



## 1.8 Analysis of Pharmaceutical (Acetate Ester of Vitamin E) Using a Mass Spectrometer - GCMS

### •Explanation

Acetate ester of vitamin E (DL- $\alpha$ -tocopherol acetate) is used in prevention and treatment of vitamin E deficiency as well as being effective for peripheral vascular disturbance.

A commercially available cream with methylsiloxane base was dissolved in methanol and the contained acetate ester of vitamin E acetate confirmed.

### •Analytical Conditions

Instrument : GCMS-QP5050A  
 — GC —  
 Column : DB-5 (30m  $\times$  0.25mm i.d. df=0.1 $\mu$ m)  
 Column Temp. : 100°C (2min) — 10°C/min — 300°C  
 — MS —  
 Interface Temp. : 280°C  
 Ionization Method : EI  
 Scan Range : m/z 35-900  
 Scan Interval : 0.5sec

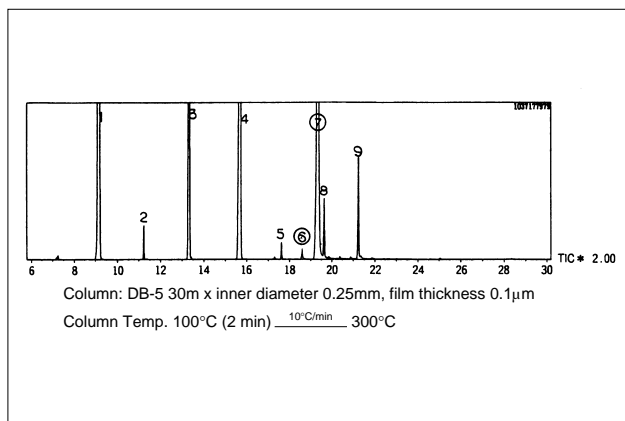


Fig. 1.8.1 Total ion chromatogram of cream

Chart 1.8.1 Qualitative results for cream

No.	Molecular Weight	Chemical Formula	Si	O	-CH <sub>3</sub>	-C <sub>6</sub> H <sub>5</sub>
1	360	C <sub>18</sub> H <sub>28</sub> O <sub>2</sub> Si <sub>3</sub>	3	2	6	2
2	582	C <sub>24</sub> H <sub>46</sub> O <sub>5</sub> Si <sub>6</sub>	6	5	12	2
3	570	C <sub>27</sub> H <sub>42</sub> O <sub>4</sub> Si <sub>5</sub>	5	4	9	3
4	558	C <sub>30</sub> H <sub>38</sub> O <sub>3</sub> Si <sub>4</sub>	4	3	6	4
5	780	C <sub>36</sub> H <sub>56</sub> O <sub>6</sub> Si <sub>7</sub>	7	6	12	4
8	768	C <sub>39</sub> H <sub>52</sub> O <sub>5</sub> Si <sub>6</sub>	6	5	9	5
9	756	C <sub>42</sub> H <sub>48</sub> O <sub>4</sub> Si <sub>5</sub>	5	4	6	6
No.	Molecular Weight	Chemical Formula	Compound Name			
⑥	472	C <sub>31</sub> H <sub>52</sub> O <sub>3</sub>	Vitamin E acetate ( $\alpha$ -tocopherol acetate)			
⑦	584	C <sub>34</sub> H <sub>64</sub> O <sub>7</sub>	Docosanoic acid triethyl citrate			

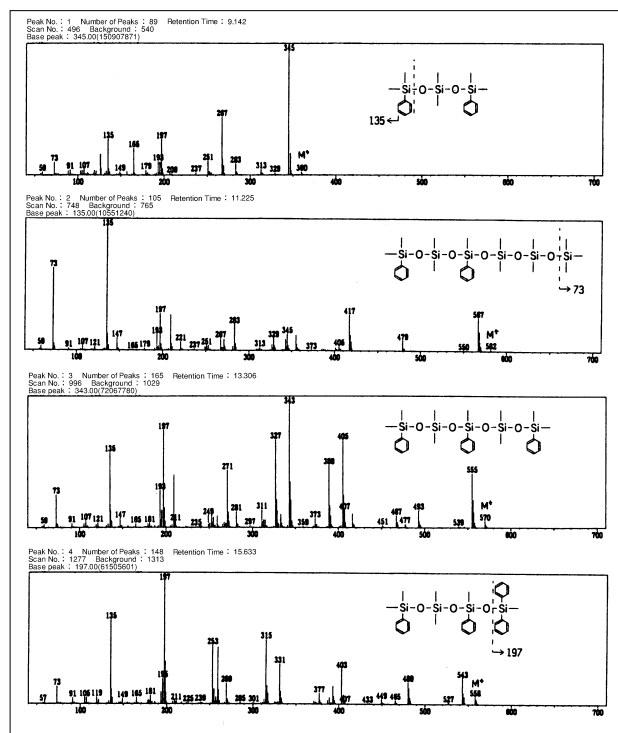


Fig. 1.8.2 Mass spectrums of peaks 1 to 4

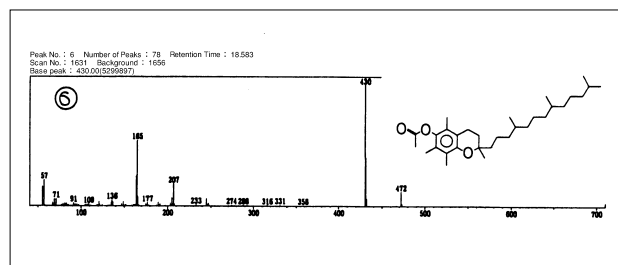


Fig. 1.8.3 Mass spectrums of peak (6)