

Easy and fast Enrichment of the Aroma Components of Cheese by MMSE

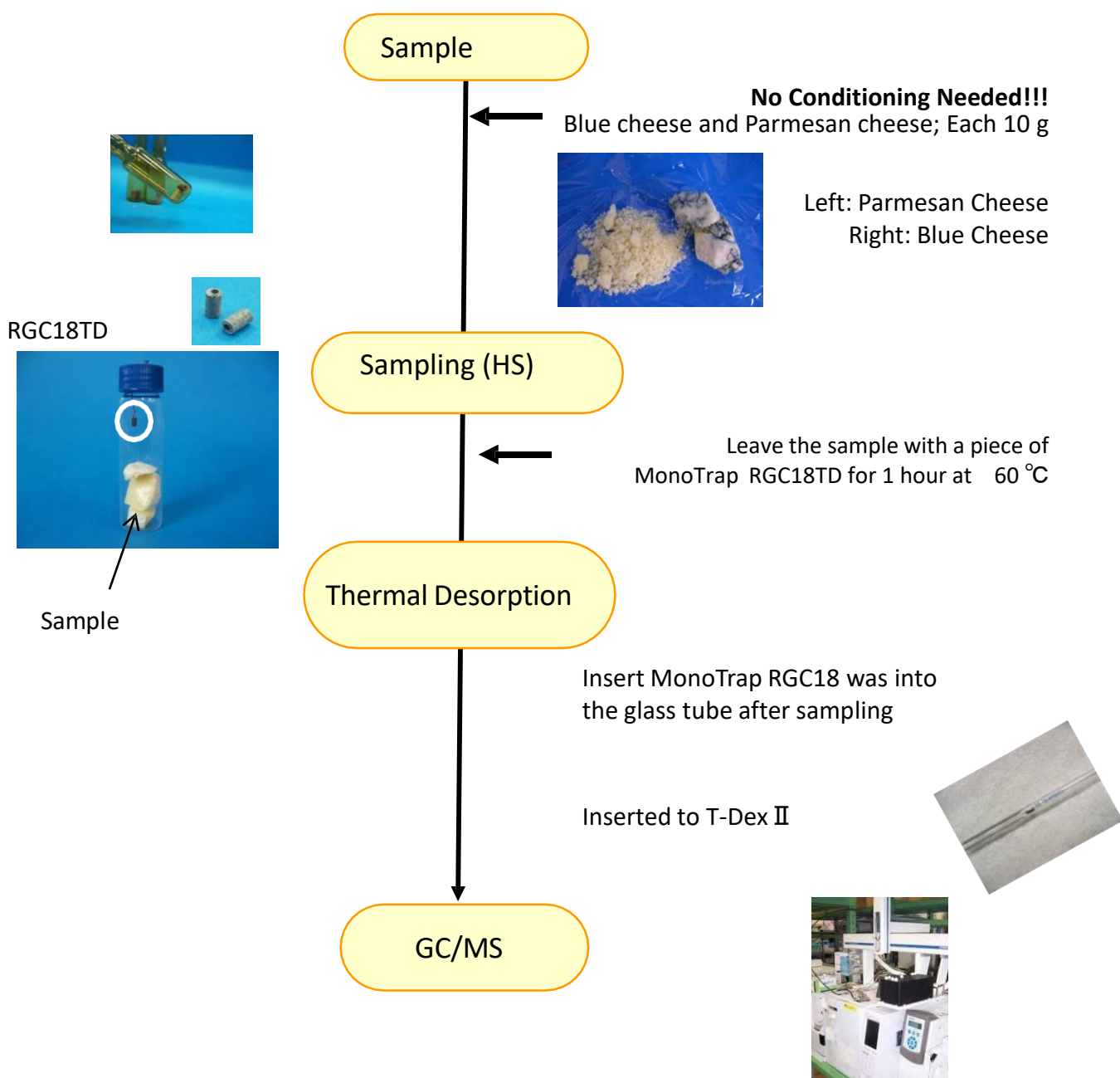
What is MMSE?

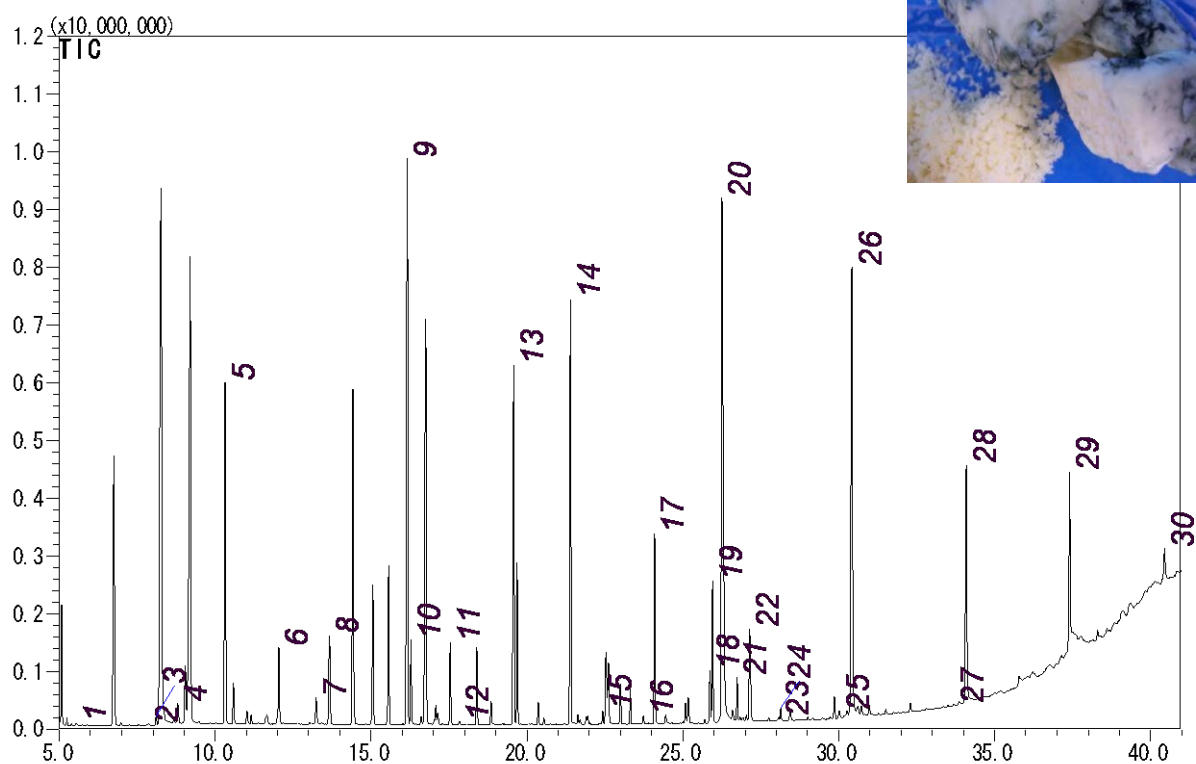
Monolithic Material Sorption Extraction (MMSE) is a novel approach for sample adsorption and extraction using monolithic hybrid adsorbent - MonoTrap. MMSE has advantages such as effective pretreatment with simple operation and high-efficiency adsorption capacity. In addition, importantly, MMSE does not require conditioning before use.

What is MonoTrap?

MonoTrap is a state-of-the-art silica monolithic and hybrid adsorbent having a large surface area and properties based on silica, activated carbon (graphite carbon for MonoTrap TD) and Octadecyl functional group.

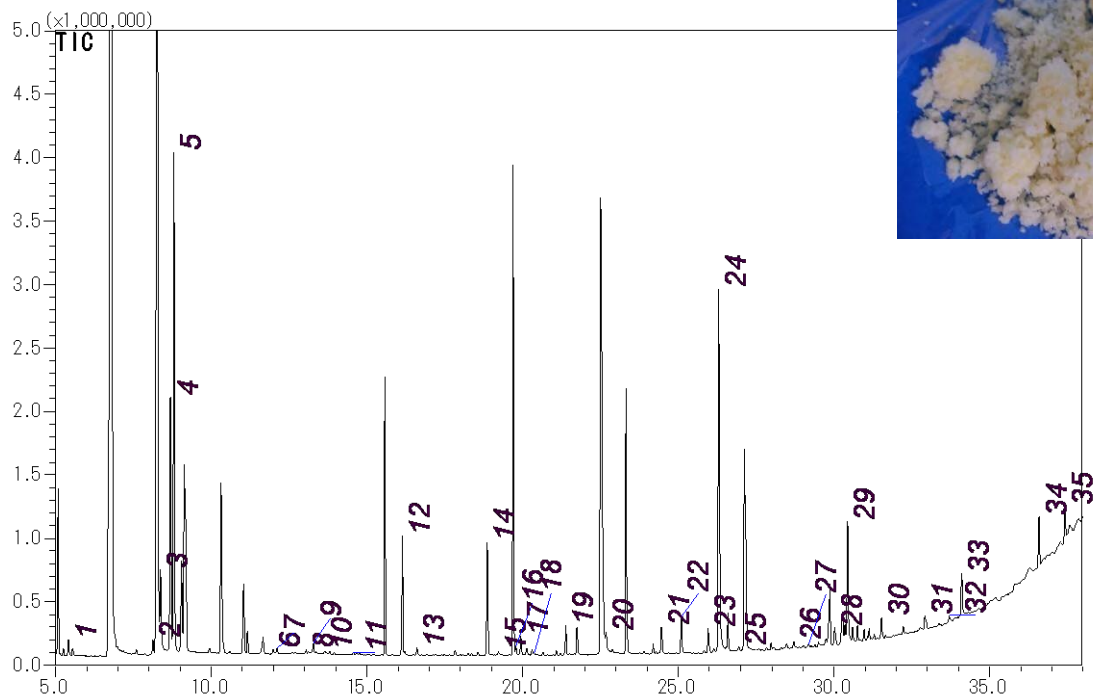
Sample Preparation Procedure by MMSE-TD



Flavor components of *Blue Cheese*

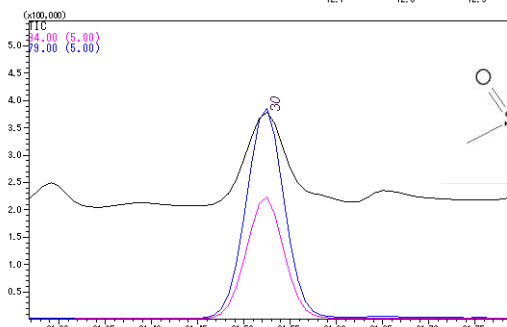
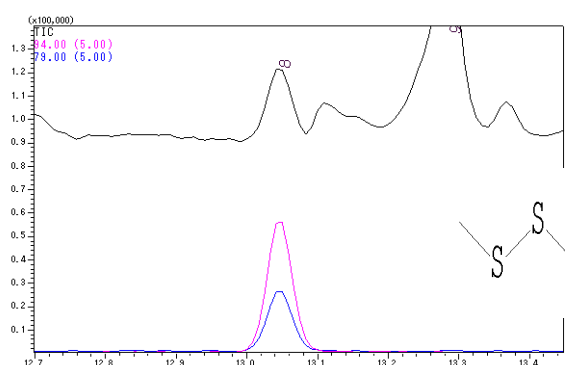
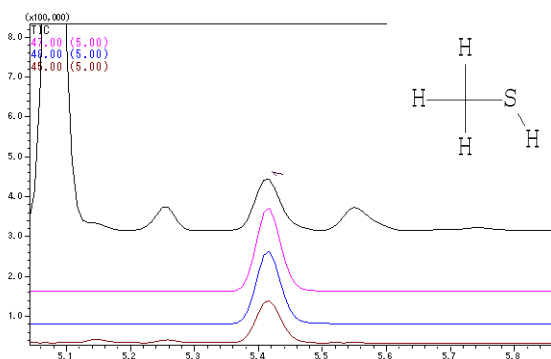
1	Acetaldehyde	16	2-Decanone
2	Butanal	17	2-Nonanol
3	Ethyl Acetate	18	Decanoic acid, methylester
4	Isovaleraldehyde	19	2-Undecanone
5	2-Pentanone	20	Butanoic acid
6	Ethyl butyrate	21	Decanoic acid, ethyl ester
7	2-Hexanone	22	Butanoic acid, 3-methyl-
8	Isobutyl alcohol	23	γ -Caprolactone
9	2-Heptanone	24	2-Undecanol
10	Hexanoic acid, methyl ester	25	2-Tridecanone
11	Hexanoic acid, ethyl ester	26	Hexanoic acid
12	1-Pentanol	27	2-Pentadecanone
13	2-Heptanol	28	Octanoic Acid
14	2-Nonanone	29	<i>n</i> -Decanoic acid
15	Octanoic acid, ethyl ester	30	Dodecanoic acid

• Compound are identified with spectral libraries.

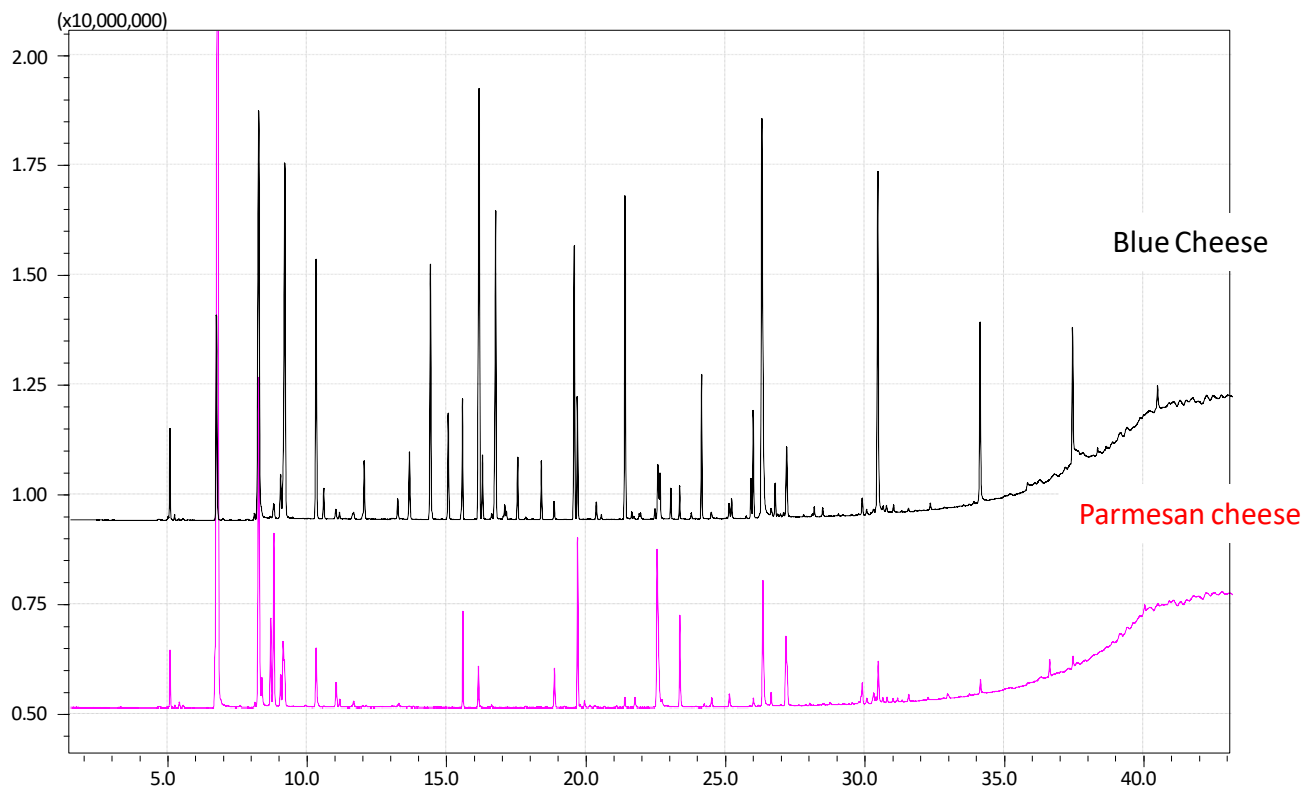


1	Methanethiol	13	D-Limonene	25	2-Furanmethanol
2	Ethyl Acetate	14	Acetoin	26	Acetamide
3	2-Butanone	15	Acetol	27	2-Tetradecanol
4	2-methylbutanal	16	Dimethylpyrazine	28	2-Tridecanone
5	3-methylbutanal	17	Dimethylpyrazine	29	Hexanoic acid
6	1-Propanol	18	Dimethylpyrazine	30	Dimethyl sulfone
7	Toluene	19	2-Nonanone	31	delta-Octalactone
8	Dimethyl disulfide	20	2,5-Dimethyl-3-ethylpyrazine	32	2-Pentadecanone
9	Hexanal	21	Benzaldehyde	33	Octanoic Acid
10	2-Pentenal	22	Isobutyricacid	34	delta-Decalactone
11	3-Penten-2-one	23	2-Undecanone	35	n-Decanoic acid
12	2-Heptanone	24	Butanoic acid		

• Compound are identified with spectral libraries.



Comparison of chromatograms



Area % of flavor components from each cheese

Components	Blue Cheese	Parmesan Cheese
Acids	17.7	3.73
Aldehyds	0.29	4.33
Pyrazineds	n.d.	0.24
S compounds	n.d.	0.24

Thermal Desorption

System :T-DEX 2

Desorb :Temp;200 °C

:Time;5 min

Cryo :-150deg

Split : 1:0 (Desorb;1, Split;0 cc/min)

Injection : 250 °C

Column Flow : He,1 mL/min

GC/MS Conditions

System :SHIMADZU GC-2010 、 GCMS-QP2010Plus

Column : InertCap Pure-WAX

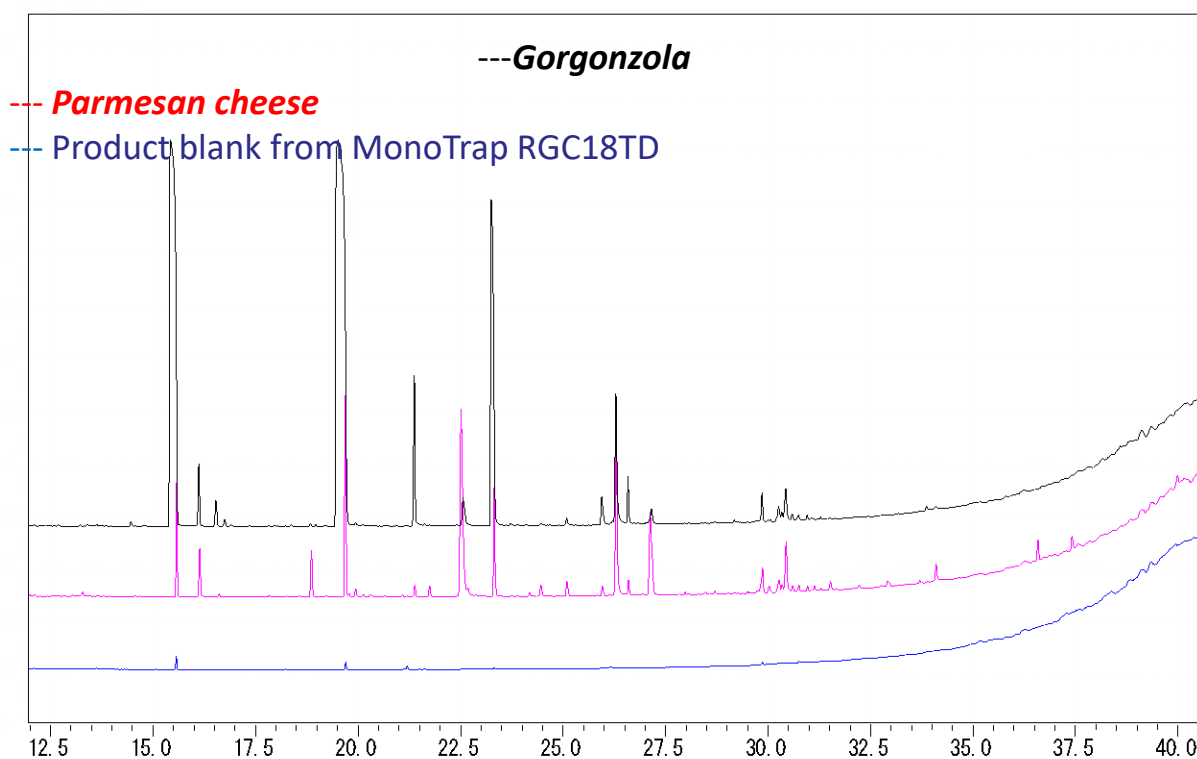
0.25mmI.D. × 60m df=0.25µm

Column Temperature : 40°C (5 min)→6 °C/min→250 °C

Detection : MS Scan (m/z28.5-600)

Conditioned ready-to-use MonoTrap for TD will be delivered to you. You only have to open the ampoule bottle before sampling.

Product Blank Data:



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