

Study of the Analytical Lifecycle Phases within Supercritical Fluid Chromatography Methodologies

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Abstract: *Recently, there has been a significant increase in the overall interest surrounding Supercritical Fluid Chromatography (SFC) across multiple fields, with pharmaceutical analysis being particularly noteworthy. To the best of our knowledge, contemporary SFC has not yet been implemented as a routine procedure for drug quality control. None of the SFC methods that have been reported were found to completely fulfill all stages of the analytical method lifecycle. In light of this, the purpose of the current contribution is to present a comprehensive summary of the existing and previous accomplishments pertaining to SFC techniques, focusing specifically on this lifecycle and its subsequent stages. As a result, the discussions that were incorporated were appropriately organized, with a particular focus on the lifecycle of the analytical method as defined by the International Conference on Harmonisation (ICH). A review of recent and significant scientific publications in the domain of analytical SFC is presented, along with discussions on method validation, instrumental evolution, qualification strategies, and method development methodologies*

Keywords: Analytical lifecycle, Method development, Optimization

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