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1 Highlights

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3 - Screening of complementary stationary phase in supercritical stationary phase

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5 - Use of SFC/UV or SFC /ELSD for analysis of complex cosmetic matrixes

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7 - Description of step driven method development

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9 - Modifier and temperature effect on compound retention in SFC

10 - Method transfer vs the particle size

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12

13 Method developments approaches in supercritical fluid chromatography  
14 applied to the analysis of cosmetics

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21

22 **Abstract**

23

24 Analyses of complex samples of cosmetics, such as creams or lotions, are generally  
25 achieved by HPLC. These analyses are often multistep gradients, due to the  
26 presence of compounds with a large range of polarity. For instance, the bioactive  
27 compounds may be polar, while the matrix contains lipid components that are rather  
28 non-polar, thus cosmetic formulations are usually oil-water emulsions. Supercritical  
29 fluid chromatography (SFC) uses mobile phases composed of carbon dioxide and

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