

ماژول استخراج کننده سیال فوق بحرانی کربن دی اکسید

Supercritical Carbon Dioxide Extraction Module (SCF-6000-Module)



Apex technologies co., designed and manufactured a supercritical fluid extraction Module for different purposes including extraction of essential oils, removal of contaminations from soil (cleaning purposes), regeneration of spent catalysts and fabrication of sub-micron and nano size pharmaceuticals or any soluble substance in SC-CO₂. Supercritical fluid is any substance at a temperature and pressure above its critical point. Such fluids can diffuse through solids like a gas and dissolve materials like a liquid. Near the critical point, small changes in pressure or temperature result in large changes in density, allowing many properties of a supercritical fluid to be “fine-tuned”. Supercritical fluids are often suitable substitutes for organic solvents in a range of industrial and laboratory processes. Among the different possible solvents, carbon dioxide is one of the most common used supercritical fluids mainly due to its mild critical point (31 °C, 1057 psi).

The current module which is the main core of any supercritical based equipment for extraction or submicron particle formation is designed and constructed for a wide range of operational conditions. These extraction vessels can be combined with a surge tank with volume of 1000 cc to dampen the pressure fluctuations if any kind of pump coupled with this module. In addition, two types of this module is equipped with visual sight glasses make it possible to investigate the phase behaviour and thermodynamic behaviours under visual inspection.

Technical Specifications:

- Applicable to be used for extracting essential oils, activating catalysts, contamination remediation, etc
- Heating system included a controller and three slim elements (implanted into the extraction vessel wall) and one thermocouple (implanted into the extraction vessel wall)
- Equipped with 20 micron nozzles for homogenized spraying of supercritical carbon dioxide avoid channeling or caking
- Heating Controlling system is included which controls the temperature of the system up to 120 °C
- Number of Ferrules and nuts: 20 (two ferrules sealing mechanism, SAFE LOK Type)
- Compatible to be heated with three slim heating elements or heating jackets
- Maximum working temperature: 120 °C
- Maximum working pressure: 6000 psi
- Number of O-rings: 30 (Viton Type)
- No plumping and tubing is included
- Wetted parts: Stainless Steel 316 L
- High pressure 5 Micron Filter: 1
- Connection ports type: NPTF

Catalogue
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- Valves : 2 (SAFELOK Type)
- Maximum volume: 500 cc
- No transmitter is included
- Stainless Steel Baskets: 1