SOLUTIONS THAT PROTECT PEOPLE

SYFT TECHNOLOGIES

syft™ Technologies

SIFT-MS SOLUTIONS THAT PROTECT PEOPLE

Many volatile organic compounds (VOCs) and semi-VOCs (SVOCs) pose risks to human health and the general well-being of modern society. Some have severe, acute toxicity, such as the chemical warfare agents and fumigants. Others have more chronic health effects and are carcinogenic, such as benzene and formaldehyde. Certain VOCs and semi-VOCs (SVOCs) also act as useful marker or taggant compounds for drugs and explosives.

Selected ion flow tube mass spectrometry (SIFT-MS) is the first technology that can – in one simple analysis – rapidly quantify these diverse toxins and marker VOCs, at the required concentrations, and with wide linear and dynamic ranges. Syft Technologies' SIFT-MS instruments also deliver benefits in ease of integration, remote operation, and long-term stability.

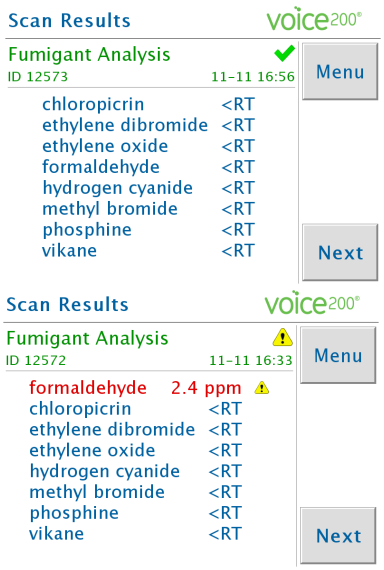
SIFT-MS represents a breakthrough in the detection of hazardous VOCs and SVOCs. This brochure outlines several Syft Technologies' solutions that provide protection for employees and the general public.

FUMIGANTS AND TOXIC INDUSTRIAL CHEMICALS

Frontline workers in the shipping and border security industries face constant danger from exposure to undocumented, incorrectly packaged or applied toxic compounds, such as fumigants and toxic industrial chemicals (TICs). In some cases, fatal exposures have occurred. Benefits of SIFT-MS analysis for fumigants and TICs include:

- Simplicity of operation and reporting – no scientific training is required
- Rapid, laboratory-grade analysis on site, allowing decisions to be made instantly
- Analysis of chemically diverse compounds in a single scan
- Sampling and analysis protocols easily configured to meet customer needs.

Syft provides industry-proven solutions for detecting and quantifying a broad range of fumigants unnecessarily disrupting freight and TICs, without movements through facilities. With an ability to identify compounds well below risk levels for long-term exposure, SIFT-MS successfully protects workers in the logistics industry.

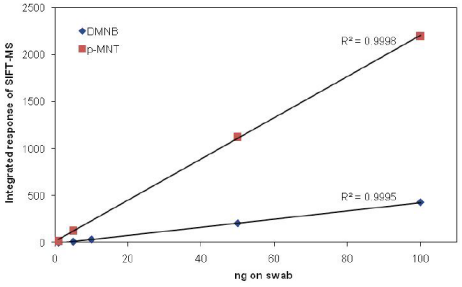


Easily interpreted results from SIFT-MS analysis of gas samples taken from two shipping containers: one container is safe to enter, while the other is unsafe.

BORDER SECURITY AND CUSTOMS

SIFT-MS offers significant advantages over the ion mobility spectrometry (IMS) technique currently used as a front-line screening tool for drugs and explosives. Like IMS, the SIFT-MS technique is robust, easy to use, highly sensitive, and analytical results are obtained very rapidly. However, SIFT-MS provides higher selectivity through use of multiple rapidly switchable reagent ions coupled with mass spectrometric detection. This greatly reduces the incidence of false positives compared to IMS.

SIFT-MS detects a wide range of drugs, drug precursors, explosives, and taggant compounds down to part-per-trillion (ppt) levels. Application options include traditional gas analysis and swab-based analysis.



Detection of 2,3-dimethyl-2,3-dinitrobutane (DMNB) and p-mononitrotoluene (p-MNT) explosive taggants using a combined swab desorption and SIFT-MS approach.

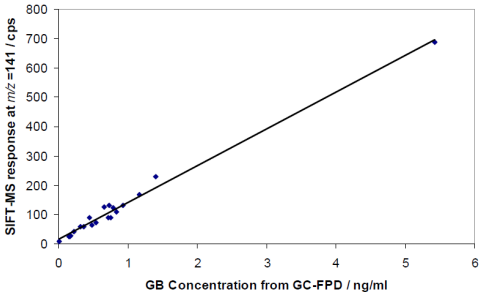
CHEMICAL WARFARE AGENT (CWA) DETECTION

SIFT-MS is the ideal tool for detection of CWA threats and other extremely toxic volatile chemicals. Unique characteristics of SIFT-MS analysis include:

- Ultra-fast detection and response due to high-sensitivity, real-time analysis
- Elimination of false positives due to high selectivity (instantaneously switchable reagent ions and MS detection)
- Simple operation and reporting from a robust, laboratory-grade analytical instrument
- Proven easy integration with existing infrastructure.

SIFT-MS provides instantaneous detection of CWAs and highly toxic chemicals in a variety of applications, such as:

- Protection of core infrastructure buildings
- Continuous monitoring of high-volume air conditioning systems
- First-responder analytical support.



Linear SIFT-MS detection of Sarin benchmarked against traditional GC/FPD analysis.

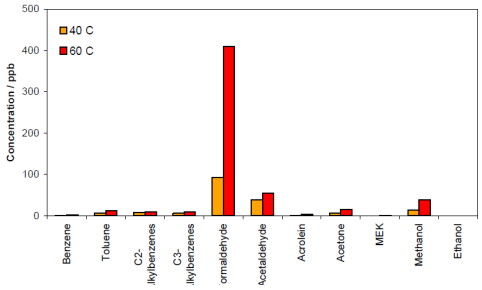
INDOOR AIR QUALITY

Improved indoor air quality (IAQ) helps to maintain and promote good health. However, many VOCs that have significant negative impacts on health or comfort occur at ppbv and pptv concentrations. Low cost technologies lack the sensitivity and selectivity required to provide meaningful results. With its very high sensitivity and selectivity, SIFT-MS is the ideal tool for diverse IAQ applications, such as:

- Real-time monitoring of VOCs in indoor air
- Workplace monitoring, especially where there is risk of exposure to very hazardous chemicals
- Rapidly quantifying emissions from consumer products, from textiles through to automobiles.

SIFT-MS can detect and quantify a very broad range of compounds relevant to IAQ, including:

- Oxygenates, such as aldehydes (including formaldehyde), alcohols and ketones
- Hydrocarbons, including benzene, toluene, and 1,3-butadiene from motor vehicle exhaust
- Odorous compounds (e.g. ammonia, amines, hydrogen sulfide, and organosulfur compounds)
- Halogenated compounds, such as perchloroethylene and the chloramines.



Emissions of toxic compounds from the sun visor of a six-month-old auto at 40 and 60°C.

SUMMARY

Syft Technologies' SIFT-MS instruments provide highly sensitive, selective and non-discriminatory analysis that offer unparalleled opportunities for protecting employees and the general public in diverse applications, including:

- Detection of toxic industrial chemicals and fumigants;
- Rapid screening for explosives, drugs, and related compounds in air and from surfaces;
- Early, reliable detection of chemical warfare agents and other extremely hazardous substances;
- Monitoring of indoor air quality and quantitation of emissions from materials.

Syft Technologies is committed to its customers' success, delivering simplicity of operation, fully integrated solutions, user-friendly software, product reliability and extensive after-sales support.

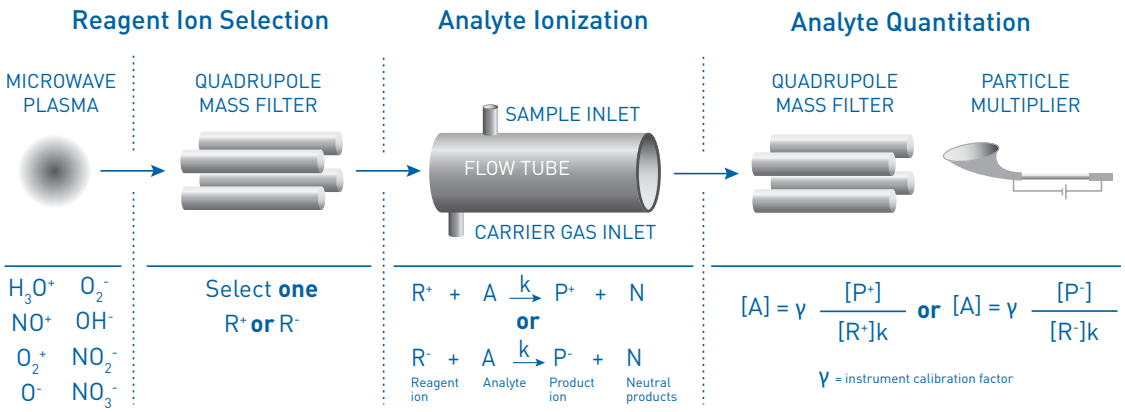
SELECTED ION FLOW TUBE MASS SPECTROMETRY (SIFT-MS)

SIFT-MS is the leading real-time analytical technique for comprehensive gas analysis to ultra-trace levels.

SIFT-MS uses ultra-soft, precisely controlled chemical ionization coupled with mass spectrometric detection to rapidly quantify VOCs and permanent gases to low part-per-trillion concentrations by volume (pptv). Eight chemical ionization agents (reagent ions) are applied in Syft instruments: H_3O^+, NO^+, O_2^+, O^-, O_2^-, OH^-, NO_2^-, and NO_3^-.

These eight reagent ions react with VOCs and inorganic gases in very well controlled ion-molecule reactions but they do not react with the major components of air (N_2, O_2, and Ar). This enables SIFT-MS to analyze air at trace and ultra-trace levels without preconcentration.

Rapid switching of eight reagent ions provides unsurpassed selectivity among direct MS techniques.



BENEFITS OF SYFT SIFT-MS INSTRUMENTS

- Instantaneous identification and quantitation of VOCs and inorganic gases using a fully integrated, extensive chemical ionization library
- Real-time air analysis to low part-per-trillion by volume (pptv) concentrations with class-leading selectivity, no preconcentration, and high robustness to humidity
- Analysis of chemically diverse VOCs in a single analysis (e.g. aldehydes, amines and organosulfur compounds)
- Ease of operation with push-button simplicity (including smartphone access), no sample preparation, and comprehensive LabSyft data analysis software
- Designed and engineered for use in commercial, industrial and research environments, with easy integration into sample delivery systems and IT infrastructure
- Reliable, low maintenance instruments and accessories, with market-leading after-sales support

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