

Supercritical Extraction

SFE-4000 Series SFC



JASCO

Performance
Innovation
Reliability

Our SFE systems have been designed to offer a flexible and customizable system to meet any requirement. The flexible system configuration is easily customized to offer a basic single solvent, single extraction vessel, single fraction system to a multiple solvent, multiple extraction vessel, multiple fraction system and anything in between. We offer vessels for both solids and liquids. The time based fraction collection options range from simple single fraction or 6 fraction collection to open-bed fraction collection. Software design features have been implemented to provide simple sample acquisition and easy manual and automated fraction collection.

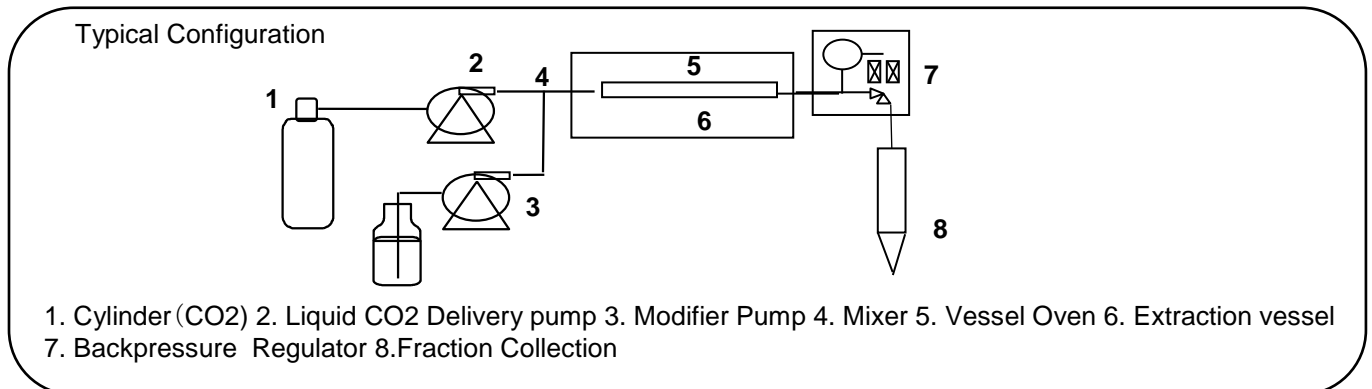
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SFE Advantage

Supercritical Fluid Extraction employs a supercritical fluid, most commonly CO₂, as the mobile phase solvent for the extraction. The intrinsic low viscosity and high diffusivity of supercritical CO₂ has rendered SFE a faster extraction and higher efficiency technique when compared to traditional liquid extraction. This provides faster flow rates and thus faster extraction times without the requirement for a higher pressure system. An alcohol solvent can join to the CO₂ to change the extraction solvent strength. The extraction oven can offer temperatures up to 100C. Lastly after the extraction vessel is the back pressure regulator, which provides the back pressure requirement to keep the CO₂ supercritical, and is an integral part of the performance of the extraction.



Advantages

1. Faster extraction times
2. Higher extraction selectivity
3. Reduction in solvent consumption
4. Friendly solvents
 - a. CO₂ replaces hexane or heptane or other solvents for liquid extractions
 - b. Alcohols typically used as co-solvents
5. Easy removal of mobile for preparative collection
6. Reduction in waste disposal

Analytical SFE



System	Extraction Vessel	CO ₂ Flow Rate
Analytical	1ml, 5ml, 10ml	0.2 - 10mL
Hybrid	1ml, 5ml, 10ml, 50ml	0.5 - 20mL
Semi-Preparative	10ml, 50ml, 100ml	3.0 - 50mL

- The analytical CO₂ pump offers built-in peltier cooling to maintain a stable CO₂ flow yielding excellent retention time reproducibility. Automatic, built-in shut-off valves close the CO₂ inlet and outlet and isolate the pumps for quick and simple priming when not pumping.
- A variety of extraction ovens are available for single vessel or multiple vessels along with built in vessel selection valves to ensure equivalent temperature for the vessels and valves to provide the highest performance extraction and efficiency.
- The patented design of the back pressure regulator provides unmatched pressure regulation providing an extremely quite baseline and excellent extraction time reproducibility.

Hybrid SFE



System	Extraction Vessel	CO ₂ Flow Rate
Analytical	1ml, 5ml, 10ml	0.2 - 10mL
Hybrid	1ml, 5ml, 10ml, 50ml	0.5 - 20mL
Semi-Preparative	10ml, 50ml, 100ml	3.0 - 50mL

- The hybrid CO₂ pump offers a flow range from 0.5 to 20mL/min covering both analytical 1mL vessels up to semi-prep 50mL vessels. Automatic, built-in shut-off valves close the CO₂ inlet and outlet and isolate the pumps for quick and simple priming when not pumping.
- A variety of extraction ovens are available for single vessel or multiple vessels along with built in vessel selection valves to ensure equivalent temperature for the vessels and valves to provide the highest performance extraction and efficiency.
- The patented design of the back pressure regulator provides unmatched pressure regulation providing an extremely quite baseline and excellent extraction time reproducibility.

Semi-Prep SFE



System	Extraction Vessel	CO ₂ Flow Rate
Analytical	1ml, 5ml, 10ml	0.2 - 10mL
Hybrid	1ml, 5ml, 10ml, 50ml	0.5 - 20mL
Semi-Preparative	10ml, 50ml, 100ml	3.0 - 50mL

- The hybrid CO₂ pump offers a flow range from 3 to 50mL/min covering 10mL vessels up to 100mL vessels. Automatic, built-in shut-off valves close the CO₂ inlet and outlet and isolate the pumps for quick and simple priming when not pumping.
- A variety of extraction ovens are available for single vessel or multiple vessels along with built in vessel selection valves to ensure equivalent temperature for the vessels and valves to provide the highest performance extraction and efficiency.
- The patented design of the back pressure regulator provides unmatched pressure regulation providing an extremely quite baseline and excellent extraction time reproducibility.

Fraction Collection

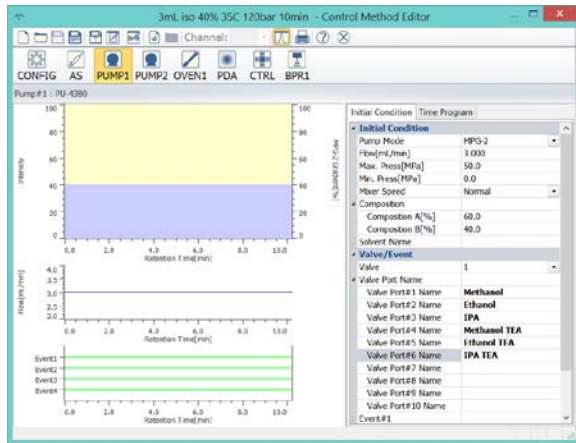
The patent pending micro-cyclone separators provide simple gas-liquid separation in the fraction vial yielding 70% higher fraction recovery than without. This is the standard option for all SFE systems providing unmatched recovery efficiency greater than 90% and simple post collection fraction processing.



Options

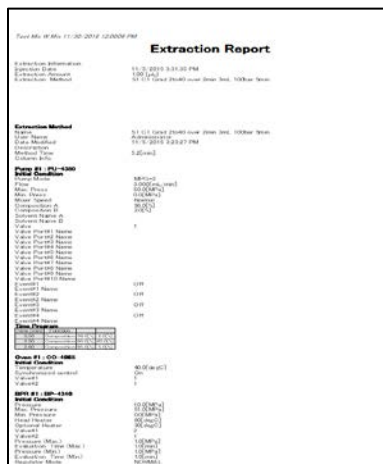
Solvent and Vessel selection

1, 6 or 10 built-in solvent and/or vessel selection valves are available for the co-solvent pump and extraction oven. Solvents and vessels can easily be named and appear in a report.



ChromNAV Software

Control up to four systems simultaneously with automated extraction method development and fraction collection. The LC-Net II/ADC is the hardware interface between your PC and the system components. Flow rate, pressure and temperatures are monitored and stored for each extraction and report styles are completely customizable.



Fraction Collection and Make-up

1 fraction is standard with the micro-cyclone separator (MCS-1), but 6 fractions or more with MCS is available for higher fraction requirements. In addition, an additional make-up pump can be added prior to the back pressure regulator to reduce fraction precipitation.



Extraction Vessels

There are a variety of extraction vessels with designs specific for solids and liquids with a wide range of volumes.

