Supercritical Fluid Simulated Moving Bed (SF-SMB) – Preparative Scale

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Supercritical Fluid Simulated Moving Bed (SF-SMB) is the cutting-edge chromatography that integrates high efficiency, high productivity, low energy consumption, safety, hygiene and environmentally friendly. It overcomes the problems of high solvent consumption and serious product dilution caused by the traditional batch chromatography and can be applied for mass production in a low-cost, clean and sustainable way. SF-SMB can be applied in the separation and purification of pharmaceuticals, natural products, racemic mixtures and fine chemicals, especially suitable for the separation of lipophilic molecules as supercritical carbon dioxide is selected as the eluent.

❖ EQUIPMENT SPECIALTY & FEATURE

- The use of liquid solvent and carbon dioxide is switchable.
- It can be operated as a continuous SMB chromatography or as a batchwise chromatography.
- Excellent quality guarantees efficient and robust operation.
- High-performance pump system, separation system and various control valves provide good accuracy and repeatability to ensure long-term operation stability of the equipment.
- Continuous operation leads to lower solvent consumption, higher capacity and adsorbent efficiency.
- The use of supercritical CO_2 reduces the amount of organic solvents used by 5 to 20 times, making the process more environmentally friendly.
- Combining the characteristics of high productivity and high purity of SMB, and the advantages of high solubility, high diffusivity and low viscosity of supercritical fluid CO_2, the production process has higher efficiency and lower energy consumption.
- Supercritical fluid CO_2 can be used throughout the process, which is easy to recycle and saves solvent costs. It is a best choice for green, environmentally friendly and economical processes.
- Modular design is easy for system operation and maintenance. With powerful system software, the automation of equipment can be realized, which is in line with humanization design.

❖ TECHNICAL SPECIFICATION

- Max. Working Pressure: 20 MPa
- Operating Temperature: room temperature ~ 60 ^{O}C
- Column: 6~8 columns with 30~50mm ID x 250mm L
- Separation Tank: 1 GAL x 3 pcs
- CO_2 Pump: 30 kg/h
- HPLC Pump: 100~500 mL/min