

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

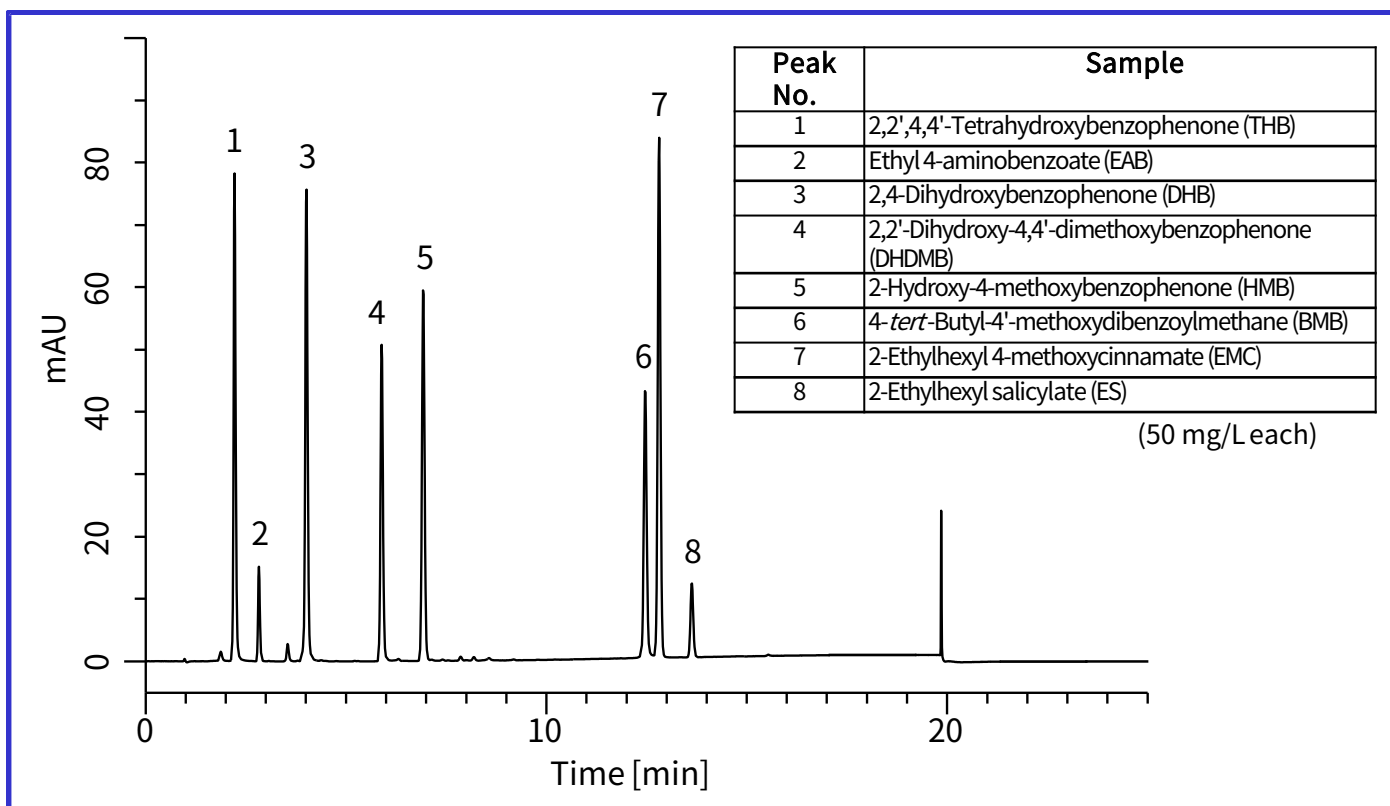
UV absorbers contained in cosmetic products are compounds which prevent the skin from being penetrated and burned by UV rays by absorbing the energy of UV rays and converting it into thermal energy.

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

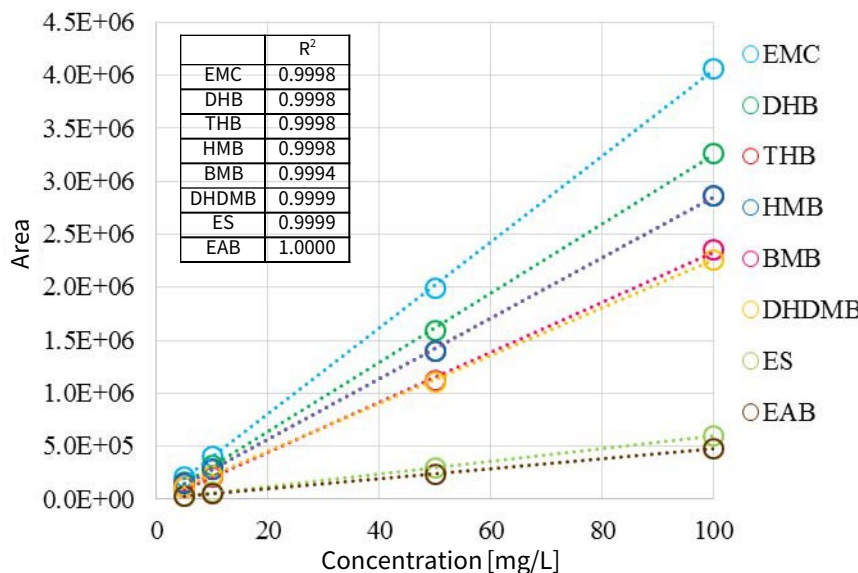


HPLC Conditions

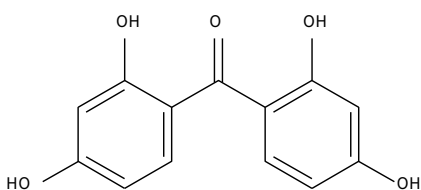
System : GL7700 HPLC system
Column : InertSustain C18
 (3 μ m, 100 x 4.6 mm I.D.)
Eluent : A) CH₃CN
 B) H₂O

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

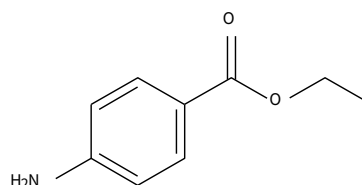
Column Temp. : 40 °C
Detector : PDA 320 nm
Injection Vol. : 10 μ L
Flow rate : 1.0 mL/min



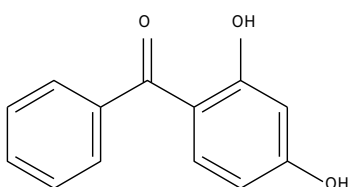
Calibration curve (5-100 mg/L) and
 Correlation coefficient (R²)

Chemical structure of the 8 compounds of UV absorbers

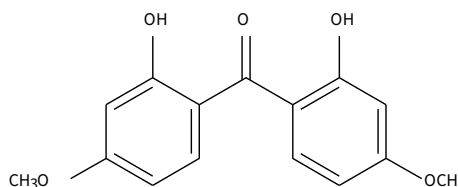
1. 2,2',4,4'-Tetrahydroxybenzophenone (THB)



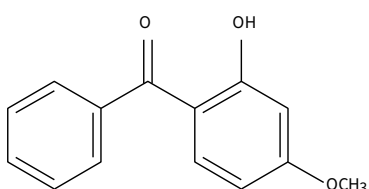
2. Ethyl 4-aminobenzoate (EAB)



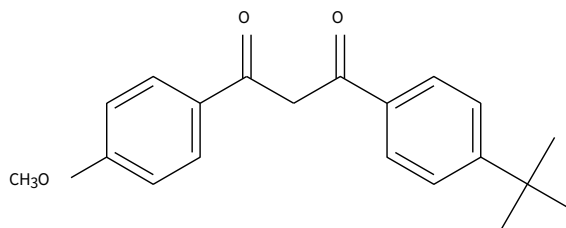
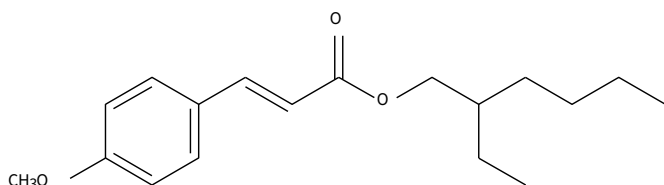
3. 2,4-Dihydroxybenzophenone (DHB)



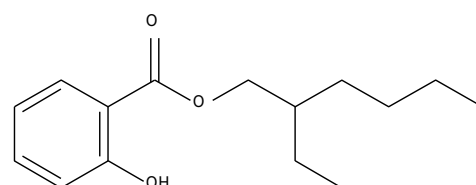
4. 2,2'-Dihydroxy-4,4'-dimethoxybenzophenone (DHDMB)



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

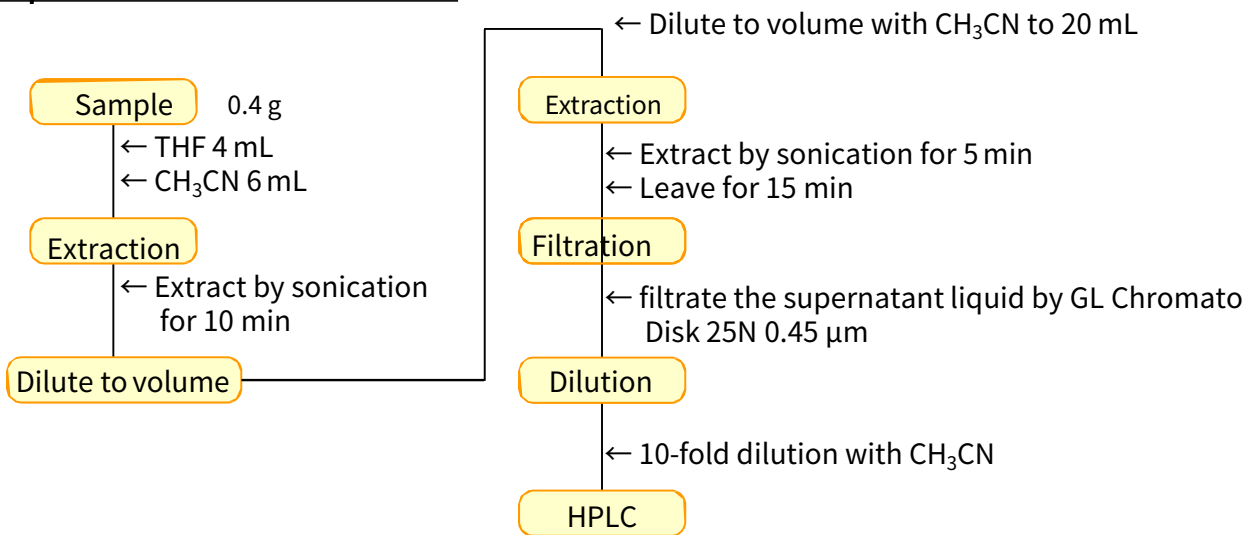
6. 4-*tert*-Butyl-4'-methoxydibenzoylmethane(BMB)

7. 2-Ethylhexyl 4-methoxycinnamate (EMC)

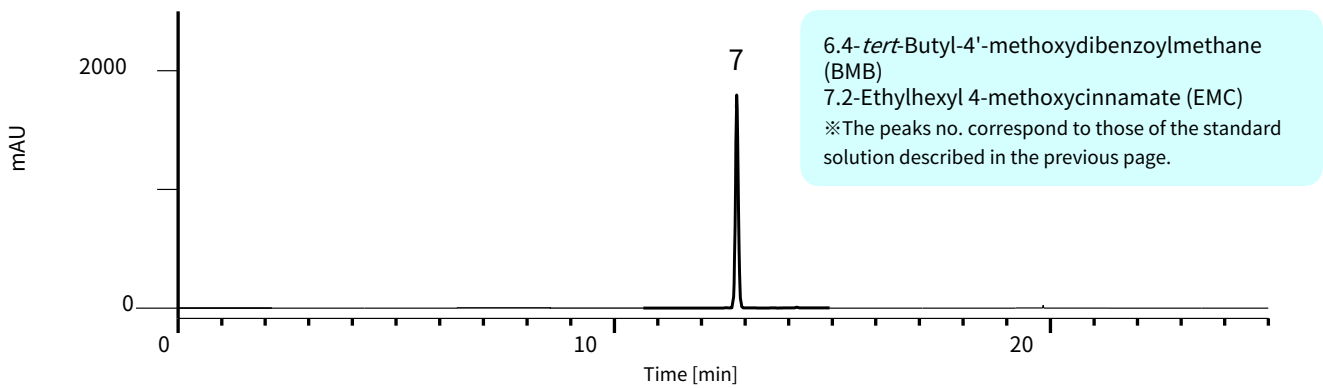


8. 2-Ethylhexyl salicylate (ES)

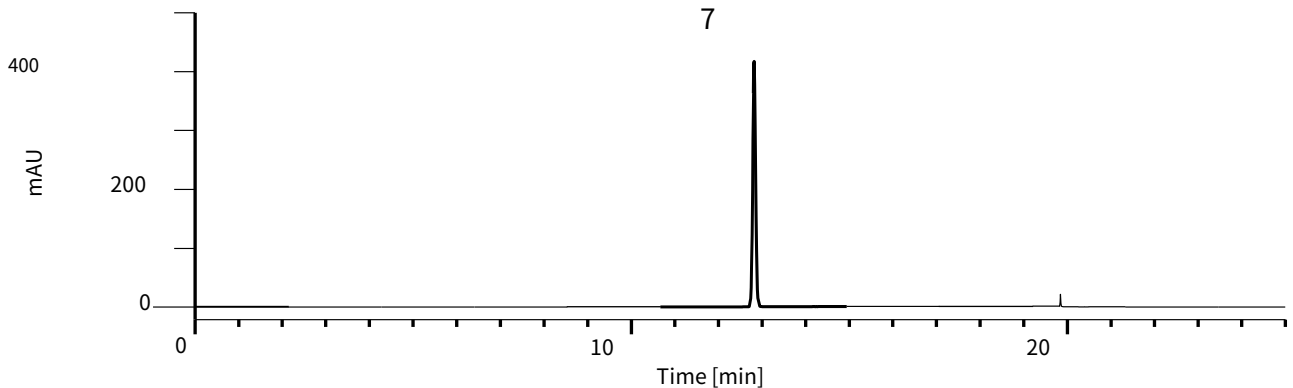
Example of Pretreatment Method



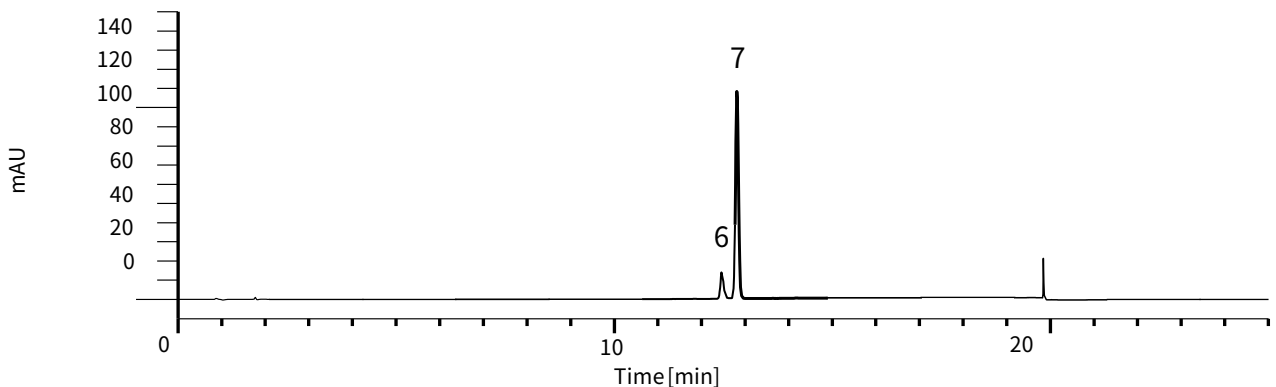
① Sample extracted from a common sunscreen product available in the market



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

GL Sciences disclaims any and all responsibility for any injury or damage which may be caused by this data directly or indirectly. We reserve the right to amend this information or data at any time and without any prior announcement.

GL Sciences Inc. Japan

22-1 Nishishinjuku 6-chome
Shinjuku-ku, Tokyo
163-1130, Japan

Phone: +81-3-5323-6620
Fax: +81-3-5323-6621
Email: world@glsc.co.jp
Web: www.glsciences.com

GL Sciences Inc. USA

4733 Torrance Blvd. Suite 255
Torrance, CA 90503
USA

Phone: +1-310-265-4424
Fax: +1-310-265-4425
Email: info@glsciencesinc.com
Web: www.glsciencesinc.com

GL Sciences B.V.

Dillenburgstraat 7C
5652AM, Eindhoven
The Netherlands

Phone: +31-40-254-9531
Email: info@glsciences.eu
Web: www.glsciences.eu

GL Sciences (Shanghai) Limited

Tower B, Room 2003
Far East International Plaza
No.317 Xianxia Road, Changning District
Shanghai, China 200051

Phone: +86-21-62782272
Email: contact@glsciences.com.cn
Web: www.glsciences.com.cn



International Distributors

Visit our Website at www.glsciences.com/distributors