

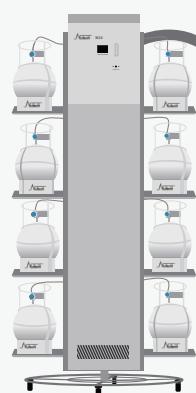


Delivering the Right Results for VOCs

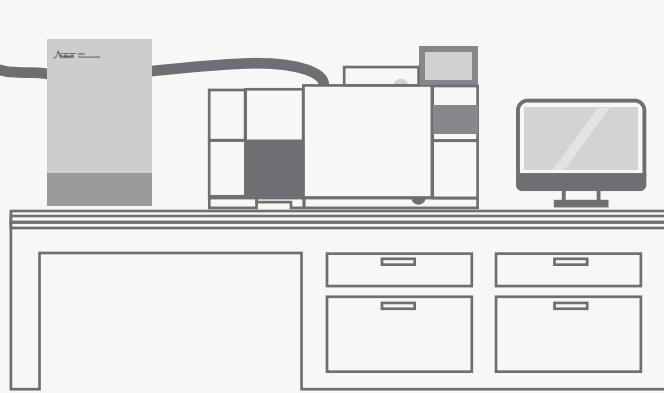
2703 Automatic Air Sampling Device



3610 Autosampler



8910 Preconcentrator



GC-MS

Field Sampling

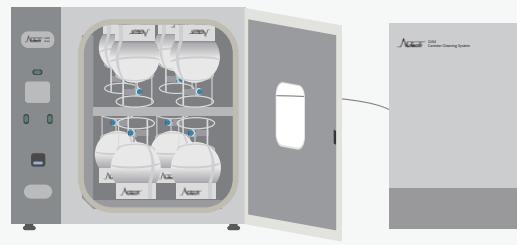
Auto Sampling+Pretreatment

Qualitative and quantitative analysis

2203 Precision Static Dilutor



2104 Canister Cleaning System



Standard gas preparation and standard addition

Canister Cleaning

Some Global Customers of Nutech



Linde



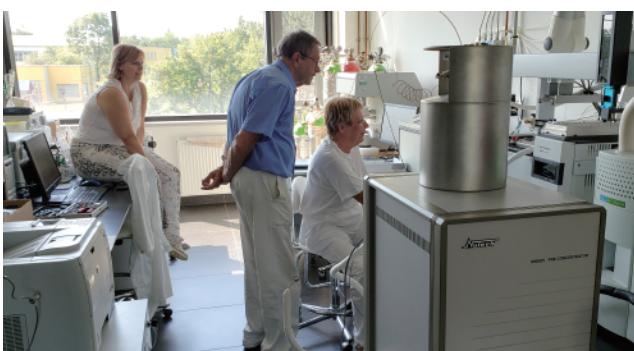
Maryland State Environmental Lab



NIST (National Institute of Standards and Technology)



SCAQMD (the South Coast Air Quality Management District)



Technical University of Ostrava, Czech Republic



Shenzhen Environment Monitoring Center



About Nutech®

Headquartered in Dallas, Texas, Nutech is a technology leader in volatile organic compounds (VOCs) testing and analysis. For decades, Nutech has been focusing on VOCs sample collection, pretreatment, online monitoring and related technologies. We are one of the very few companies who fully master the technology of 3-stage cryogenic traps preconcentration system around the world.

With its headquarter in Dallas, Texas, Nutech extends its business network to many countries worldwide. Our clients include governmental environment monitoring agencies, 3rd party testing bodies, industrial enterprises, universities and research institutions. Nutech is the sole supplier of preconcentration system of Linde Group and the long term supplier of NIST (National Institute of Standards and Technology). We are the testing device supplier of US EPA TO-15, TO-12A. We also serve customers like Washington River Protection Solutions (WRPS), Restek, Harvard, Environment Canada, Taiwan EPA, HK Government Lab, BP and so on.

Nutech will continue to providing our global customers with the most outstanding products and solutions in the field of VOCs monitoring.

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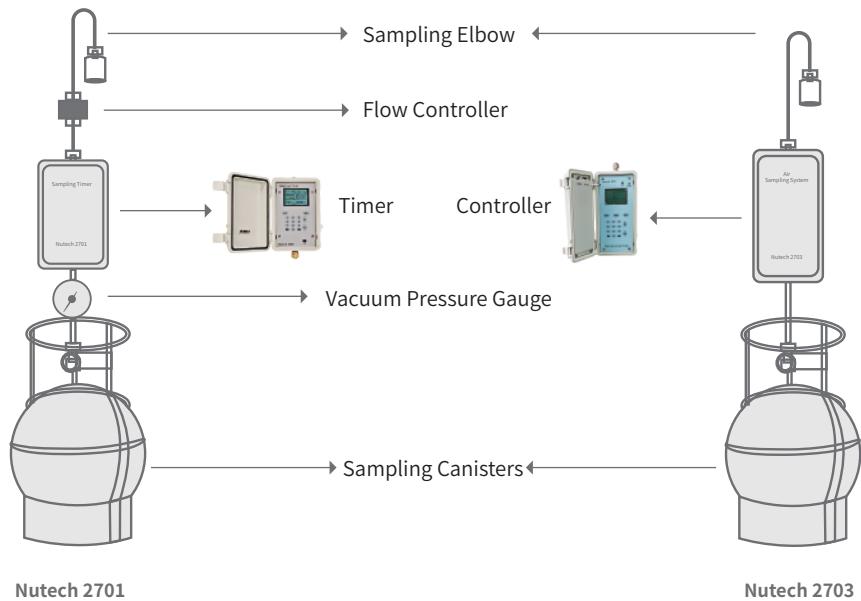
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Air/Gas Sampling Products



2703 Automatic Air Sampling Device



The 2703 is an ideal product for automated air sampling. It is useful for standard environmental testing, scientific research, and 3rd party monitoring. Features include: an integrated timer, flow control, pressure reading, leak checking, auto QA/QC, a smartphone app with access to full system control.

Features

1. Full Automation & Ease of Operation

- ① The 2703 is the latest generation controller, which includes integrated flow control, timing, and pressure reading functions.
- ② The 2703 can be controlled by the on-board PLC, as well as by PC and smartphone. The sampling parameter settings are intuitive and user friendly.
- ③ The wireless control of automated start and stop times reduces time in the field and labor costs.



2. Great Battery Performance



The 2703 features a high-capacity (8700mAH) Li-Ion rechargeable battery and has low power requirements, allowing it to last up to 7 days without recharging.

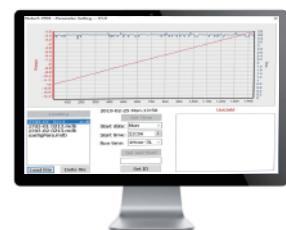
3. Strong Adaptability

- ① The 2703 has a durable plastic protective cover, and is both water proof and dust proof. It has the option of being upgraded to a stainless steel cover. It is also equipped with a filter kit, allowing for operations in all but extreme weather conditions.
- ② The unit's modular design allows it to be combined with various sampling media, including cartridges, Summa canisters, and Tedlar® bags.



4. High Precision & Minimal Limitations

- ① The 2703's precise flow control uses built-in high precision pressure and flow sensors. The unit avoids the blockage problems and limitations associated with current mechanical air samplers.
- ② Silanized paths minimize the carryover and contamination.



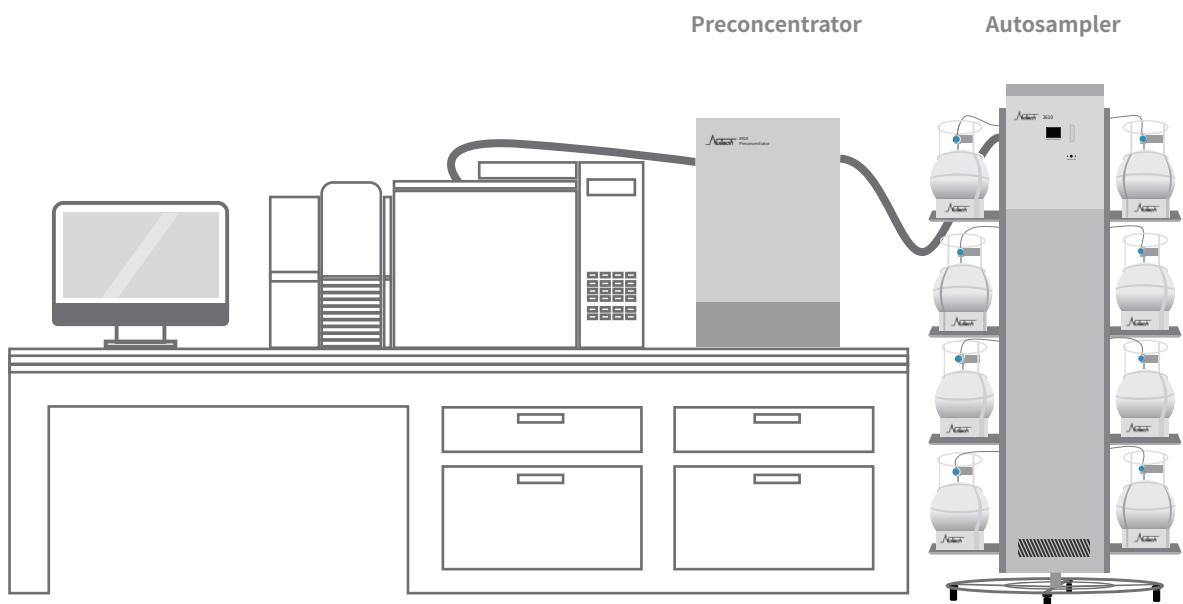
5. Quality Control

With automatic leak detection, the 2703 possesses real-time recording and a visual display of the sampling pressure and flow data. The real-time data and historical data can be queried.

Air Lab Sample Prep Products

EPA TO-14/15

EPA /600-R-98/161

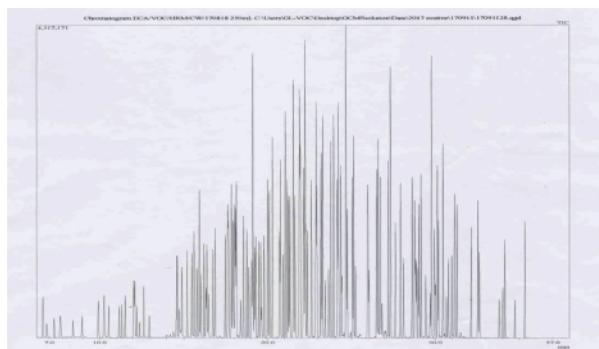


8910 Preconcentrator

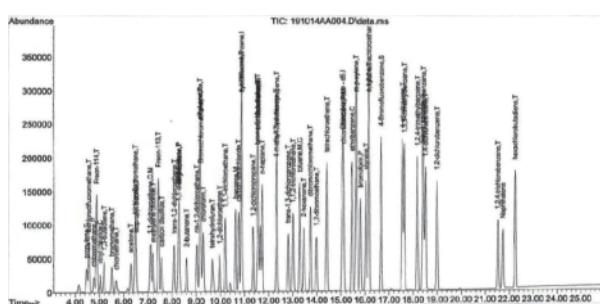


The 8910 has advanced hardware and software with unique features for the analysis of compounds listed in EPA Methods TO-14 and TO-15. Functionality and longevity were the main goals in the development of Nutech®'s preconcentrator.

Chromatogram



TO-15+PAMS+More, 150 Compounds



EPA TO-15 Target 67 Compounds

Technical Data

Detection Limit	0.1 ppbv
Loading Range	4-2000ml
Concentration Ratio	>1000:1
Temperature control	±2°C Accuracy
RSD for Most VOC Compounds with A Sample	≤3%
Heating Rate	10000°C/min
Maximum Power	2 kW
Voltage	110V/60Hz or 220V/50Hz ±10%
Three Stage Cryogenic Traps	I Glass bead II Tenax multimedia trap III Cryofocuser
	-190°C~250°C -190°C~250°C -190°C~250°C

Features

1. Strong Practicability and Wide Application Range

- ① The 8910 uses the classical 3-stage module (two cryogenic traps and one cryofocuser). Coupled with a new generation of advanced H₂O & CO₂ management technology, its preset methods for TO-15, PAMS and sulfide analysis can fully meet the requirements of US EPA methods without any changes or accessories upgrades.
- ② The 8910 creates negative pressure for automatic suction and injection of samples, and has an MFC operating range 5-120mL/min with $\pm 2\%$ accuracy.
- ③ The 8910 has a standard total volume injection range (4-2000 mL). With a quantitative ring injection valve, the minimum injection volume can be as low as 0.2mL, allowing a total volume range to be 4 orders of magnitude.

2. High Sensitivity

- ① The concentration rate is increased more than 1000X, vastly lowering the detection limit of GC or GC-MS.
- ② The advanced temperature control keeps the variation under ± 2 °C, assuring stable and accurate analysis.
- ③ The pipeline, valve and other flow path components are inert, durable, and corrosion-resistant. This eliminates unwanted carryover, chemical reactions, minimizes sample contamination, and ensures maximum recovery.

3. High Automatic, Powerful Software

The software is powerful and easy to operate. The system has the ability to perform automatic leak checking, generate reports, and create alarm errors automatically. The software continuously displays operation status, records processed data, and supports QA/QC report printing.

4. Good Compatibility, Powerful Extended Function

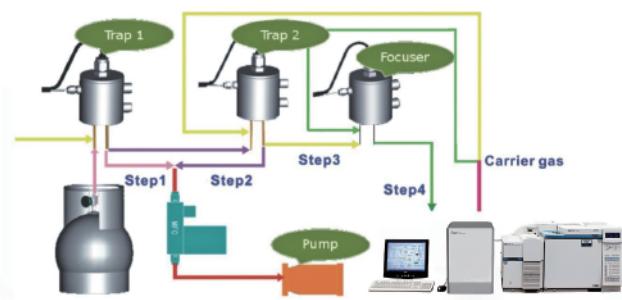
The 8910 is highly flexible, allowing users to establish a new analytical method according to their application needs. It is compatible with different types of GCs or GC/MSs in the market. It can be used directly with an instrument, or be coupled with an automatic sampler (3610) for multiple sample analyses.

5. Long-term Stable Operation

- ① Internal structure is optimized in a modular design. Isolation of temperature control module, sensitive components, and the external liquid nitrogen valve effectively avoiding large temperature changes, condensation interference, rust on electronic components. The net result is the long-term stable operation of the instrument.
- ② The small volume trap is designed so that its temperature and liquid nitrogen flow control mode are optimized, keeping liquid nitrogen use down to a minimum.



3-Stages H₂O & CO₂ management technology

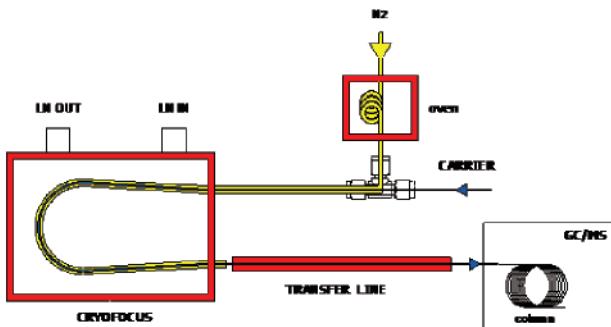


① Control Trap 1 temperature and transfer parameters allow for the partial retention of water within Trap 1 during Trap 1 to Trap 2 transfer.

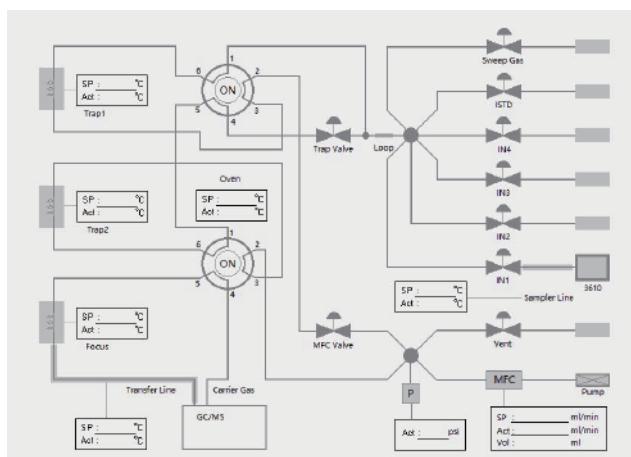
② Control Trap 2 material property and temperature to avoid water and CO₂ being trapped.

③ Focuser Heating Injection control:

- a. N₂ is preheated in the oven.
- b. Heated N₂ goes through the outside of the focuser column to generate rapid heating rate (Over 10000°C/min).
- c. Water is partially retained in focuser and can be removed as an optional step at end of GC run.



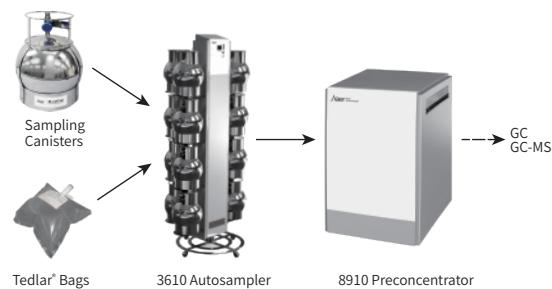
Schematic Diagram



3610 Autosampler



The 3610 features 16 inlet positions that bring Nutech's automated analysis capabilities to a wide variety of vacuum sampling canisters and Tedlar® bags. The 3610 easily connects to a 8900/8910 Preconcentrator for the automated analysis of VOCs in canisters with EPA TO-14A and TO-15 requirements.



Features

1. Compatibility

Compatible with different types and specifications of sampling canisters on the market. Equipped with Nutech® ETC adapters, it can easily connect with Tedlar® bags, syringes, and sampling bottles.

2. Fully Automatic Sampling

Up to 16 sampling canisters can be analyzed in accordance with EPA Methods TO-14A and TO-15. The automated system can be programmed to set the order, duration, and volume of the sampling sequence. The system can be upgraded to parallel injections with dual detectors to improve efficiency.

3. No pollution

The inner wall of the pipeline is silanized. The system has the functions of automatic leak checking, heating and backflush. The system minimizes contamination and carryover of samples, and ensures sample accuracy and precision.

4. Ergonomic Design

High quality wheels and a stable base allow for easy movement. Canister-support platforms can be closed, saving laboratory space.

2104 Canister Cleaning System



Features

1. Dual pumps (Turbo Pump and Diaphragm Pump) are custom designed, with the final vacuum pressure reaching less than 10mTorr.
2. The 2104 is capable of automatic humidification, leak checking, and easy operation.
3. The 2104 uses dedicated software, capable of multiple rounds of cleaning as well as customized final vacuum or pressure. This automation will allow chemists to focus on other lab work, improving laboratory efficiency.



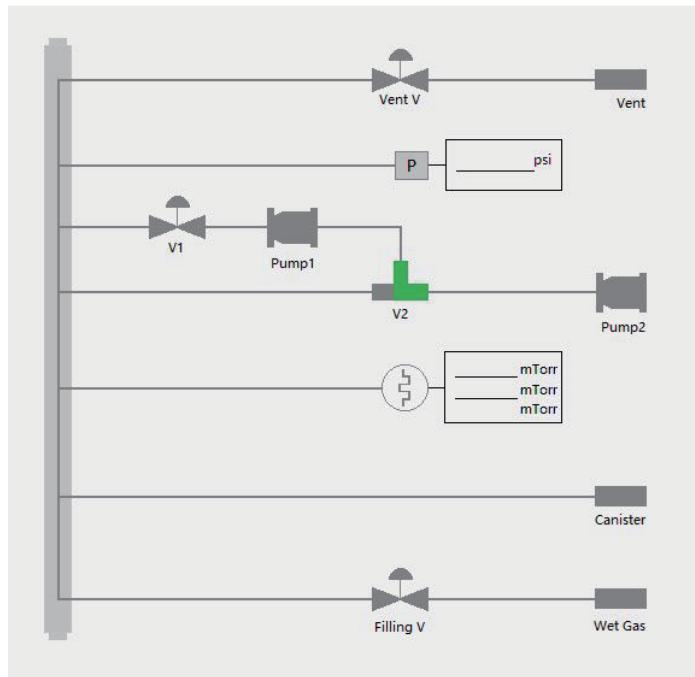
2108 Oven

EPA Methods TO-14 and TO-15 require sampling devices be clean down to the sub-ppbv level. The 2104 is suitable for meeting these requirements. The 2104 is able to clean Summa canisters of various sizes (1/3/6/15L) as well as Tedlar® bags.

Technical Data

Maximum Vacuum	≤10mTorr
Number of Canisters	4 (Customizable)
Heating Mode	Heating belt (Standard), Heating furnace (Optional)
Cleaning Gas	Ultrapure Nitrogen or Zero Air
Voltage	110V/60Hz or 220V/50Hz±10%
Operating Environment	Temperature: -5~50°C; Humidity: 0-95%RH
System Pressure	0~50psi
Maximum Power	1kW
Dimensions	290x455x476mm
Ports	TP/ICP
Operating System	Windows XP/7/8/10

Schematic Diagram



2203 Precision Static Dilutor



It is suitable for diluting high concentration gas standards into low concentration working gas standards, making the process automated and reproducible.

It is suitable for diluting high concentration gas samples to fall within the calibration range of the analytical instrument.

MFC

EPS

Features

1. Using a multi-stage dilution process, the 2203 can reach a maximum dilution factor of 10,000 X, allowing for percent-level analysis on trace-level instruments.
2. The 2203 uses a high precision MFC and pressure sensor for dilution control. Compared with differential pressure instruments, the precision of dilution is higher (<1% for 100 tests).
3. The 2203 is highly efficient with its gas usage. One 110L standard gas can fill over 1,800 6L canisters.
4. The customized software has a high degree of automation. It automatically checks the initial pressure of the sample tank and calculates the final dilution factor based on the final pressure input, and is easy to operate.
5. The 2203 has dedicated lines standard and sample dilutions. The sampling lines and valves are silanized, minimizing the unit's potential contamination of subsequent samples.

Technical Data

Number of Channels	5 (Customizable)
Precision	$\leq \pm 0.3\%$
Maximum Dilution Times	10000
Gas	Ultrapure Nitrogen or Zero Air
Pressure of Gas	0~35psig
Operating Environment	Temperature: -5~50°C; Humidity: 0-95%RH
Voltage	110V/60Hz or 220V/50Hz $\pm 10\%$
Dimensions	300x360x430mm
Ports	TP/ICP
Operating System	Windows XP/7/8/10

Schematic Diagram

