An Introduction to Supercritical Fluid Chromatography and its Applications
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Analytical Separations

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1 Abstract

Supercritical fluid chromatography (SFC) is a type of separation technique that uses a supercritical fluid as its choice of solvent [1]. The mobile phase commonly used is CO_2, a supercritical fluid at a certain pressure but a weak solvent, so because of this fact, it is mixed with some other organic solvent so as to increase its solubility in a lot of other compounds [1]. In many regards, it is quite similar to high performance liquid chromatography (HPLC) in terms of its equipment and software [2]. However, the pump system in a SFC instrument must be equipped with a chilled head in order to stabilize CO_2 in its liquid state [2]. But it does have numerous advantages to the HPLC such as a much lower operating cost and solvent consumption [2]. Due to this latter fact, this separation technique is considered environmentally friendly [1]. In addition, it has a faster flow rate as the viscosity of the mobile phase is extremely low [1]. This presentation will go into depth as to what exaclty a supercritical fluid is, how does a SFC function in terms of its equipment, and its applications in the separation of chiral compounds.

2 References

References

(1) Harris, D. C., *Quantitative Chemical Analysis*, 8th ed; W.H. Freeman and Co: New York, 2010.

(2) Taylor, L. T. *Analytical Chemistry* **2010**, *82*, 4925–4935.