Syft Tracer™

Industry-Scalable, Real-Time Trace Gas Analysis

Syft™

Simply. Faster.

The Most Advanced and Scalable Solution for Eliminating Analytical Bottlenecks

Syft Tracer™ is the next generation of real-time, direct-injection mass spectrometry (MS) built to solve the most difficult analytical challenges faced within a variety of industries and applications. The advancements to selected ion flow tube mass spectrometry (SIFT-MS) deliver trace-level detection sensitivity, unparalleled performance stability, and highly reproducible data. Syft Tracer is optimized for high-throughput environments where 24/7 operation is the standard. Never miss a product or environmental contamination event again.

Syft Tracer: The Industry Standard for Real-Time Trace Gas Detection

Easy to operate & interpret data

Fine Auto Retune for optimal signal levels

Performance Authenticator for superior analytical stability

Hardware advancements to maximize system lifetime

System drive optimized for 24/7 data collection

Trace level multi-analyte detection sensitivity

Highly selective & quantitative

No chromatography or pre-concentration required

Faster Time to Reproducible, Repeatable Data

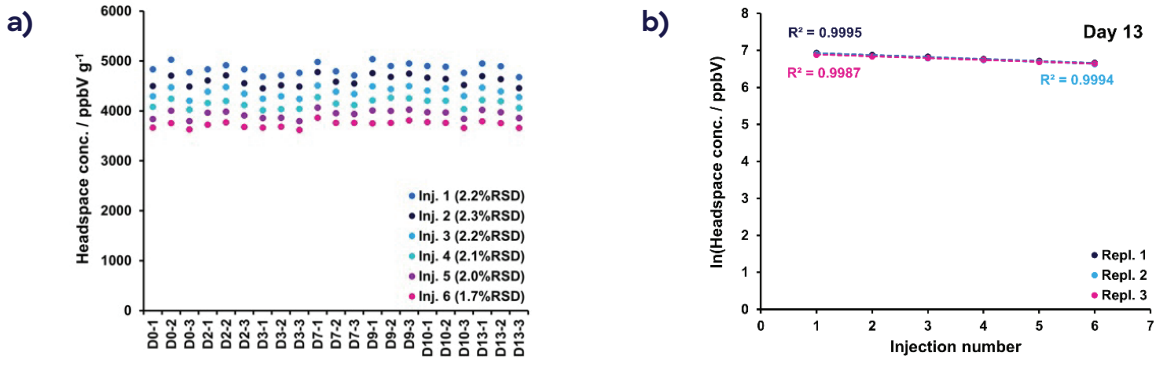


Figure 1: Headspace-SIFT-MS analysis of formaldehyde content in Gelucire 44/14 is (a) highly reproducible over a 13-day period (D0 to D13) and (b) highly repeatable on any given day. Data are from a multiple headspace extraction study (six injections per sample).

Faster, More Sensitive Detection of Volatile Product and Environmental Contaminants

Syft Tracer™ provides rapid, sensitive, and robust analysis of contaminants in a wide array of commercial products and environmental settings. SIFT-MS has the proven ability to detect toxic compounds emitted from consumer products with 10 - 50x or greater sensitivity than standard GC-MS methods. Compounds can be instantly detected in air as opposed to needing to be vialed prior to analysis. Syft Tracer builds off the trace-level detection inherent to SIFT-MS by offering 50% greater sensitivity than Syft's legacy platform. Compounds that have traditionally been problematic through chromatographic analyses like nitrosamines, ethylene oxide, ammonia, and formaldehyde are easily detected by the SIFT-MS system.

Get your data in seconds, not minutes

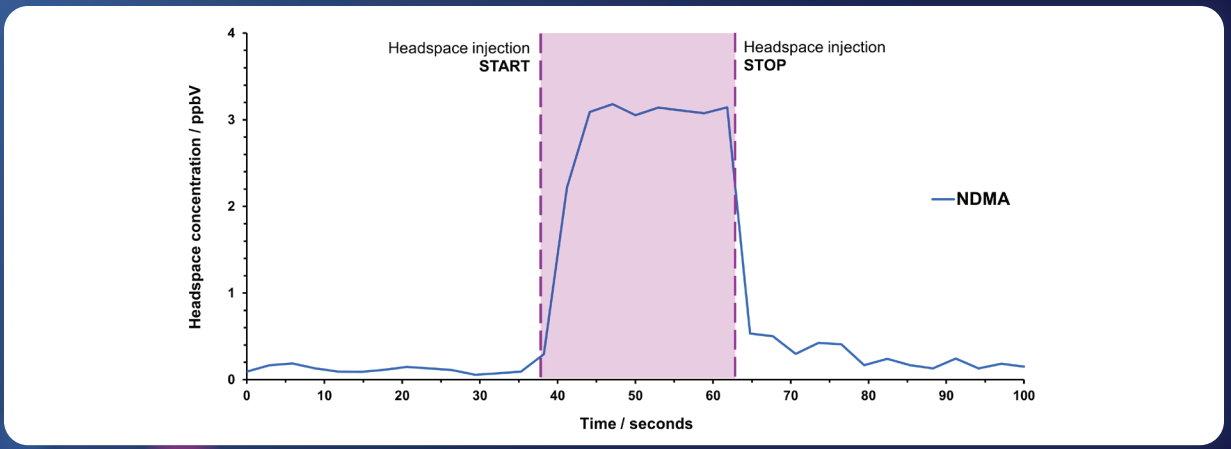
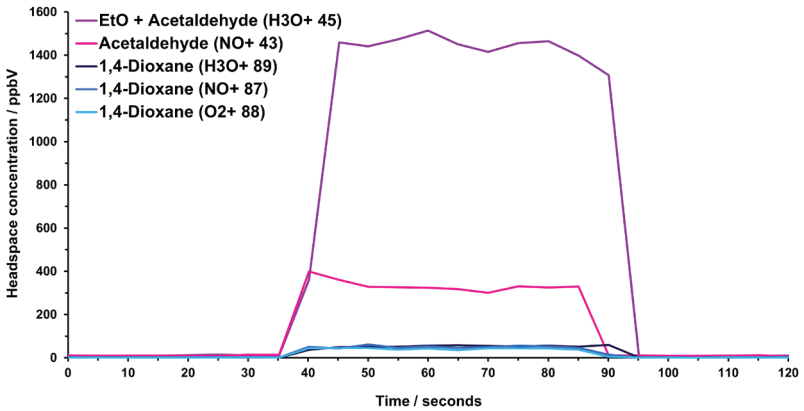
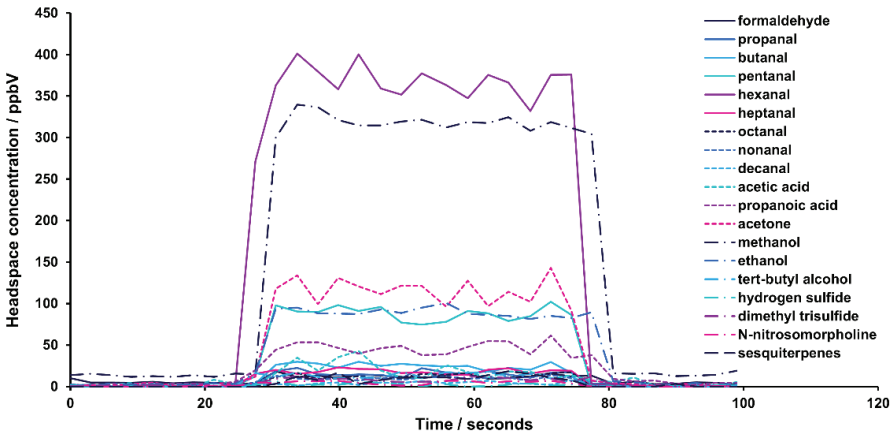


Figure 2. Syft Tracer responds rapidly to concentration changes. N-Nitrosodimethylamine (NDMA) is quantified from headspace with high sensitivity when sampled from a 10-mL sample vial containing 2.6 ng of NDMA and injected at 100 µL s^{-1}.

Trace-Level Detection of Multiple Analytes

Figure 3. Direct headspace-SIFT-MS analysis of ethylene oxide (EtO) and other toxic impurities.





Selectivity to Enable Discreet Analyte Targeting

Figure 4. Headspace-SIFT-MS analysis of multiple volatiles from paper. SIFT-MS enables chromatographically challenging species, such as aldehydes, organosulfur compounds, and volatile fatty acids to be quantified directly and simply.

Syft Tracer is Your Answer When Performance Stability and Throughput Matter to Your Workflow

Syft Tracer™ is designed to meet the most demanding requirements of high-throughput and around the clock production environments. The system is also well-suited for mobile applications and outdoor settings. Features like Performance Authenticator and Fine Auto Retune keep the system running in its optimal condition and ensure analytical accuracy. New hardware components have been engineered within the instrument to maximize its performance lifetime. The latest version of Kiosk instrument software provides a user-friendly interface to go along with a hard drive equipped for storing large data sets from 24/7 data collection. Get piece of mind by choosing the most scalable analytical instrument on the market.

Syft Tracer is Always On

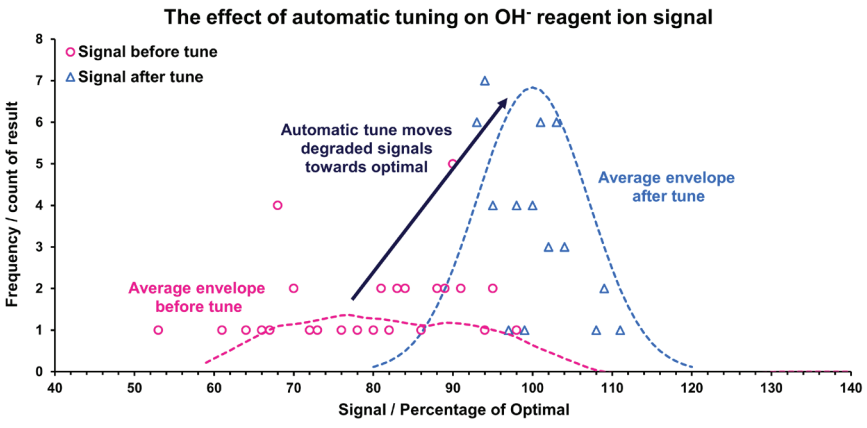


Figure 5. Fine Auto Retune maintaining reagent ion signal over approximately 50 test cycles, corresponding to many months to years of operation. In extended tests, 98% of cases delivered reagent ion signals ≥90% of optimal.

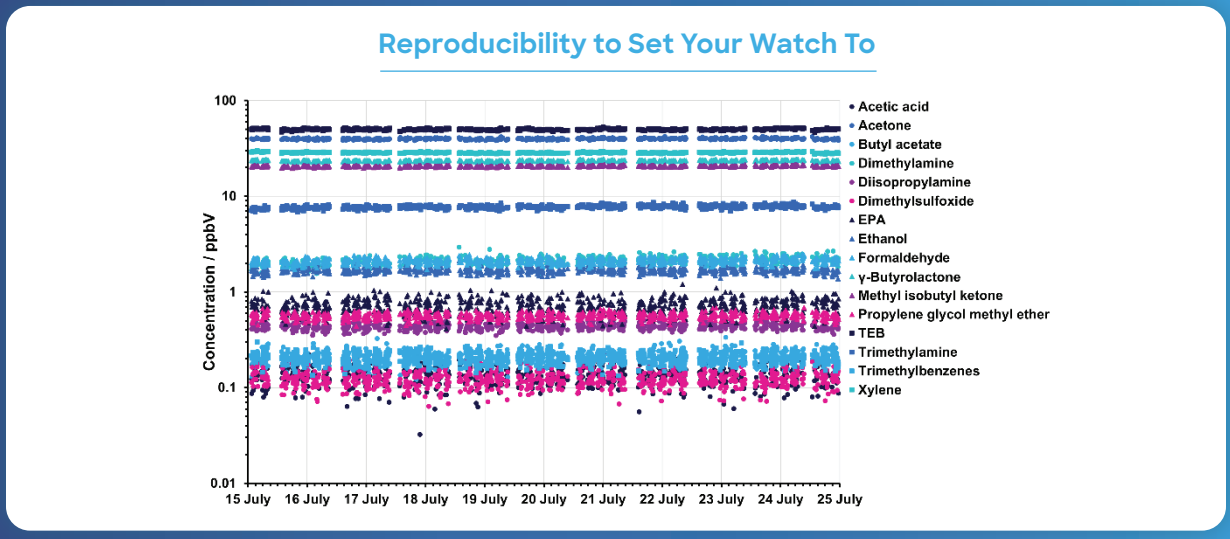


Figure 6. Demonstration of Performance Authenticator maintaining quantitative accuracy across multiple replicates with exceptional reproducibility.

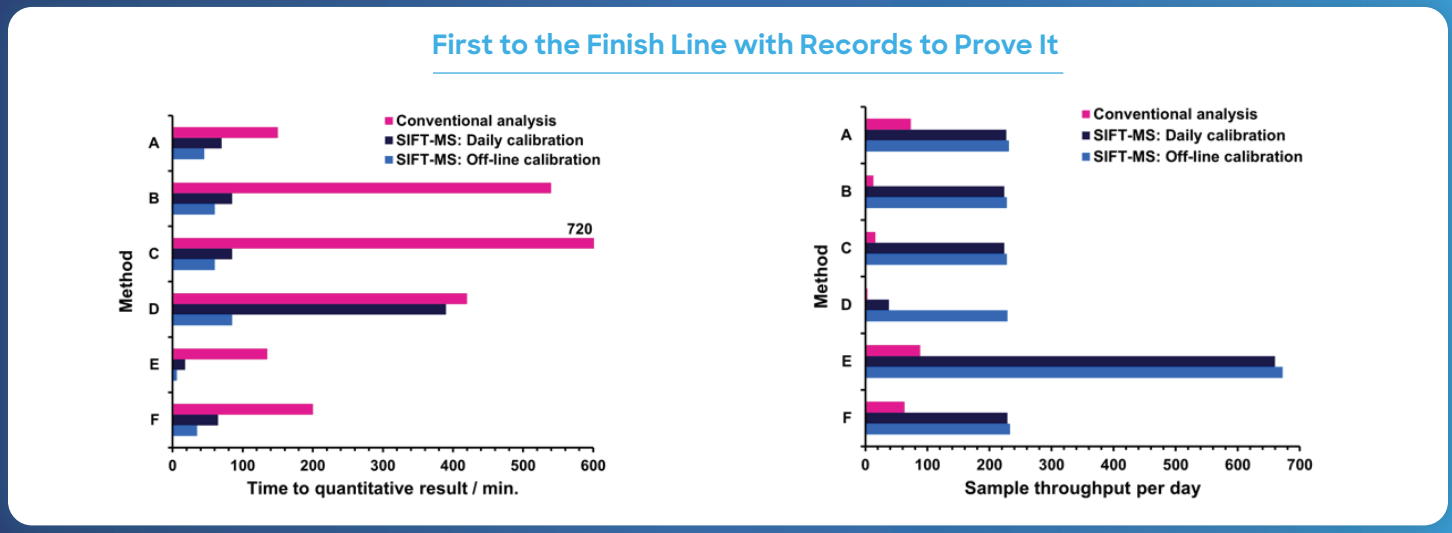


Figure 7. Syft Tracer delivers faster quantitative results (left) and more of them per day (right) compared to conventional techniques. Analyses are: (A) volatile nitrosamines, (B) residual solvent analysis, (C) ethylene oxide in Polysorbate 80, (D) formaldehyde in gelucire excipient via multiple headspace extraction, (E) formaldehyde from whole air, and (F) benzene in consumer products or packaging.

Syft Tracer™ is available in different configurations to meet your application needs. SIFT-MS also simplifies headspace, sample bag and thermal desorption tube analyses compared to legacy chromatographic options. The system includes a substantial 1500+ compound library that can be utilized to set up customized analyte targeting methods. The compound library has the flexibility to quickly add new method compounds without the need for costly system additions or upgrades. Syft Tracer comes equipped with Kiosk 4 instrument software which is optimized for usability and visibility to system health indicators.

General	Specific Compound Examples						
Compound/class	**VOCs**	**Formaldehyde**	**Benzene**	**Ammonia**	**H_2S**	**Acetone**	**SO_2**
Limit of Detection (pptv,*)	<20	25	<10	200	100	150	150
Compound Coverage	1500+ compound library of VOCs and inorganics						
Linear Dynamic Range	LOD – 10 ppmv (upper limit can be compound dependent)						
Sample Consumption	Typically 25 ml/min of scan						
Measuring Principle	SIFT-MS						
Mass Range	10 – 400 amu						
Linearity	$R^2 > 0.99$						
Ambient Temperature	10 – 30 °C						
Ambient Humidity	0 – 95% non-condensing						
Consumables	>99.999% N2 at 160 ml/min while scanning DI Water at 200ml/per 6 months						
Performance Authentication	Recommended daily						
Maintenance	Twice Yearly						
Country of Manufacture	New Zealand						
Regulatory Certification	Produced under an ISO9001certified process						
Size (L x W x H)	0.906 m X 0.755 m X 0.957 m (Screen flat)						
Data Output	Data saved to file on onboard hard drive. XML and CSV available MODBUS TCP/IP, Laptop interface with data visualization software						

**3σ of a 1 minute scan using N_2*

About Syft: **The world leader in real-time, direct injection mass spectrometry**

Syft was founded in 2002 and has over 150 professionals in 7 countries. Syft is considered the world leader in real-time, direct injection mass spectrometry with more than 20 years of SIFT-MS expertise. Syft instruments support a broad range of industries worldwide including semiconductor manufacturing, pharma and CDMOs, environmental protection, automotive, food, flavor and fragrance, and many more.

Customer Support offices are located throughout the world offering 24/7 service and support including those in New Zealand, Korea, Taiwan, Singapore, Germany and the U.S. Factory trained field support engineers and field application scientists are staffed in each Customer Support office. Regional service and application development support is available to assist with expanding your SIFT-MS applications.

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