

PRODUCTS

Nutech2700 Canister Sampling Timer

Nutech 2700 Canister Sampling Timer has been designed for canister timely field sampling. It can be set to either time integrate or grab sampling mode.

Features

- **Easy to set up any time event**
- **Works with any time integrate flow controller**
- **Easy to be put on to any kind of canisters**
- **Light weight**
- **Long battery life**
- **Convenient Swagelok fittings in both inlet and outlet**
- **Water proof for outdoor usage**
- **Free of contamination condition guaranteed by QA/QC report for each unit**
- **Auto Key lock function for safety**

Nutech2700 Specifications

- **System Configuration**

Solenoid valve with accurate timer control
Up to 7 event setup of any start and stop time
Works with all kinds of time integrate flow controllers (FC)
Long duration battery operation
Key lock function

- **Battery Life**

at least 25 hours operation guaranteed with full charge

- **Internal Tubes**

316 Stainless steel tubes and fittings for all sample pass

- **Out Connection Fittings**

¼″ Swagelok female for outlet (Canister end)
¼″ Swagelok male for inlet (FC end of Sample Inlet)

- **Operation Environment**

(Battery Charger) 110 V/60Hz, (220V/50Hz optional) +/- 10% with max 20W power supplies
0 to 40 ºC with < 90% RH

- **Dimensions**

10 W X 7 H X 20 D cm3

- **Weight**

Net weight 1.0 kg

Instrument Technologies

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Air VOC Preconcentrator System

Year 2007 Production Catalog

Nutech2600 Specifications

- **System Configuration**
  - 8~16 canisters with separate sample event
  - Passive or active sampling inlet with diaphragm pump
  - External remote start input to accept signal from other instrument or device
- **Sampling Event**
  - Programmable start and stop time
  - Separate mass flow rate for each channel
  - Remote start sampling
- **Time Integrated Sampling**
  - Sampling flow controlled by MFC
  - Passive or active sampling
- **Mass Flow Controller**
  - Flow rate: 5 to 100ml/min, Accuracy: <2% RSD.
- **Printing Function**
  - Built-in printer to print all sampling events
- **Portability**
  - Light weight design
  - Easy set up
  - LCD display
- **Operation Environment**
  - 110 V/60Hz, (220V/50Hz optional) +/- 10% with max 250W power supplies
  - 0 to 40 ºC with < 90% RH.
- **Dimensions**
  - 20 W X 40 H X 33 D cm^3
- **Weight**
  - Net weight 11 kg

Nutech2700 Canister Sampling Timer

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Features

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- Easy to be put on to any kind of canisters
- Light weight
- Long battery life
- Convenient Swagelok fittings in both inlet and outlet
- Water proof for outdoor usage
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- Auto Key lock function for safety

Nutech2700 Specifications

◆ System Configuration

Solenoid valve with accurate timer control
Up to 7 event setup of any start and stop time
Works with all kinds of time integrate flow controllers (FC)
Long duration battery operation
Key lock function

◆ Battery Life

at least 25 hours operation guaranteed with full charge

◆ Internal Tubes

316 Stainless steel tubes and fittings for all sample pass

◆ Out Connection Fittings

¼" Swagelok female for outlet (Canister end)
¼" Swagelok male for inlet (FC end of Sample Inlet)

◆ Operation Environment

(Battery Charger) 110 V/60Hz, (220V/50Hz optional) +/- 10% with max 20W power supplies
0 to 40 ºC with < 90% RH

◆ Dimensions

10 W X 7 H X 20 D cm^3

◆ Weight

Net weight 1.0 kg

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Nutech2800 Automatic Large Volume Headspace Sample Inlet System

[Introduction] *Nutech2800 has been designed to handle headspace sampling for those special chemicals which can be only generated from a headspace method. Headspace position is heated with an automatic temperature controller. The headspace sample inlet system works with our 3550 or 8900 pre-concentrator system.*

Features

- Large volume headspace
- Accurate temperature control
- Works with Nutech8900 or Nutech3550 series

Nutech2800 Series Specifications

- **System Configuration**

  Two models will be available:

  Full automatic system and simplified semi-automatic system.

  The full automatic system could be:

  12 or 16 positions headspace generator with 500ml headspace volume

  Heated sample positions with accurate temperature control

  Bench top installation for space saving

- **Headspace temperature control system**

  Room to 95ºC with +/- 1ºC accuracy.

- **Headspace gas flush control system**

  He, N2, H2 or any other gases with different flow rate

  Flow rate controlled by mass flow controller

- **Headspace automatic system**

  Automatically position switch with sequence editing

- **Operation Environment**

  110 V/60Hz, (220V/50Hz optional) +/- 10% with max 100W power supplies

  0 to 40ºC with < 90% RH.

- **Dimensions**

  21 W X 41 H X 35 D cm

- **Weight**

  Net weight 30 kg

Accessories for Air VOC Analysis

◆ Canisters

Canisters are used for air sampling and are of the most important part of the new technologies in whole air VOC analysis. There are two kinds of canister designs: Summa canisters and silica coated canisters, which are used in different applications.

Being the partner and distributor of Restek , who is one of the best manufactures of all kinds of canisters, Nutech supplies both High Quality Summa Canisters and Silica Canisters for VOC analysis.

The typical volume sizes are 1, 3, 6 or 15 liter with or without gauge.

Canister Volume Selection	1 Liter	3 Liter	6 Liter	15 Liter
Silica Coated Canister without Vacuum/Pressure Gauge	For high concentration	For short time sampling	Good for all sampling	Long time sampling or standard
Silica Coated Canister with Vacuum/Pressure Gauge	For high concentration	For short time sampling	Good for all sampling	Long time sampling or standard
Summa Canister without Vacuum/Pressure Gauge	For high concentration	For short time sampling	Good for all sampling	Long time sampling or standard
Summa Canister with Vacuum/Pressure Gauge	For high concentration	For short time sampling	Good for all sampling	Long time sampling or standard

◆ *Tedlar Bags*

Tedlar bag is an alternative sampling container for air VOC analysis. The Tedlar bag is made by Dupond special material PVF film with a septa coated with PEF to avoid the VOC lose and keeping gas sample stable.

Nutech is one of Tedlar bag manufacturer and offer the high quality Tedlar bag with standard volume of 1, 3, 5 and 10 liter.

◆ *Flow Controllers*

It is necessary to use flow controller to perform time integrated sampling. Nutech offer high quality sapphire flow controllers and capillary flow controllers for 1,2,4,8 or 24 hours sampling

◆ *Calibration Standards*

Nutech offer NIST traceable
Calibration standard from
Spectrum Gases, Inc.
TO-14 39 Compounds Standard
TO-14 41 Compounds Standard
TO-15 62 Compounds Standard
PAMS 62 Compound Standard
All Other Client Specified
Standard

◆ *Regulators*

Nutech offer single stage
And two stage regulators

- ## *Quality Promise and Warranty*

Nutech will make an offer of one years warranty for all Nutech turn key products, labor and parts. Nutech have an call free number after sales service and has a 24 hours standby engineer to answer and resolve all possible problem or questions from the end users.

- ## *Initial Installation and Tools*

Nutech supplies all necessary installation kits and tools for the initial installation and further maintenance. It is an one resource for a turn key system suggestion. Nutech will integrate all system part from sample inlet to final MS data handling. Nutech will help customer to set up all necessary performing method including Preconcentrator method and GC/MS method and help our end users for their applications and research projects.

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Contact Information

Headquarters

Attention: Dr. George Dai
903 N. Bowser Rd. #200
Richardson, TX 75081, USA
Tel: 972-480-8908
Fax: 972-480-8308
Toll free: 1 800 3994236
Email: information@nutechins.com or drdai@nutechins.com

Sales and Technical Support Center

Nutech (Shenzhen) Sales and Service Center
2nd Floor Section A, Building 25th
Kezhi Road West, Nanshan, Shenzhen
Tel: +86 755 26509905/26509906
Fax: +86 755 26509907
E-mail: support@nutechins.com.cn

Worldwide Distributors

USA and Canada

Nutech/Cherokee, USA
Attention: Reginnald Stroupe
6661 South Alston Ave.
Durham, NC 27713, USA
Tel: 800-399-4236
Fax: 919-552-3991
Email: reggie_stroupe@cherokeeinstruments.com

Attention: James D. Packard
Pacwill Environmental
2-2339 Patterson Ave., P. O. Box 301
Armstrong, BC V0E 1B0, Canada
Tel: 250-546 9640
Fax: 250-546 9613
E-mail: jpackard@pacwill.ca

Asia: P. R. China, Hong Kong, South Korea

Attention: Xudong Wang
Shanghai Impact Electronic Scientific Co. ltd
Rm. 1302, Suncome Liauw's Plaza,
No. 738 Shangcheng Rd.
Shanghai, , China, 200120
Tel: +86 21 6875 8271
Fax: +86 21 6875 6332
Email: wanghong@impactlabinc.com

Attention: Yip Ling Sin Or Dr. Deny Wu
Comfort Technology (Asia) Limited
Unit 3. 16/F, Hewlett Centre. 54 Hoi Yuen Road.
Kowloon Tong, Kowloon,
Hong Kong, China
Tel: +852 2790 0078
Fax: +852 2790 0686
E-mail: comfortech@yahoo.com

Attention: Chang Hyun Shim
KnR, Inc.
96-2 Gyeong An-dong Gwangju-Si
Gyeonggi-Do, S. Korea
Tel: +82-31-769-0858
Fax: +82-31-769-0906
Email: knr@eknr.com

Recommended Configurations and Order Information for Turn Key VOC Preconcentrator System

◆ Pre-Concentrator

Model	Part Number	Application
Nutech8900	PCS-8900-01	Three Traps, VOCs, EPA TO-15, TO-14 and TO-12
Nutech3551	PCS-3551-01	Dryer or By Pass Dryer, Organic Sulfurs, TO-15, TO-14, or TO-12

◆ Autosampler

Model	Part Number	Application
Nutech3602	ASS-3602-01	Tower Design, Space saving, SS Plate
Nutech3601	ASS-3601-01	Desk Top Design, Space Saving

◆ Canister Clean System

Model	Part Number			Application
	Oven Manifold	Tree Manifold	Frame Manifold	
Nutech2102	CCS-2102-01	CCS-2102-02	CCS-2102-03	Dual Pump System
Nutech2101	CCS-2101-01	CCS-2101-02	CCS-2101-03	Single Pump System

◆ Standard and Sample Dilution System

Model	Part Number	Application
Nutech2200	SDS-2200-01	Standard and Sample Dilution, Liquid Injection Kits Included

◆ Accessories

Product	Model	Part Number	Application
Canisters	Summa, with Gauge	CAN--SA-xxL[1] G	Ambient and Indoor Air
	Summa, without Gauge	CAN--SA-xxL[1]	Ambient and Indoor Air
	Silica Coated, with Gauge	CAN-SC-xxL[1] G	Ambient and Indoor Air
	Silica Coated	CAN-SC-xxL[1]	Ambient and Indoor Air
Tedlar Air Bags	0.5,1,3,5,10 Liter	TBG-xxL[2]	Source Sampling
Standard Gas	4, 39, 41, 62 Compounds	SGS-xxxx[3]	Calibration

Note [1] : xxL means the volume size of the canister, available sizes: 01, 03, 06, 15 liters

[2] : xxL means the volume size of the air bag, available sizes: 01, 03, 05, 10 liters

[3] : xxx means the type of standard gas, common types in VOC analysis: TO14, TO15, PAMS, INSD (internal Standard)

Nutech3550DS Upgrade Pack

New

[Introduction] *An upgrade pack is available now to upgrade your old 3550 into 3551 model with the 21th century state-of-the-art technologies in the pre-concentrator industry. The pack consists of a new software and a new control board to replace the two boards in the old design. The board replacement is a quick and easy process, after that all benefits of the new 3551 model are enjoyable.*

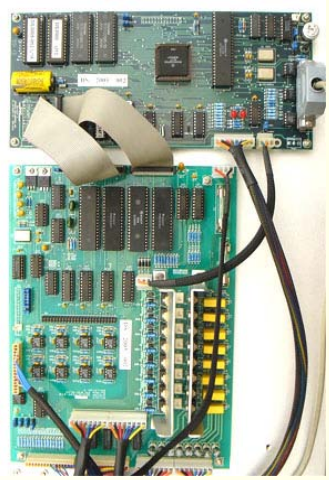

Figure 1. Old model with two control boards

Figure 2. Unplug all connectors

Figure 4. Plug in the connectors

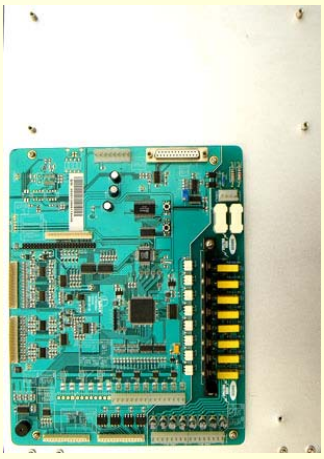

Figure 3. Replace the control board

Install the new software and ready to run !

Try It Before You Buy It

With a pre-approved PO, you can install this newly developed upgrade software pack free of charge for three months! If you are not completely satisfied with our product and its capabilities, return it and owe nothing. Your satisfaction is 100% guaranteed. You have NOTHING to lose.

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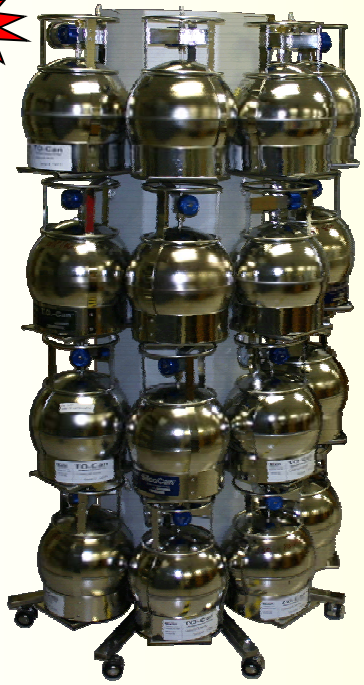
Nutech3600 Series Autosampler

[Introduction] *This instrument is working with either Nutech8900 or Nutech3550 Preconcentrator, it can hold 16 positions for sample analysis automation. The proposed instrument is a vertical stand design, who saves space and is easier to add or remove canisters. The canister hold plate is made in stainless steal and can be easily flipped up.*

New



Model 3602--Vertical Version Features

- **Space Saving**
- **Easy add or remove canister**
- **Flipping hold plate**
- **Movable stand**
- **Vertical canister holding**
- **Light weight**

Model 3601--Bench Top Version Features

- **Easy Deployment on Laboratory Desk**
- **LED Display**
- **Light Weight**

Nutech3600 Series Specifications

Working with either Nutech8900 or Nutech3550 Pre-concentrator

Two Models Available:

Model 3602: tower design for space saving

Model 3601: suitable for desk top application

16 Channels

Sample Container Handling

All kinds of air containers: canisters, Tedlar bags and etc.

Leak check each position with QA/QC Reports*

Flush each position individually*

16 position valve heated with accurate temperature control @ +/-1ºC

LED display

Mobility for Model 3602

Flexible fittings to handle different canisters or Tedlar bags

Dimensions

Model 3602: 90W X 149H X45D cm^3

Model 3601: 26W X 40H X 35D cm^3

Weight

Model 3602: 15kg

Model 3601: 9.5kg

Controlled by 3550 or 8900 software or other devices

Operation Environmental

110VAC/60Hz +/-10% or 220VAV/50Hz +/-10% with max 1500W, 0 to 40ºC with < 90% RH

Notes: * Controlled by pre-concentrator software

Coming Soon

New model can work directly with GC to handle automatic sample injection with or even without pre-concentrator!

Nutech2100 Series Canister Clean System

[Introduction] *The clean quality of a canister clean system is very critical to the analysis quality of TO-14 or TO-15 as well as the canister's life time. The new designed Nutech2100 oven heating system hosts all canisters into a temperature controlled heating oven and the temperature range can be from room temperature to 200°C. The sample temperature controlled heating strip heater is also an option.*

Manifold assembly with 4,6,8,12 canisters

Working Independently or through computer

Temperature controlled heating strips with protected isolation materials

Flexible stainless steel tube connection for canisters and manifold

Nutech2100 Series Specifications

Canister Heating

Automatic temperature controlled heating strip with safe protection.

Optional: oven heating system, see description in the Manifold section on the next page

Vacuum System

Model 2102 -- duo pump system:

Diaphragm rough pump and molecular drug pump:

Air flow>1liter/min, Max vacuum<50milli-Torr

Model 2101 -- mono pump system:

Edward E2M1.5 high efficiency vacuum pump:

Air flow >25 liter/min,

Max vacuum <50milli-Torr

Humidifier

Built in pure water humidify system with water level display.
Automatically humidify the gas stream into canisters

Automation

Automatic cycling clean with 1 to 100 cycles or manually clean operation.

Pure Gas Supplies

Nitrogen, zero air between 0 to 50 psig

Operation Environment

110 V/60Hz, (220V/50Hz optional) +/-10% with max 500W power supplies
0 to 40ºC with < 90% RH

Dimensions

Mainframe: 29 W X 47 H X 58 D cm3

Weight:

Model 2102: 25.5 kg, Model 2101: 15kg

Nutech2200 Dynamic Standard and Sample Dilution System

[Introduction] *The system is necessary to make your own working calibration standards from a high concentration standard source as well as to dilute high concentration air samples. It can work independently with its built-in microcontroller. Besides, a liquid injection adaptor is also equipped for the use of making a standard from a liquid source.*

Features

- **Easy operation with built-in microcontroller**
- **Separate standard and sample dilution channel to avoid cross contamination**
- **Liquid injection adaptor for liquid source standard**
- **Allow surrogate standard spike in to canister**
- **Be able to pre-humidify diluent whenever necessary**

Nutech2200 Specifications

System Configuration

Separate standard and sample channels for standard and sample dilution

Mass Flow Controller

Flow rate: 5 to 200ml/min, Accuracy: <2% RSD.
Multi mass flow controller option for multi channel dilution
Flow rate option: 5ml/min to 5000ml/min

Liquid Injection Adaptor

Liquid injection adaptor allows system to make standards from pure liquid sources

Automatic Dilution with Initial Pressure Readout

The initial pressure of sample canister can be read and displayed, the final pressure can be set by customer. Thus the program can automatically calculate the dilution factors and finish the dilution

Pure Gas Supplies

Nitrogen, zero air or all kinds of pure gases between 0 to 50 psig

Operation Environment

110 V/60Hz, (220V/50Hz optional) +/- 10% with max 100W power supplies
0 to 40 ºC with < 90% RH.

Dimensions

33 W X 14 H X 42 D cm^3

Weight

Net weight 8.0 kg

Nutech2500 Automatic Thermal Desorption System

[Introduction] *Nutech 2500 has been designed for handling thermal desorption cartridges such as Tenax, Charcoal and/or any other thermal desorption cartridges*

Features

- **Two operation channels**
- **Automatically temperature control**
- **Handle all kinds and sizes of cartridges**
- **Easy desorption flow rate control**
- **Flexible heating jack**
- **Easy connection outlet with canisters and Tedlar bags**

Nutech2500 Specifications

System Configuration:

Two separate channels to handle two desorption simultaneously

Flexible heating jack to handle different sizes or shapes of adsorbent tubes

Configurable flow meter range to meet any flow rate requirement

Flow Rate Control:

Flow rate: 0 ~ 1000ml/min.

Desorb gases: He, H2, N2 Ar or others

Desorb gases go to canisters or Tedlar bags

Temperature Control:

Room temperature to 300ºC +/-2ºC

Operation Environment

110 V/60Hz, (220V/50Hz optional) +/-10% with max 250W power supplies

0 to 40ºC with < 90% RH.

Dimensions

20 W X 40 H X 33 D cm^3

Weight

Net weight 11 kg

Nutech2600 Automatic Canister Sampling System

[Introduction] *Nutech 2600 has been designed to handle canister field sampling. It hosts 8 to 16 or more canisters, specific sampling event can be defined to each canister. It can also accept input signal to remote start a sampling. All sampling events are easily programmable via the keypad and LCD display.*

Features

- **8~16 canister with separate programmable sampling event**
- **Remote Start Signal Input**
- **LCD Display**
- **Built-in printer**

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Turn Key VOC Preconcentrator System

- **Application**

  USEPA TO15, TO14, TO12, TO1, TO2 and TO3 , Organic Sulfurs, Air VOCs

- **System Configuration**

  Any GC/MS, GC/FID, GC/PID, GC/HID or Other GC/Any Detector
  Nutech8900 or Nutech3551 or Nutech3550 Preconcentrator New
  Nutech3600 Autosampler

- **Sensitivity and Detection Range**

  0.1ppbv to percent level for most VOCs. Concentration ability: > 1000:1

- **Accuracy and repeatability**

  Within 5% RSD for most VOC compounds with a sample loading range 4-1000ml

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Nutech8900 Preconcentrator

[Introduction] *This instrument is the most advanced VOC Preconcentrator in the world, it can be used for both EPA TO-14 and TO-15 analysis. The novel design of hardware and software makes it more powerful in handling all kinds of air samples. Especially, the advanced temperature control system is able to keep the temperature variation under +/- 2ºC, thus guarantee more stable and accurate analysis.*

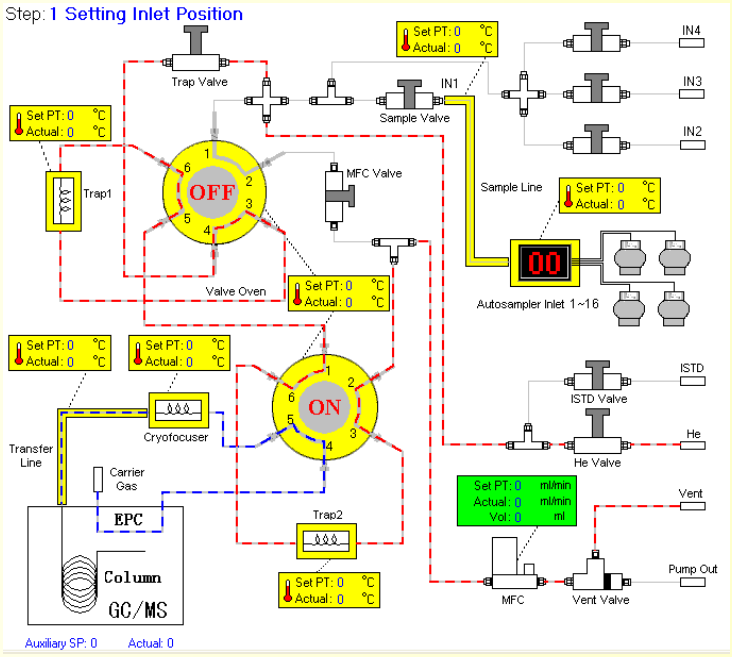
New

Hardware Features

- Three Stage Cryogenic Traps
- High Sensitivity and Wide Detection Range
- High Accuracy and Repeatability
- Powerful Capability in Sample Handling
- Advanced Temperature Control
- 4 Additional Sample Inlets
- Analyzing trace VOCs in over 95% CO2
- USB Interface and friendly software
- QA/QC Print, Leak Check Print,
- Sequence and Method Table Print
- System purge with pressure or vacuum

Software Features

- Flexible concentration method configuration: bypass trap1 and/or bypass focuser plus variable internal options for versatile applications
- Powerful customize capability: any method defined by customers can be adopted without any change to the hardware, which ultimately facilitates leading edge research work of our honorable customers
- Intuitive Gas Path Graphic Display
- Rich Function Sequence Control
- Built-in diagnostic for trouble shooting
- Comprehensive QA/QC Report
- Windows 2000 or XP compatible



Nutech8900 Specifications

[Hardware]

Three stage cryogenic traps

1.Glass bead trap: -190ºC~250 ºC

2.Tenax multimedia trap: -190ºC~250 ºC

3.Cryofocuser: -190ºC~250 ºC, with temperature rise rate up to 1000degreeC/min

Sensitivity and Detect Range

0.1ppbv to percent level for most VOCs.

Concentration ability: > 1000:1

Accuracy and Repeatability

Within 10% RSD for most VOC compounds with a sample loading range of 4 ~ 1000ml.

Sample Handling

All tubes are silica coated stainless steel

4 ~2000ml loading range with 0~100 relative humidity, Internal standard spike at same range.

MFC operating range 5~200ml/min with +/-2% accuracy

Temperature Control

Advanced ATC with +/-2 ºC accuracy

Gas Inlets

Independent internal standard inlet and 3 additional sample inlets

16 sample inlets with optional autosampler

Operation Environment

110VAC/60Hz +/-10% with max 1500W, 0 to 40ºC with < 90% RH.

Dimensions

36 W X 51 H X 51 D cm^3

Weight

Net weight 29.5 kg

[Software]

Intuitive Gas Path Graphic Display

Every single change of valve status, temperature of cryo-traps and gas flow rate, even the gas path and its flow direction are displayed dynamically in real time for every single step, gives you a most intuitive illustration of a complete concentration process.

Rich Function Sequence Control

Complex sequence can be easily complied in advance and saved for later execution

During the execution of a sequence, you can still add or remove a method or change its order

Intuitive display of execution status: executed method in grey italic, blinking method in execution

Speed Functions

One click speed buttons for most common functions: Reset, Idle, System Purge, Bakeout Trap1, Bakeout Trap2, Flush Sample Line and Leak Check.

Comprehensive QA/QC Report

Windows 2000 or XP compatible

Nutech8900 Performance in Chromatograms

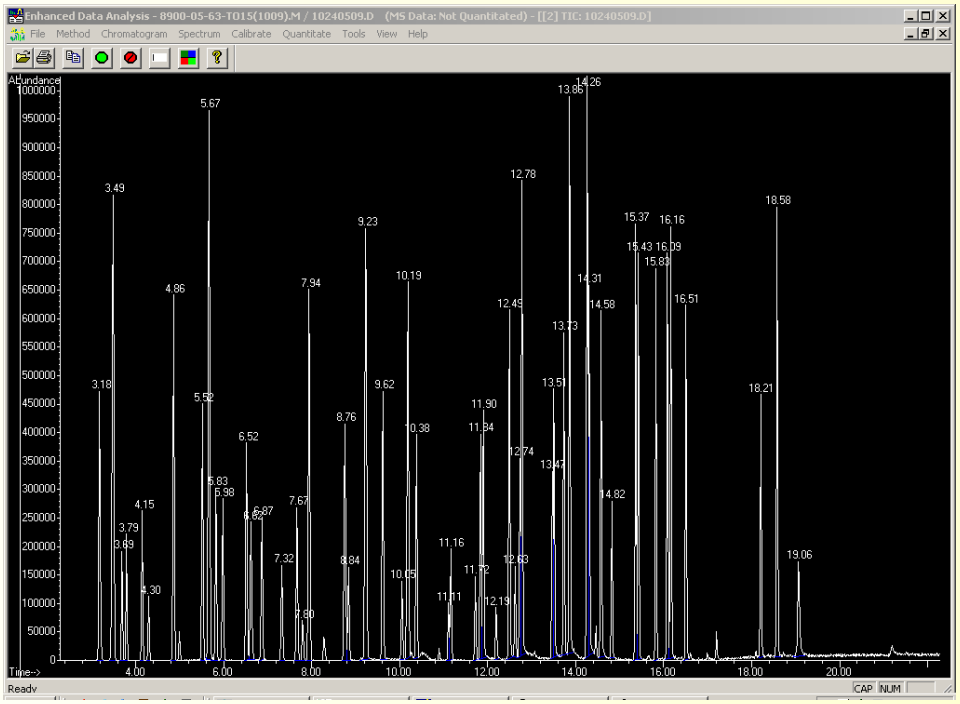


Fig1: Chromatogram of USEPA TO-15 Compounds

Column: DB-5MS 60mX0.32mmX1.0um

GC:35ºC(5min) $\xrightarrow{8^{o}C/min}$ **80ºC** $\xrightarrow{15^{o}C/min}$ **150ºC** $\xrightarrow{20^{o}C/min}$ **220ºC(5min)**

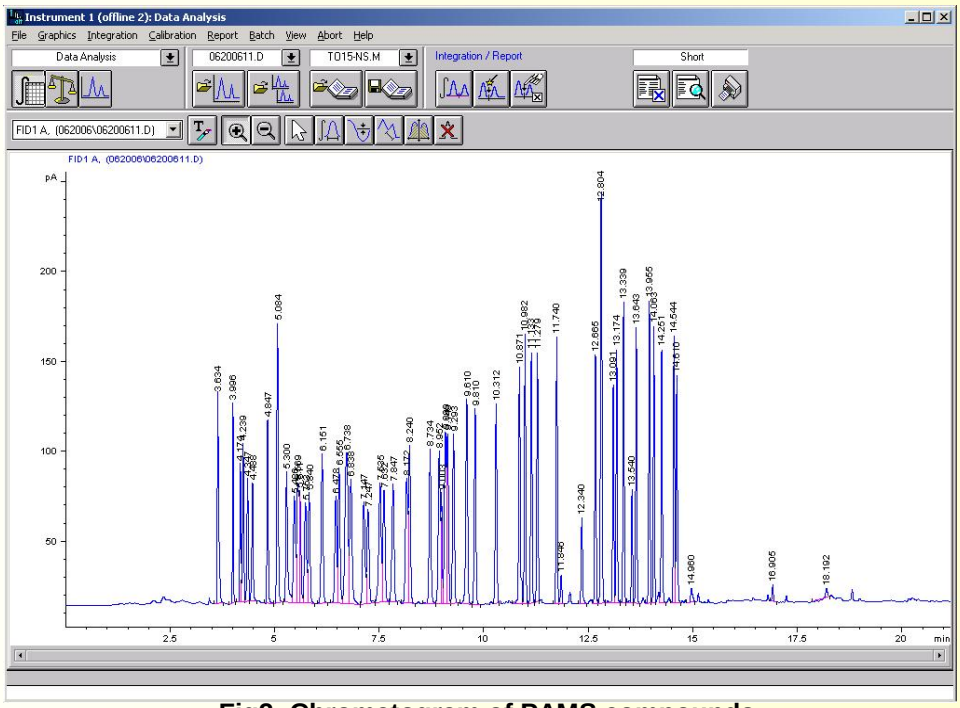


Fig2: Chromatogram of PAMS compounds

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Nutech3551DS Preconcentrator

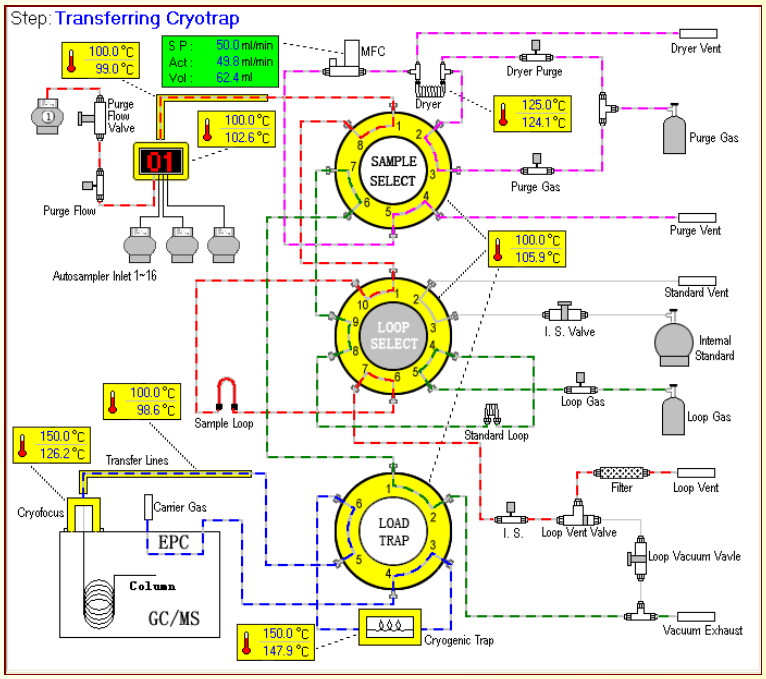
[Introduction] *This is the grant new generation of Nutech's wide accepted 3550 model. The hardware and software platform are lately developed to provide more powerful functions at the mean while the merits of high repeatability and high sensitivity of the old model are kept as company treasures.*

Hardware Features

- **Two Stage Cryogenic Traps**
- **High Sensitivity and Repeatability**
- **Nafion Dryer for water management**
- **Advanced Temperature Control**
- **USB/RS232 Interface**
- **Bypass Nafion Dryer electronically**

Software Features

- **Powerful customize capability: any method defined by customers can be adopted without any change to the hardware, which ultimately facilitates leading edge research work of our honorable customers**
- **Intuitive Gas Path Graphic Display**
- **Rich Function Sequence Control**
- **Speed Functions**
- **Comprehensive QA/QC Report**
- **Windows 2000 or XP compatible**
- **QA/QC Print, Leak Check Print, Sequence and Method Table Print**



Nutech3551DS Specifications

[Hardware]

Two stage cryogenic traps

1. Nafion dryer: can be removed or bypassed whenever necessary to some special application.
2. Glass bead trap: -190ºC~250 ºC
3. Cryofocuser: -190ºC~250 ºC

Sensitivity and Detect Range

0.1ppbv to percent level for most VOCs.
Concentration ability: > 1000:1

Accuracy and Repeatability

Within 10% RSD for most VOC compounds with a sample loading range of 5 ~1000ml.

Sample Handling

All tubes are silica coated stainless steel
5 ~2000ml loading range with 0~100 relative humidity
MFC operating range 5~120ml/min with +/-2% accuracy

Temperature Control

Advanced ATC with +/-2ºC accuracy

Different Sample Path for High or Low Level Sample

high level sample loop, low level sample MFC control
16 sample inlets with optional autosampler

Operation Environment

110VAC/60Hz +/-10% with max 1500W, 0 to 40ºCwith < 90% RH.

Dimensions

36 W X 51 H X 51 D cm^3

Weight

Net weight 31 kg

[Software]

Intuitive Gas Path Graphic Display

Every single change of valve status, temperature of cryo-traps and gas flow rate, even the gas path and its flow direction are displayed dynamically in real time for every single step, gives you a most intuitive illustration of a complete concentration process.

Rich Function Sequence Control

Complex sequence can be easily complied in advance and saved for later execution
During the execution of a sequence, you can still add or remove a method or change its order
Intuitive display of execution status: executed method in grey italic, blinking method in execution

Speed Functions

One click speed buttons for most common functions: Reset, Idle, Flush Sample Line and Leak Check.

Comprehensive QA/QC Report

Windows 2000 or XP compatible

Nutech3551 Performance in Chromatograms

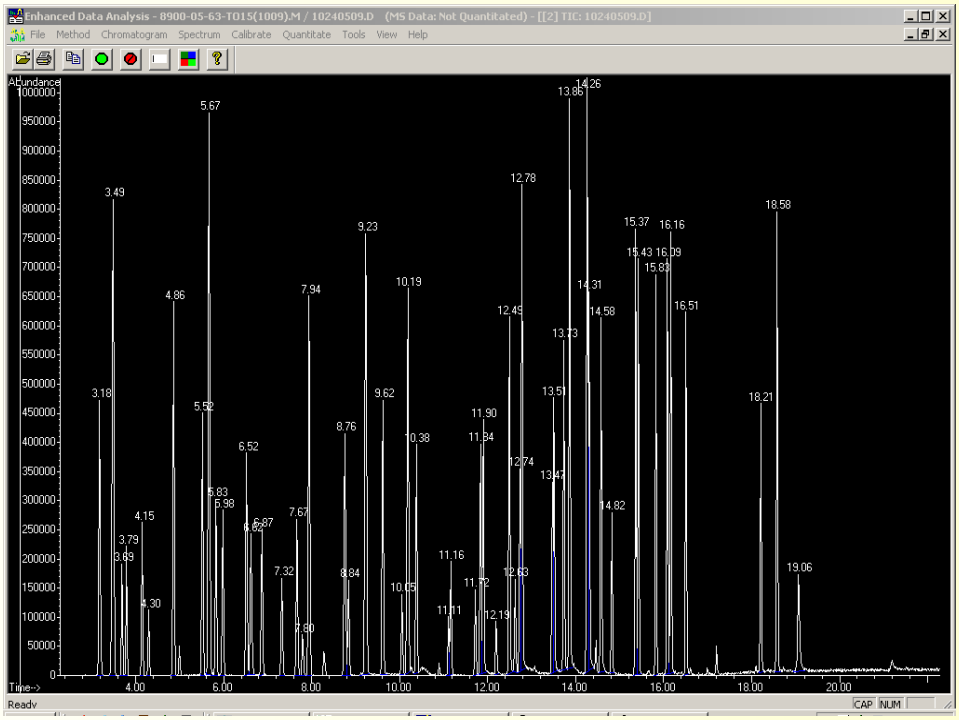


Fig1: Chromatogram of USEPA TO-14 Compounds

Column: DB-5MS 60mX0.32mmX1.0um

GC:35ºC(5min) $\xrightarrow{8^{\circ}C/min}$ **80ºC** $\xrightarrow{15^{\circ}C/min}$ **150ºC** $\xrightarrow{20^{\circ}C/min}$ **220ºC(5min)**

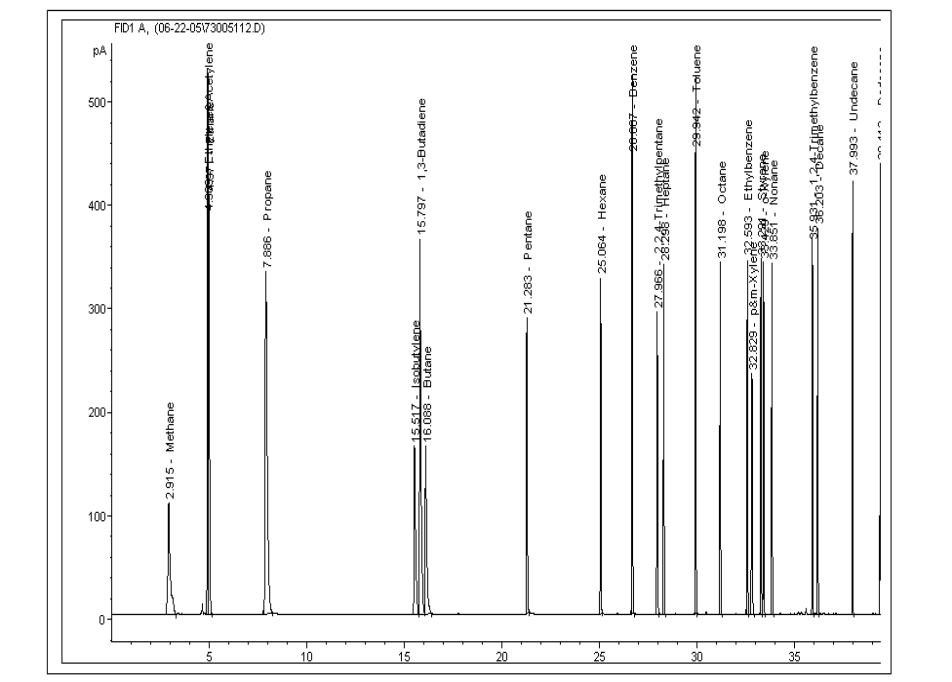


Fig 2: Hydrocarbons C2-C12

Nutech3551 Performance in Repeatability

Instrument: Nutech 3551DS Pre-concentrator; Agilent 6890/5973 GC/MS
Standard Gas: EPA TO-14 50ppb
Experiment Conditions: Run 7 replicate independent experiments of TO-14 standard analysis using 4ml sample volume of standard gas at 50ml/min flow rate. The result is shown in the following table:

Target Compounds	AVG	SD	RPD%
Dichlorodifluoromethane	0.30641	0.012716	4.149946
Chloromethane	0.105607	0.008226	7.789004
Dichlorotetrafluoroethane	0.30641	0.012716	4.149946
Ethene, chloro-	0.054623	0.006902	12.636
Methane, bromo-	0.028826	0.008218	28.50903
Ethene, 1,1-dichloro	0.148071	0.004195	2.833268
Ethane, 1,1,2-trichloro-1,	0.211345	0.010713	5.069091
Methylene Chloride	0.063227	0.006849	10.83197
Ethane, 1,1-dichloro-	0.158887	0.007593	4.778912
Ethene, 1,2-dichloro-, (Z)	0.083093	0.005028	6.050552
Bromochloromethane(SS1)	0.368221	0.00404	1.097195
Chloroform	0.256391	0.006687	2.607966
Ethane, 1,1,1-trichloro-	0.337652	0.013944	4.129556
Ethane, 1,2-dichloro-	0.188204	0.013331	7.083393
Benzene	0.218323	0.0134	6.137657
CarbonTetrachloroide	0.326765	0.019797	6.058588
Benzene, 1,4-difluoro(SS2)	1.462783	0.065058	4.447538
Trichloroethylene	0.115428	0.023006	19.93121
cis-1,3-dichloropropene	0.059391	0.00692	11.65155
Toluene	0.29495	0.013183	4.469621
Ethane, 1,1,2-trichloro-	0.083295	0.006557	7.87229
Tetrachloroethylene	0.192013	0.015586	8.117252
1,2-dibromoethane	0.098485	0.006481	6.580846
Benzene, chloro-	0.197038	0.016008	8.124142
Ethylbenzene	0.539437	0.057138	10.59217
p+m-Xylene	0.701236	0.052638	7.506516
Styrene	0.094672	0.007405	7.821249
o-Xylene	0.309666	0.011495	3.712147
Ethane, 1,1,2,2-tetrachlor	0.111208	0.007961	7.158767
Benzene, 1-bromo-4-fluoro-(SS3)	0.7465	0.059863	8.019196
Benzene, 1,2,3-trimethyl-	0.208068	0.011089	5.329549
Benzene, 1,2,4-trimethyl-	0.206845	0.012577	6.080223
Benzene, 1,2-dichloro-	0.129966	0.005455	4.197456
Benzene, 1,3-dichloro-	0.128028	0.007321	5.718429
Benzene, 1,4-dichloro-	0.101653	0.011379	11.19379

Table 1: Statistical data (Average, Standard Deviation, and Relative Percentage Deviation) of target compound relative response factors

Instrument: Nutech 3551DS Pre-concentrator; Agilent 6890/5973 GC/MS
Standard Gas: EPA TO-14 50ppb
Experiment Conditions: Run 7 replicate independent experiments of TO-14 standard analysis using 100ml sample volume of standard gas at 100ml/min flow rate. The result is shown in the following table:

Target Compounds	AVG	SD	RPD%
Dichlorodifluoromethane	0.3053	0.0081	2.6649
Chloromethane	0.1253	0.0028	2.2351
Dichlorotetrafluoroethane	0.3053	0.0081	2.6649
Ethene, chloro-	0.0743	0.002	2.7039
Methane, bromo-	0.0601	0.0023	3.8732
Chloroethane	0.0375	0.0012	3.1029
Trichloromonofluoromethane	0.3675	0.0083	2.271
Ethene, 1,1-dichloro	0.1548	0.0053	3.4264
Ethane, 1,1,2-trichloro-1,	0.2157	0.0075	3.4545
Methylene Chloride	0.0699	0.0027	3.8285
Ethane, 1,1-dichloro-	0.1773	0.0027	1.5182
Ethene, 1,2-dichloro-, (Z)	0.1103	0.0022	1.9836
Bromochloromethane(SS1)	0.4199	0.0069	1.6553
Chloroform	0.272	0.0046	1.6997
Ethane, 1,1,1-trichloro-	0.3624	0.0046	1.263
Ethane, 1,2-dichloro-	0.2167	0.0029	1.3542
Benzene	0.3669	0.0065	1.7757
CarbonTetrachloroide	0.4002	0.0043	1.072
Benzene, 1,4-difluoro(SS2)	2.4249	0.0255	1.0514
Trichloroethylene	0.2014	0.0025	1.2375
Ethane, 1,2-chloro-	0.0331	0.0009	2.7783
cis-1,3-dichloropropene	0.071	0.0021	2.8929
trani-1,3-dichloroporpene	0.0211	0.0005	2.5768
Toluene	0.2576	0.0038	1.4609
Ethane, 1,1,2-trichloro-	0.0928	0.0011	1.2057
Tetrachloroethylene	0.1699	0.0028	1.6197
1,2-dibromoethane	0.1098	0.0026	2.3734
Benzene, chloro-	0.2196	0.0012	0.5656
Ethylbenzene	0.3804	0.0038	1.0015
p+m-Xylene	0.3105	0.0028	0.9138
Styrene	0.1342	0.001	0.7682
Benzene, 1,4-dimethyl-	0.3157	0.0019	0.615
Ethane, 1,1,2,2-tetrachlor	0.1904	0.0041	2.1759
Benzene, 1-bromo-4-fluoro-(SS3)	0.851	0.0098	1.1496
Benzene, 1,2,3-trimethyl-	0.3162	0.0039	1.225
Benzene, 1,2,4-trimethyl-	0.3452	0.0046	1.3339
Benzene, 1,2-dichloro-	0.2637	0.0039	1.4799
Benzene, 1,3-dichloro-	0.2639	0.0046	1.7522
Benzene, 1,4-dichloro-	0.2396	0.0036	1.4978
Benzene, 1,2,4-trichloro-	0.1829	0.0052	2.8453
1,1,2,3,4,4-hexachloro-1,3-butadiene	0.221	0.0048	2.1842

Table 2: Statistical data (Average, Standard Deviation, and Relative Percentage Deviation) of target compound relative response factors

Always Improving technologies for Air Analysis

PRODUCTS

Nutech2700 Canister Sampling Timer

Nutech 2700 Canister Sampling Timer has been designed for canister timely field sampling. It can be set to either time integrate or grab sampling mode.

Features

- **Easy to set up any time event**
- **Works with any time integrate flow controller**
- **Easy to be put on to any kind of canisters**
- **Light weight**
- **Long battery life**
- **Convenient Swagelok fittings in both inlet and outlet**
- **Water proof for outdoor usage**
- **Free of contamination condition guaranteed by QA/QC report for each unit**
- **Auto Key lock function for safety**

Nutech2700 Specifications

- **System Configuration**

Solenoid valve with accurate timer control
Up to 7 event setup of any start and stop time
Works with all kinds of time integrate flow controllers (FC)
Long duration battery operation
Key lock function

- **Battery Life**

at least 25 hours operation guaranteed with full charge

- **Internal Tubes**

316 Stainless steel tubes and fittings for all sample pass

- **Out Connection Fittings**

¼″ Swagelok female for outlet (Canister end)
¼″ Swagelok male for inlet (FC end of Sample Inlet)

- **Operation Environment**

(Battery Charger) 110 V/60Hz, (220V/50Hz optional) +/- 10% with max 20W power supplies
0 to 40 ºC with < 90% RH

- **Dimensions**

10 W X 7 H X 20 D cm3

- **Weight**

Net weight 1.0 kg