FAQs

What compounds can be analyzed with SIFT-MS?

Selected Ion Flow Tube Mass Spectrometry (SIFT-MS) is the world's only direct-MS technique that delivers implicit quantitative analysis. SIFT-MS analyzes whole-air samples for trace volatile organic compounds (VOCs) and certain gaseous inorganic compounds, using multiple reagent ions (H_3O^+, NO^+ and O_2^+). Most VOCs react with one or more of these ions.

The following table presents a guide to compounds that can be analyzed using SIFT-MS. Detection of a specific compound depends on its vapor pressure at the temperature used to analyze the sample.

COMPOUND CLASS	EXAMPLE COMPOUNDS
Hydrocarbons	
Alkanes	pentane, isooctane, dodecane (C_1 to C_{16} approx.)
Alkenes	ethylene, propene, 1,3-butadiene, isoprene
Alkynes	acetylene, butyne
Aromatics	benzene, toluene, mesitylene, styrene, naphthalene
Monoterpenes	limonene, pinene, carene
Oxygenated compounds	
Alcohols	methanol, isopropyl alcohol, phenol, linalool, geosmin
Ethers and related solvents	dimethyl ether, diethyl ether, ethyl cellosolve
Aldehydes	formaldehyde, acetaldehyde, benzaldehyde, vanillin
Ketones	acetone, MEK, phenyl acetone (P2P), diacetyl
Carboxylic acids	acetic acid, butyric acid, valeric acid
Esters	methyl methacrylate, butyl acetate, methyl benzoate
Heterocyclic	furan, γ-butyrolactone, ethylene oxide, furfural, maltol
Nitrogenated compounds	
Amines	trimethylamine, isopropylamine, methamphetamine
Amides	acetamide, dimethyl formamide
Nitriles	hydrogen cyanide, acetonitrile, acrylonitrile
Nitrosamines	N-nitrosodimethylamine, N-nitrosomorpholine
Nitrated organics	2,3-dimethyl-2,3-dinitrobutane (DMNB), DNT, TNT
Heterocyclic	pyrrole, pyridine, 2,5-dimethylpyrazine, nicotine, indole
Halogenated compounds	
Alkanes and alkenes	methyl bromide, vinyl chloride, perchloroethylene
Aromatics	1,4-chlorobenzene, 1-bromotoluene, fluorobenzene
Freons	Freon 11, Freon 13, Freon 113
Sulfur compounds	
Thiols and thioethers	methyl mercaptan, dimethyl disulfide
Other volatile sulfur compounds	carbonyl sulfide, thiofuran, dimethyl sulfoxide
Other compounds:	
Silanes and silanols	tetramethylsilane, triethylsilanol
Siloxanes	hexamethyldisiloxane, decamethylcyclopentasiloxane
Organophosphorus	sarin, ethyl sarin, dimethyl methylphosphonate (DMMP)
Inorganics	ammonia, nitrogen dioxide, phosphine, hydrogen sulfide

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