

In this note it is shown the analysis of UV absorbers in cosmetic products.

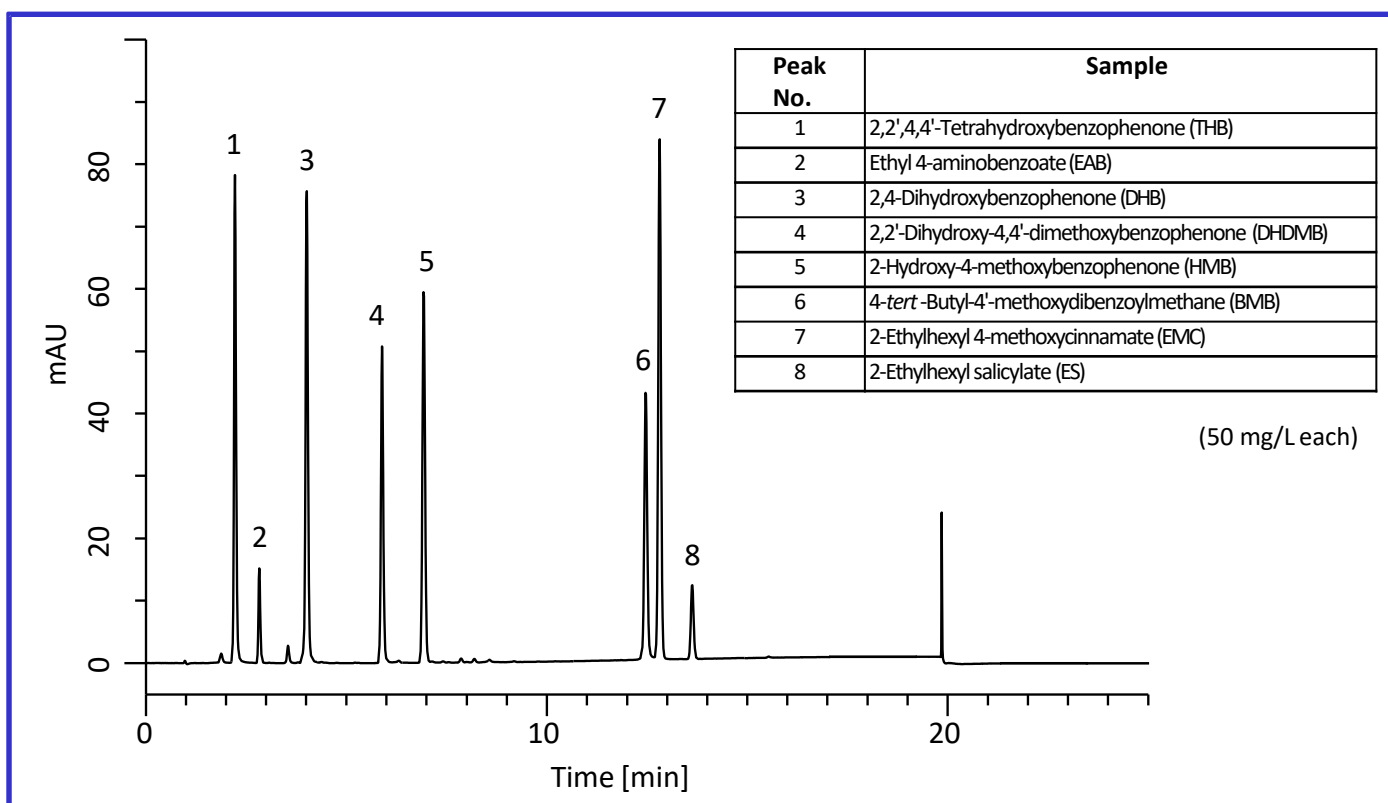
UV absorbers contained in cosmetic products are compounds which prevent the skin from being penetrated and burned by UV rays by absorbing the energy of UV rays and converting it into thermal energy.

The compounds analyzed below protect the human body from UV rays absorption. They are used in several products commonly available in the market with sunscreen formulation such as cosmetics, hair care products and perfumes.

In this note 8 compounds of UV absorbers were analyzed by gradient elution. The results show excellent separation of the compounds.

(M. Kobayashi)

Analysis of Standard Solution

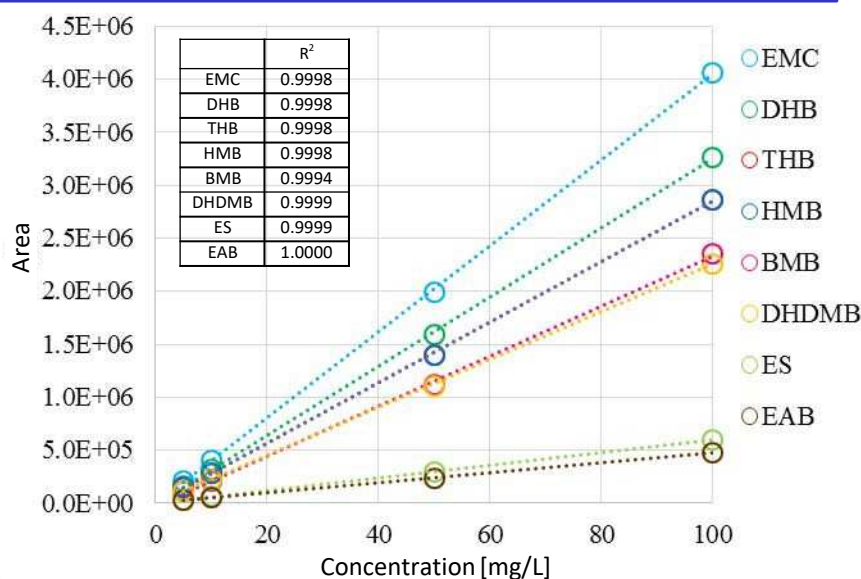


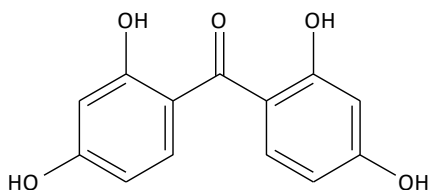
HPLC Conditions

System: GL7700 HPLC system
Column: InertSustain C18
 (3 μm , 100 x 4.6 mm I.D.)
Eluent: A) CH_3CN
 B) H_2O

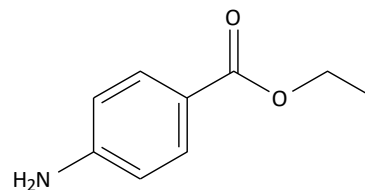
Time [min]	A [vol%]	B [vol%]
0.0	50	50
14.0	100	0
17.0	100	0
17.1	50	50
25.0	50	50

Column Temp.: :40 $^{\circ}\text{C}$
Detector: :PDA 320 nm
Injection Vol.: :10 μL
Flow rate: :1.0 mL/min

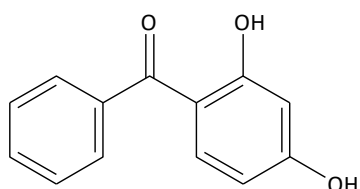


Chemical structure of the 8 compounds of UV absorbers

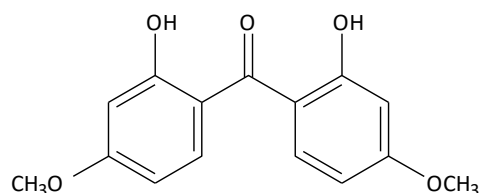
1. 2,2',4,4'-Tetrahydroxybenzophenone (THB)



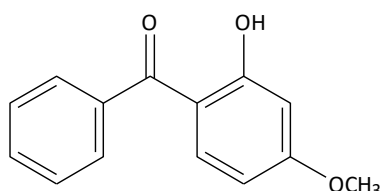
2. Ethyl 4-aminobenzoate (EAB)



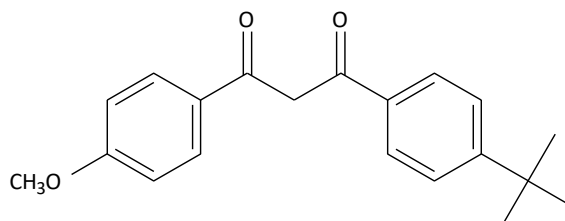
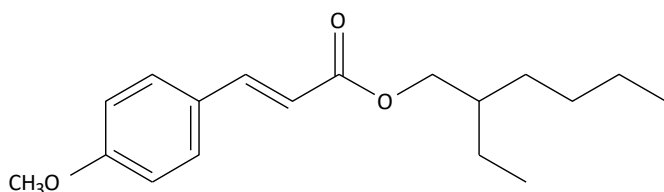
3. 2,4-Dihydroxybenzophenone (DHB)



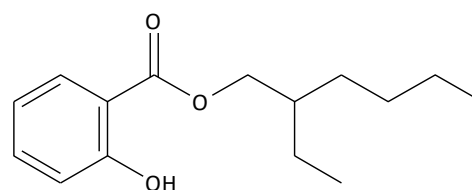
4. 2,2'-Dihydroxy-4,4'-dimethoxybenzophenone (DHDMB)



5. 2-Hydroxy-4-methoxybenzophenone (HMB)

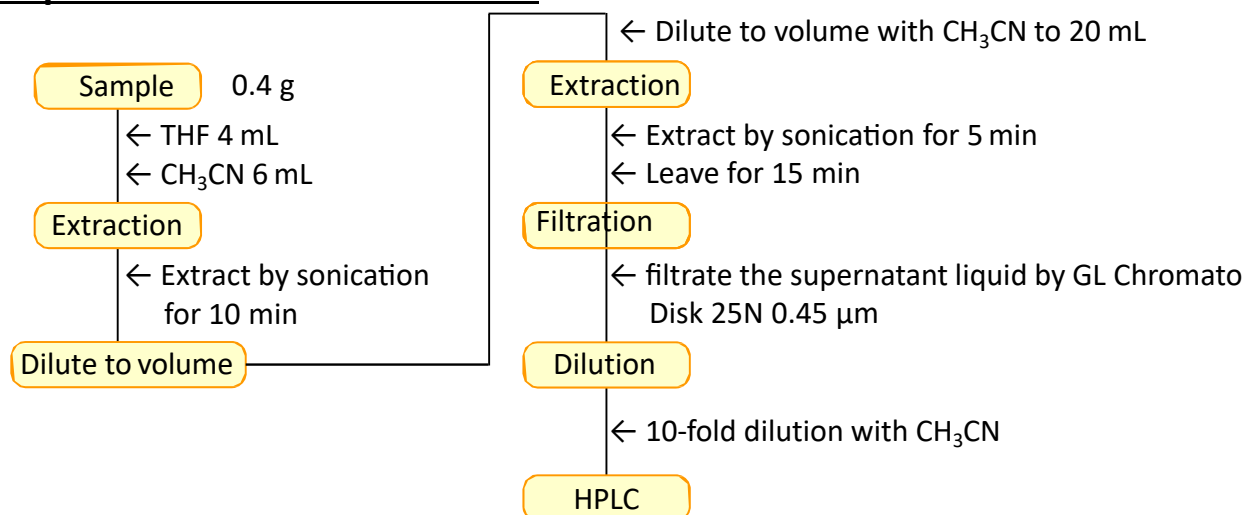
6. 4-*tert*-Butyl-4'-methoxydibenzoylmethane(BMB)

7. 2-Ethylhexyl 4-methoxycinnamate (EMC)

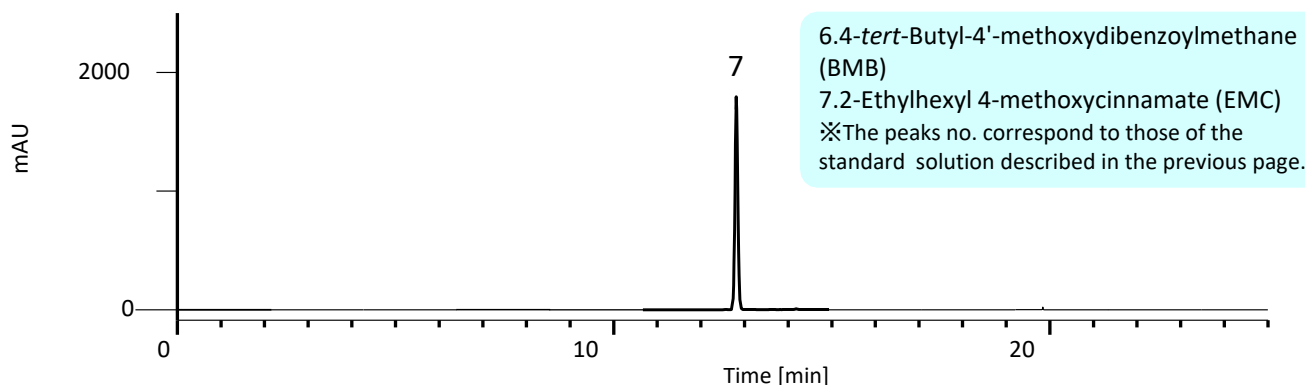


8. 2-Ethylhexyl salicylate (ES)

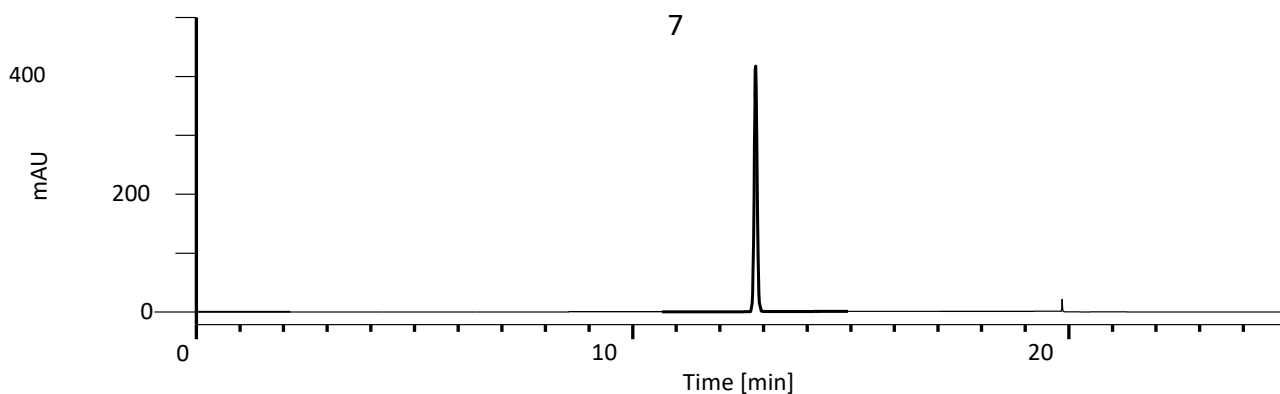
Example of Pretreatment Method



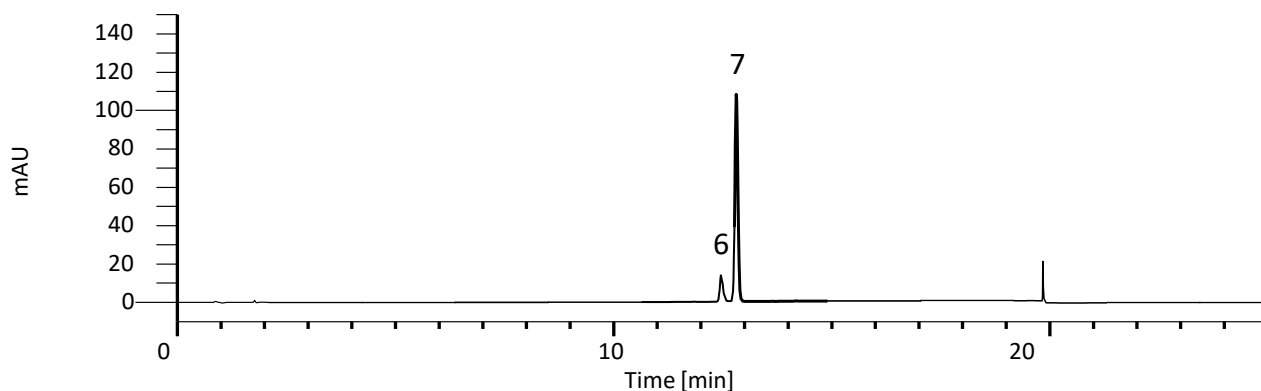
① Sample extracted from a common sunscreen product available in the market



② Sample extracted from a common foundation makeup product available in the market



③ Sample extracted from a common lip balm product available in the market



HPLC Column



InertSustain C18
(3 μ m, 100 x 4.6 mm I.D.)
Cat.No. 5020-07444

GL Chromato Disk

GL CHROMATO DISK 25N 0.45MM (100 pcs)
Cat.No. 5040-28532

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