

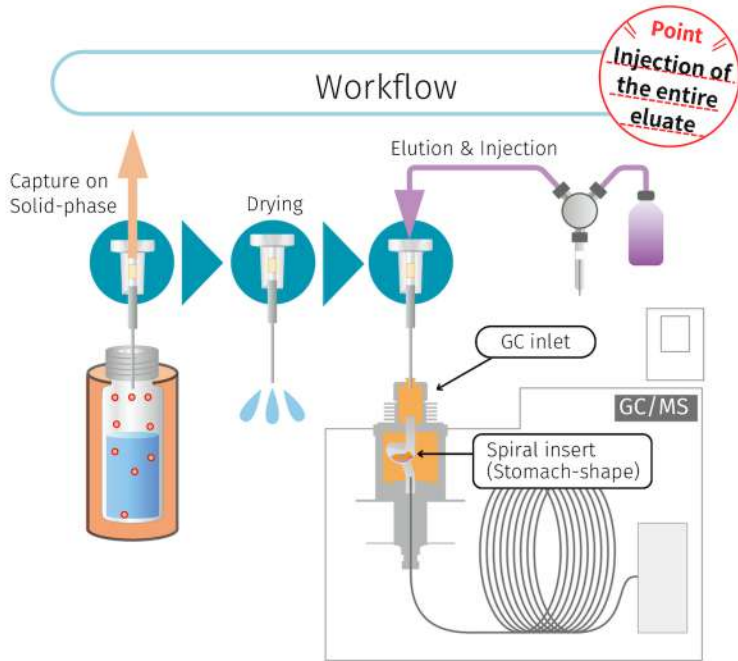
A new volatile analysis technique.



Optional part for Online SPE-GC/MS system

Solid Phase Adsorption - Solvent Elution

The gas phase in a sample vial is drawn into a solid-phase cartridge to capture the volatile components. The entire eluate from the solid-phase cartridge is directly injected into the GC injection port.



Benefits

- ✓ Solvent elution allows analysis of heat-sensitive components and high boiling point components
- ✓ High sensitivity analysis by injecting the entire amount of eluate
- ✓ On-site sampling
- ✓ Improved detection sensitivity through derivatization

Problems by other methods

- Pyrolysis by thermal desorption
- Carryover due to insufficient desorption

Solve it!

Install examples of the option for volatile analysis

Metabolomics + Aroma

Supports not only metabolome analysis also aroma!

SPL-M100



Amino acids
Organic acids
Fatty acids

Sugars
Nucleobases



Aroma

Water analysis + musty odor

Supports not only water quality analysis also musty odor!

SPL-P100



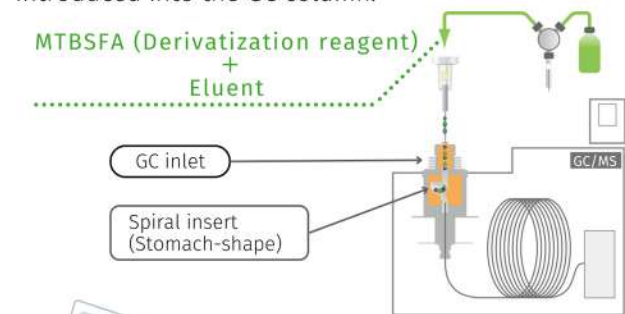
Simultaneous analysis of pesticides
Hazardous substances monitoring
Simazine/Thiobencarb, Nonylphenol, Chlorophenol



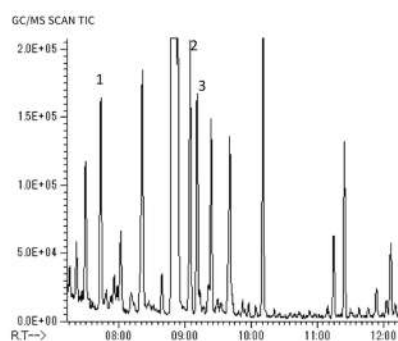
Musty odor

Derivatization

After the sample is drawn in, it is eluted and reacted with an eluent containing a derivatization reagent and then introduced into the GC column.



Natto (fermented soybean)

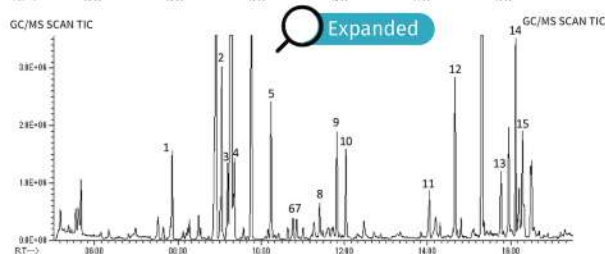
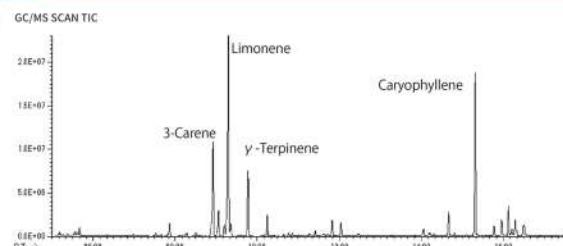


1. Butyric Acid, TBDMS
CCCC(=O)OSi(C)(C)C(C)(C)C
2. Pentanoic acid, TBDMS
CCCCC(=O)OSi(C)(C)C(C)(C)C
3. 3-Methylbutanoic acid, TBDMS
CC(C)C(=O)OSi(C)(C)C(C)(C)C

Application



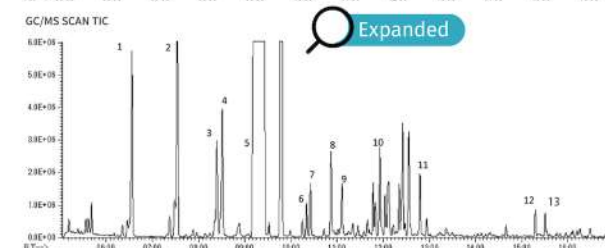
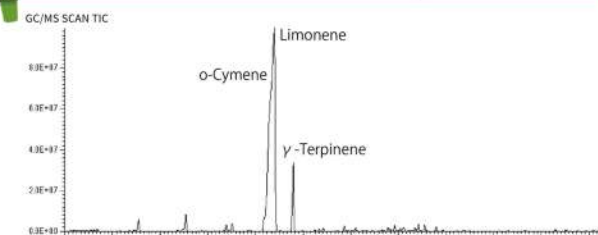
Stake soysause



- | | | |
|----------------|-------------------------------|------------------|
| 1. Camphene | 6. 1-Allyl-2-isopropylsulfane | 11. Elemene |
| 2. Terpinolene | 7. Fenchol | 12. Copaene |
| 3. o-Cymene | 8. Trisulfide, methyl propyl | 13. Humulene |
| 4. Eucalyptol | 9. L-4-terpineol | 14. Zingiberene |
| 5. Terpinolene | 10. Terpineol | 15. β-Bisabolene |



Yuzu-flavoured chili paste

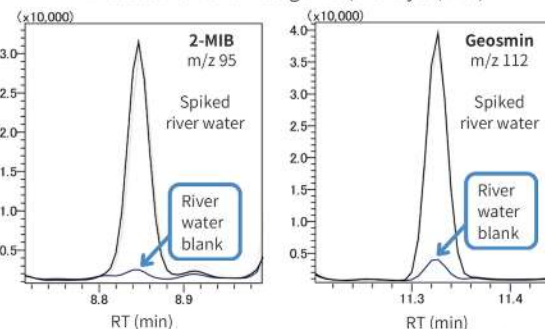


- | | | |
|-------------------------|----------------------|-------------------|
| 1. Allyl Isothiocyanate | 6. p-Cymenene | 10. Isocarveol |
| 2. α-Pinene | 7. Linalool | 11. Carvone |
| 3. β-Pinene | 8. Mentha-2,8-dienol | 12. Caryophyllene |
| 4. Myrcene | 9. Mentha-2,8-dienol | 13. Famesene |
| 5. o-Cymene | | |



Musty odor (River water)

Extracted ion chromatograms (overlaid, n=5)



Sample : River water NaCl : 3 g
Amount : 8 mL Spike conc. : 10 ppt
(Water quality standard value)

Sampling procedures of volatiles

- 1 Set the vials on sample tray
- 2 Heating in heater block
- 3 Mixing liquid and gas phase
- 4 1st drawing gas phase



- 5 Mixing liquid and gas phase
- 6 2nd drawing gas phase
- 7 Elution & Injection into GC inlet

