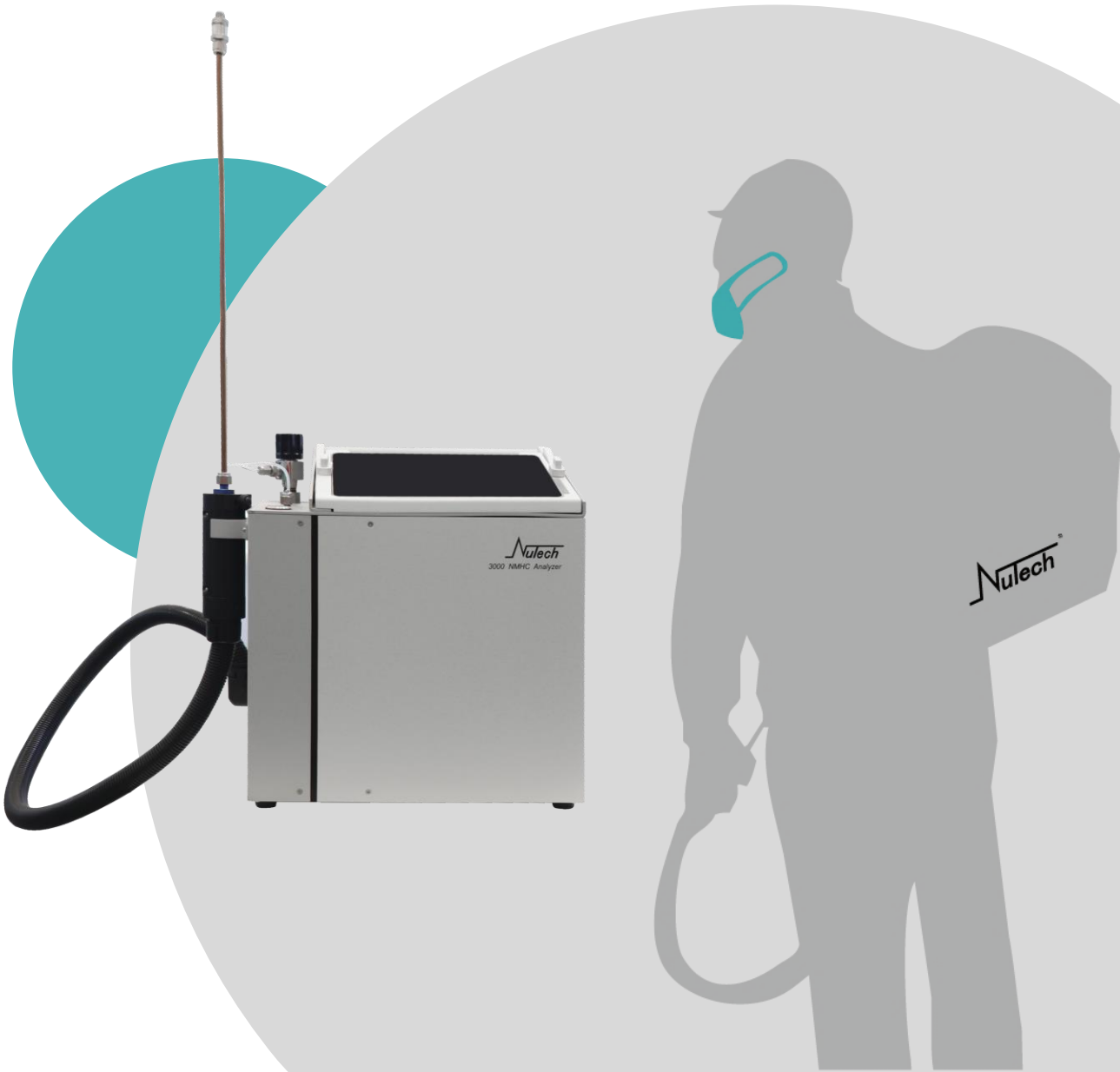




Delivering the Right Results for VOCs

Nutech 3000 Portable THC & NMHC Analyzer

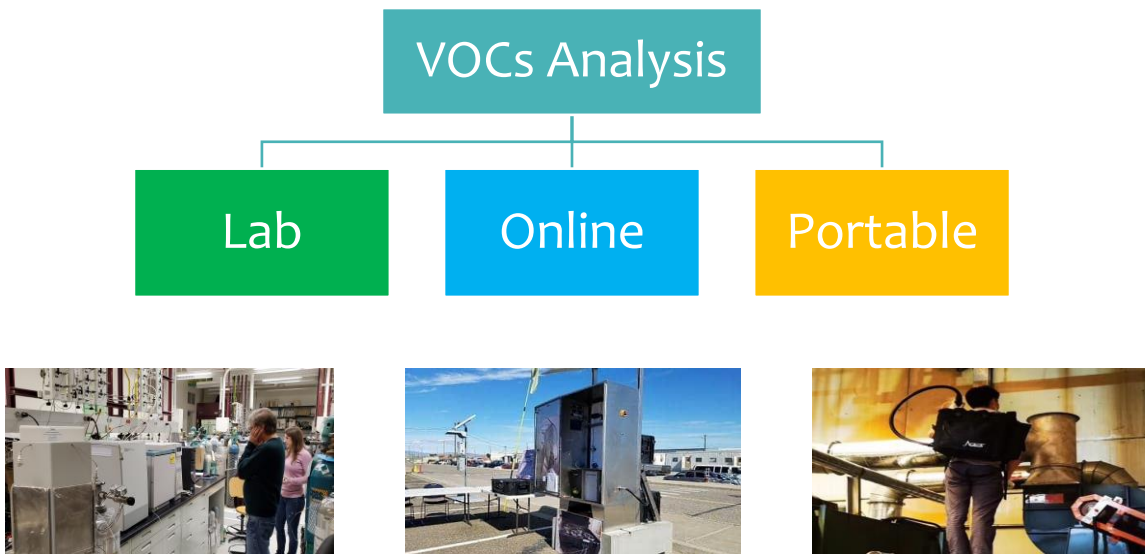
The Latest Generation of
Portable VOCs Analyzer
for Stationary Emission Source & Fence Line



VOCs Analysis Methods

VOCs can be analyzed by lab instruments, online instruments and portable instruments. Nutech is the only company who can provide VOCs analysis solutions & products for lab, online and portable applications.

Nutech 3000 Portable THC & NMHC Analyzer is the latest generation product for portable VOCs analysis and we've made many improvements based on the existing products on the market.



The Necessity for a Portable VOC Analyzer

- The gas sample at emission source is hot and moisture. It is evitable to cause sample loss, adsorption and deterioration during sample collection and transportation for lab analysis and thus the test results will be affected.
- Lab analysis can't deliver timely results and thus its is not applicable for emergency monitoring.
- The lab analysis is labor intensive with samples to be collected, transported and analyzed.
- Online analyzers are permanently installed and need regular maintenance which doesn't fit for applications that only require occasional / periodical / emergency monitoring.

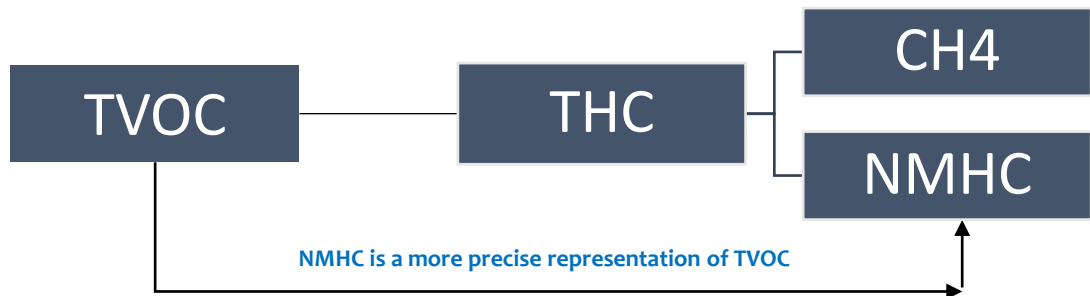
■ Occasional Monitoring

■ Periodical Monitoring

■ Emergency Monitoring

Why List NMHC as an Monitoring Target

- TVOC can be represented by THC (CH₄+NMHC) or NMHC.
- CH₄ is a non-toxic and unarmful gas and it accounts for the major part of THC. NMHC is the harmful & hazardous part in THC. Thus, to analyze toxic VOCs, NMHC is a more precise target than THC.



Typical Applications

- Environmental inspection and law enforcement by government regulator
- VOCs testing by commercial testing companies
- Effectiveness evaluation of VOCs control measures
- Self-inspection of VOCs emissions from chemical, printing and dyeing, spray painting companies
- On-site detection and supervision of kitchen oil fume
- On-site comparison with the results of online VOCs analyzer to determine whether the online analyzer's result is accurate.
- VOCs emission detection of combustion device exhaust

Typical Users

- **Government environment protection regulators.** They can bring this instrument to raid a suspected over-emission site and do test on-site to see if there is an over-emission. If yes, they can fine the owner. They can also use this instrument to do a before and after comparison to evaluate the effectiveness of their VOC control measures .
- **Polluters/factories.** Some polluters are required to install online analyzers to deliver continuous real-time test results all year long. But many polluters only need to perform periodical (weekly, monthly, quarterly ect) or occasional VOC testing. In this situation, a portable analyzer would be more applicable than an online analyzer.
- **Commercial testing companies.** They can use the portable VOCs analyzer to provide on-site VOCs testing service.
- **Research institutes.** They can use this instrument on their VOCs research projects.

Technology Principle

TVOC can be represented by THC or NMHC. The Nutech 3000 adopts catalytic oxidation + double FIDs technology to **simultaneously** analyzes THC & NMHC.

The sample gas is introduced to the analyzer by 2 channels. FID 1 analyzes the concentration of THC (total hydrocarbon) of the gas sample in channel 1. And the catalytic oxidation module oxidizes the NMHC (non-methane hydrocarbon) into CO₂ and H₂O in channel 2 and thus FID 2 only analyzes the concentration of methane. The concentration of NMHC can be calculated by concentration of THC subtracts the concentration of methane.

Concentration of NMHC = Concentration of THC – Concentration of CH₄



Technical Data

- Detection Method: Catalytic Oxidation + Double FID
- Measuring Range: 0~10/100/1000/10000 ppm (Automatic)
- Detection Limit: ≤ 50 ppb (Calculated by Carbon)
- Zero Drift: $\leq \pm 1\%$ Full Scale/8H
- Span Drift: $\leq \pm 1\%$ Full Scale/8H
- Repeatability: $\leq \pm 0.1\%$ Full Scale
- Indication Error: $\leq \pm 1\%$ Full Scale
- Conversion Efficiency: $\geq 95\%$
- Warm-up Time ≤ 30 min
- Data Resolution (T90): THC ≤ 2 s; NMHC ≤ 2 s
- Working Environment: temperature: $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$; relative humidity: $< 95\%$; atmospheric pressure: (80~106) kPa
- Power Supply: DC24V, AC (100-240 $\pm 10\%$) V/(50 $\pm 2\%$) Hz
- Dimensions: 370x260x397mm
- Weight: < 12 KG

Standard Configuration

Instrument main unit (including catalytic module, metal hydride cylinder), sampling tube (including probe, filter device), Microsoft Surface GO tablet, backpack.

Features

Lightweight & Integrated Design

- Highly integrated design to ensure the total weight within 12KG (including catalytic module, metal hydride cylinder, battery, zero air generators, etc)
- Analyze THC & NMHC in one single unit.
- Equipped with a backpack and a handle, which can be easily transported and put into use by one person.

Easy to Use

- Large-capacity battery (45Ah) power supply, which can run for a long time even without utility power on site.
- Operated by a detachable touch screen tablet with Wi-Fi communication and a user-friendly interface. Users can control the instrument and read test results within 50m (33ft) of the site through the detachable tablet.

High Test Efficiency

- New catalyst is used to achieve high conversion efficiency ($\geq 95\%$)
- Double FID design and can measure both THC & NMHC continuously at the same time without the need to switch gas flow. It can deliver NMHC test results as fast as every second.
- Fast gas path cleaning speed.

Most Accurate Test Result

- From the sampling tube to the FID detector, the whole process is high temperature heating to avoid condensation loss of high temperature and high humidity gas samples.
- The sampling flow path is silanized (a special surface treatment technology to make the surface utmost inert), resistant to high temperature and corrosion, and contains a filter device to effectively filter particles to avoid sample contamination and adsorption.
- High precision EPC and FID are adopted to ensure accurate flow control and accurate measurement.
- Support automatic & manual purge function to keep the system clean and thus deliver more accurate test results.

Powerful & Easy Data Processing

- Data file automatic recording and storage, historical data query, reprocessing and printing functions.
- Test data can be exported in Excel file.

Lowest Running Cost in Its Kind

- H₂ is supplied by mini built-in metal hydride cylinder with very low pressure and thus is safe and easy to handle and transport. The metal hydride cylinder is recyclable.
- Zero air is supplied by internal pump. No need disposable zero air bottle.
- Also support external gas cylinder

Wide Applications

- Applicable in VOCs measurement in stack (high concentration), inside the factory (medium concentration), outside the factory/fence line (low concentration).