



Supercritical CO₂ technologies: A GREEN alternative with applications in natural products (HEMP) isolation and characterization

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Abstract

Supercritical fluid technologies for CO₂ purification (SFC) and CO₂ Extraction (SFE) are efficient and cost-effective to produce intact extracts and high purity ingredients relevant to Hemp, Flavors and Fragrances, Herbal Medicines, Spices, Decaffeination, Sterilization, Nutraceuticals & Aroma Therapy, Algae Extraction and Pharma industries. The seminar covers fundamentals and latest applications of SFC and SFE in analysis and purification of chiral/achiral small molecules, peptides and complex extracts relevant to the Pharma, Hemp and other Natural Products industries. CO₂ extraction is a non-flammable, non-toxic process enabling isolation of volatile/non-volatile compounds and leaving no trace of toxic residual solvent. CO₂ purification is a form of liquid chromatography that happens to use CO₂ as a solvent to facilitating fast analysis and separation of complex mixtures. Both SFE and SFC use reclaimed carbon dioxide and automatically recycle it, contributing further to sustainability, high efficiency, low operating costs and increased profitability.

Biography

Dr. Rosse received his BS and his Ph.D. in Chemistry from the University of Basel, Switzerland, and did postdoctoral studies at Stanford University, California. Dr. Rosse is currently Vice President at PIC Solution Inc. and President at Arrival Discovery LLC. He has extensive experience in natural products research, analytical chemistry, medicinal chemistry and drug discovery working with F. Hoffmann-La Roche, Sanofi-Aventis, Cephalon and Dart NeuroScience. Most recently, he pioneered the implementation of supercritical CO₂ technologies (SFC-MS) at research and industrial scale to support automated synthesis production of 90,000 compounds per year reaching a new level of efficiency with significant costs savings. Dr. Rosse is the author of many publications, patents and presentations, and recently edited a book on modern SFC applications.

Publications

1. Rosse G. (Ed.): Supercritical Fluid Chromatography, Vol. 1, De Gruyter, 2019.
2. Rosse G. (Ed.): Supercritical Fluid Chromatography, Vol. 2, De Gruyter, 2019.
3. Khaw K-T, Parat M-O, Shaw PN, Falconer JR: Solvent Supercritical Fluid Technologies to Extract Bioactive Compounds from Natural Sources: A Review. *Molecules* 2017, 22, 1186.