

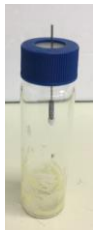
Tapping Paste is a type of metalworking oil. That is a lubricant used for cutting.

Using MonoTrap RGPS TD and HandyTD TD265, we conducted a simple screen-analysis of the volatile constituents arising from Tapping Pastes and compared the volatile constituents of new and older Tapping Pastes.

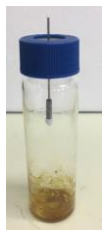
Refresh and fragrance ingredients such as pinene and limonene were detected in the new tapping paste, while these ingredients were not detected in the old tapping paste, and components such as fatty acids, which may be derived from the oxidation of the oils, were detected with high sensitivity.

Sample Preparation Procedure

New Tapping Paste



Old Tapping Paste



Place 0.5 g of tapping paste in a 40 mL vial

Sampling (Head Space)

MonoTrap RGPS TD × 1

60 °C 1 hour to sampling

HandyTD/GC/MS



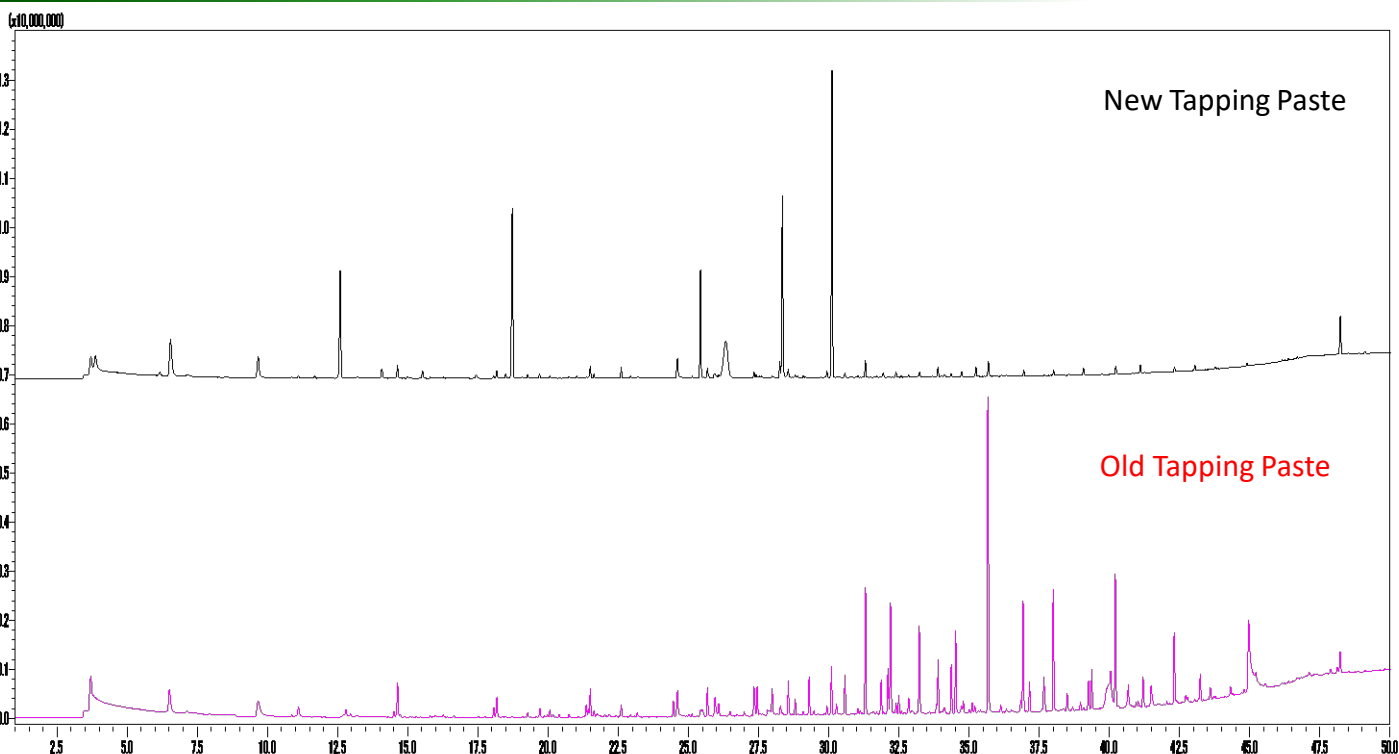
GC/MS Conditions

System	: Thermal Desorption-GC/MS (HandyTD TD265)
Column	: InertCap Pure-WAX 0.25 mm I.D. × 60 m, df = 0.5 µm
Col.Cat. No.	: 1010-68164
Col.Temp.	: 40 °C (5 min) - 5 °C/min - 250 °C (13 min)
Carrier Gas	: He, 1.38 mL/min
GC Inlet	: 250 °C, Split 10:1
Detection	: MS Scan (<i>m/z</i> 35-450)

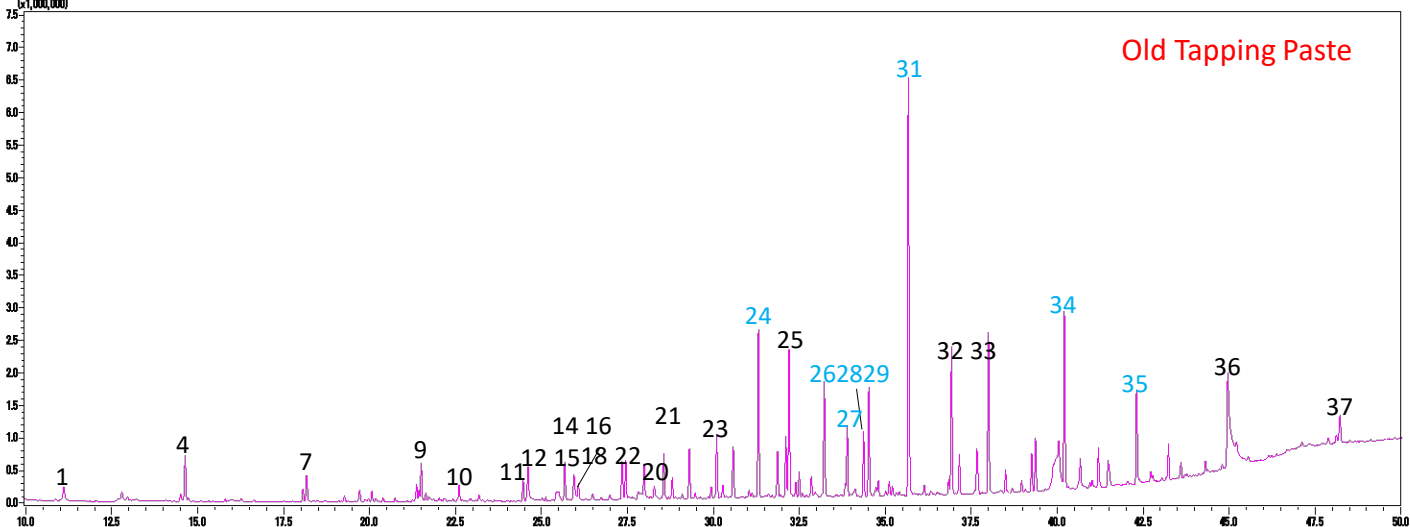
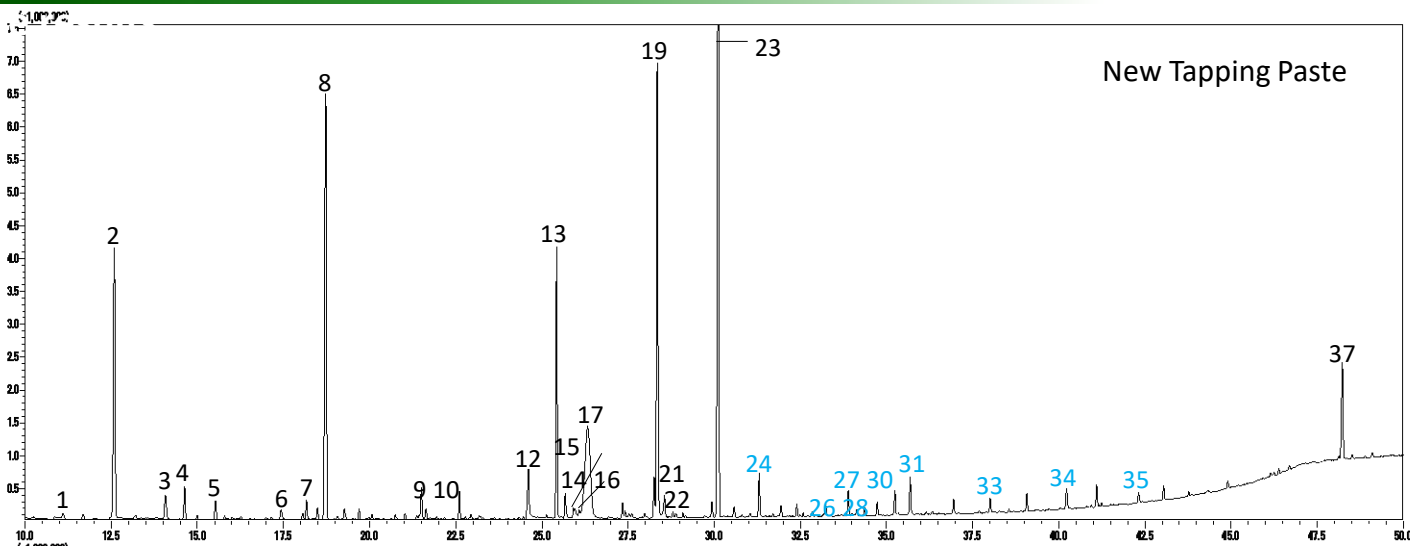
HandyTD Conditions

Desorb Temp.	: 40 °C - 45 °C/sec - 250 °C (5 min)
Desorb Press.	: 180 kPa

Comparison of Analysis Results



Qualitativ



Library search results. The components that were more sensitively detected in older Tapping Pastes compared to the new are shown in blue letters.

1. Pentanal	11. 2-Nonanone	21. 2-Nonenal	30. 2, 4-Decadienal
2. Pinene	12. Nonanal	22. 1-Octanol	31. Hexanoic acid
3. Camphene	13. 3,7-Dimethyl-3-octanol	23. Isobornyl acetate	32. Diethoxyhexane
4. Hexanal	14. 2-Octenal	24. 2-Decenal	33. Heptanoic acid
5. Pinene	15. Acetic acid	25. 1,3-Dioxolane-4-methanol	34. Octanoic acid
6. Myrcene	16. 1-Heptanol	26. Pentanoic acid	35. Nonanoic acid
7. Heptanal	17. Ethyl acetoacetate	27. 2-Undecenal	36. Glycerin
8. Limonene	18. Decadiene	28. Dibutylformamide	37. 2-Propenoic acid, 3-(2-hydroxyphenyl)-
9. Octanal	19. Benzaldehyde	29. Butanoic acid, 2-methyl-, hexyl ester	
10. 2-Heptenal	20. Propanoic acid		

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