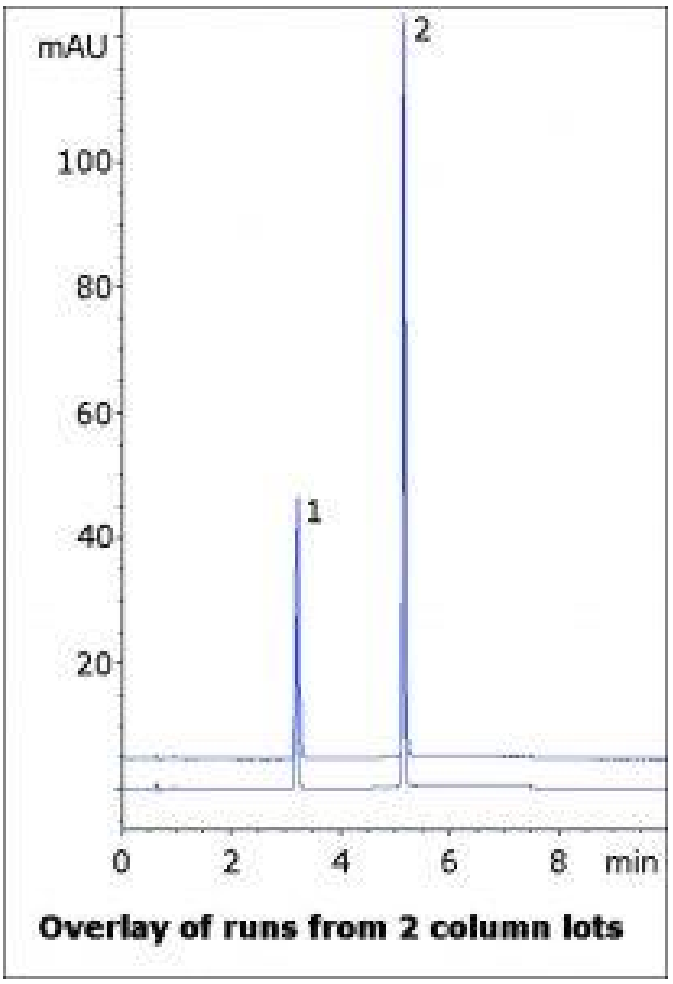
Oxybenzone and Octinoxate Analyzed by HPLC - AppNote

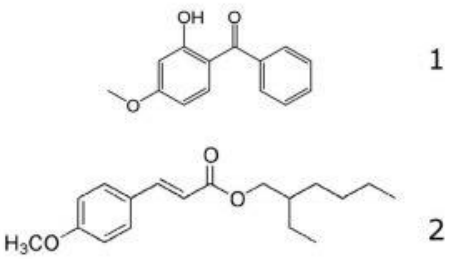
Separation of Two APIs in Chap Stick® Extract

This Method shows how two common ingredients found in sunscreens and lip balms can be separated. The two compounds are very hydrophobic, so a Mobile Phase Gradient with significant organic content was used in order to avoid excessive retention.

Likewise, a highly organic diluent should be used to adequately extract the compounds from the lip balm material. The *figure* below shows an overlay of two runs from different Column lots, demonstrating the robustness and precision of the Method.



Overlay of runs from 2 column lots



1

2

Peaks:

1. Oxybenzone
2. Octinoxate

Method Conditions

Column: Cogent Bidentate C18™, 4µm, 100Å
Catalog No.: 40018-75P
Dimensions: 4.6 x 75mm
Mobile Phase:
A: DI Water / 0.1% Formic Acid (v/v)
B: Acetonitrile / 0.1% Formic Acid (v/v)
Gradient:

Time *(minutes)*	%B
0	60
1	60
4	100
6	100
7	60

Temperature: 40˚C
Post Time: 3 minutes
Injection vol.: 2µL
Flow rate: 1.0mL / minute
Detection: UV @ 288nm
Sample Preparation: 250mg of ChapStick containing 7.5% Octinoxate and 3.5% Oxybenzone was weighed in a 25mL volumetric flask and a portion of 90:10 Acetonitrile / DI Water was added. It was sonicated for 30 minutes and diluted to mark. Then a portion was filtered with a 0.45µm Nylon Syringe Filter (MicroSolv Tech Corp.). The filtrate was diluted 1:10 for injections.
t_0: 0.9 minutes

Note: *These two compounds exhibit strong absorbance in the UV range, hence the wavelength of 288nm that was chosen. This behavior accounts for their use as sunscreen agents; UV radiation that is absorbed by the compounds is then prevented from reaching the skin and causing damage.*

COGENT HPLC Columns™

Attachment

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