About us

Philosophy of Our Company’s Name: ShiAnJia

❁Shi (Fitness) --------- Design **Fits** your sample’s need

❁An (Safety) ----------- Products are manufactured with high **Safety** standards

❁Jia (Excellence) ---- Resulted in **Excellent** products

For many years, we focused in CO_2 Supercritical Fluid Technology and its applications. These efforts resulted in Supercritical Fluid Dryer, Extractor, and many other related products.

Guyline

Supercritical Fluid Extraction (SFE)

SFE basically extracts organic compounds from a tough matrix. A good example is the extraction of additives and/or monomer from a polymer matrix.

Traditional method is Soxhlet extraction. It takes about 48 hours and lots of energy (hence heating cost) while SFE may take just 1 hour.

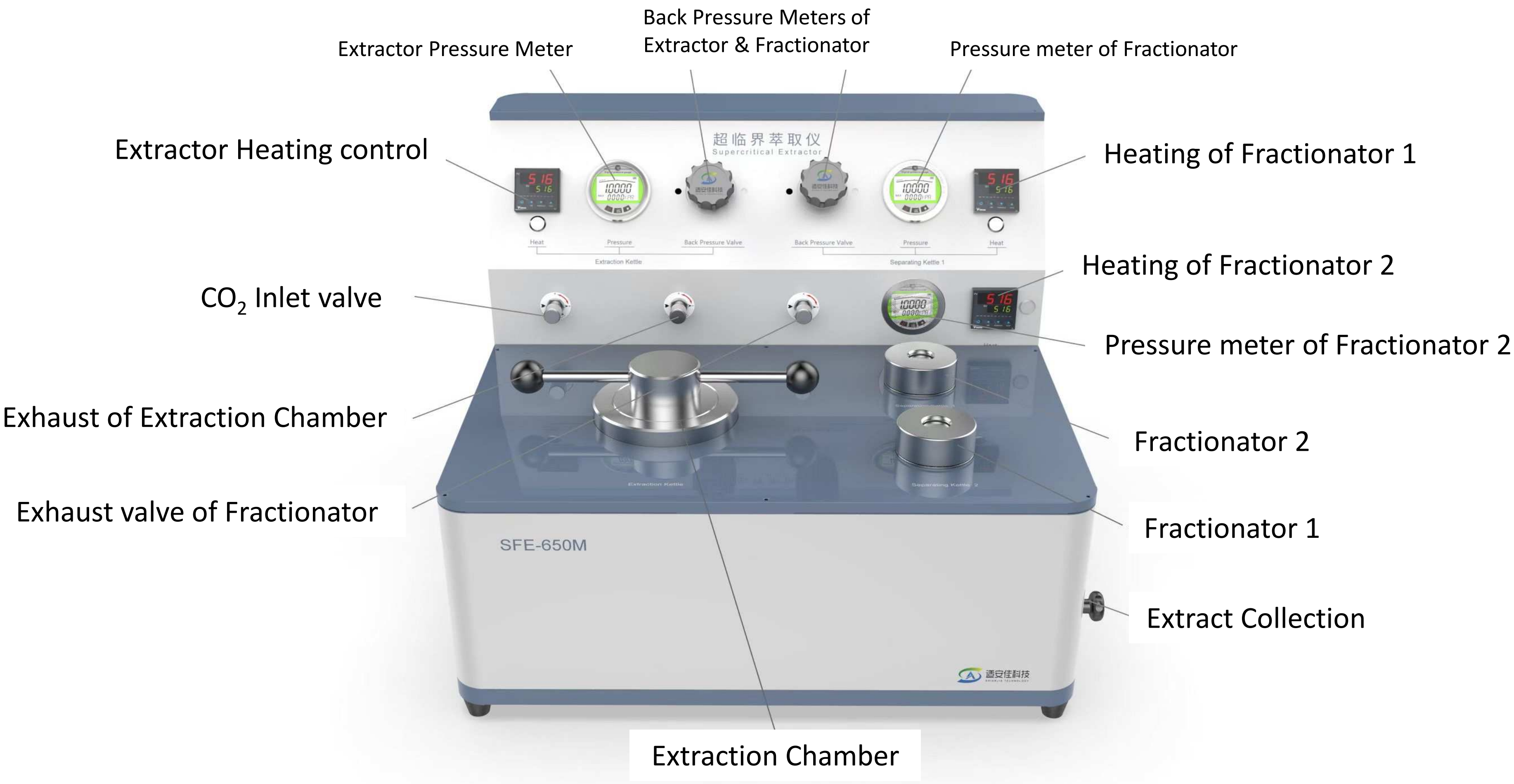
With SFE, the extracted “Soup” is very clean and ready to be used. While the “Soup” from Soxhlet would take a long time to post-process before it would be used.

Wasted organic solvents from Soxhlet has to be stored and processed by waste management organization. This costs lots of resources (money, time and labor)

All these (environmental friendliness) could easily convince you that SFE is the way to go!

All NEW Supercritical Fluid Extractor SFE-650M

适宜 安全 佳品



Principle of Supercritical Fluid Extraction (SFE) 适宜安全佳品

Supercritical Fluid Extraction（SFE）uses critical fluid as solvent to extract analytes from a solid matrix. CO_2 is the most common fluid used.

SFE could extract organic analytes like Fatty Acids, Alkaloids, Esters, Ketones, Glycerol easily.

As we could modify the Supercritical Fluid properties quite easily by changing the Pressure, Temperature, and Polarity (by addition of modifier), we could, to certain degree, making SFE both an extraction and fractionation process. Even though this is a crude method of fractionation, yet it could simplify further downstream fractionation.

Advantages of Supercritical CO_2 in Extraction and Drying

Special properties of Supercritical Fluid:

1. Gas-like diffusivity: easy to diffuse into meso- and micropores of sample matrix.
2. Liquid-like solvation power could be tuned by changing Pressure, Temperature and Polarity with addition of modifier.
3. Low viscosity & Low surface tension.

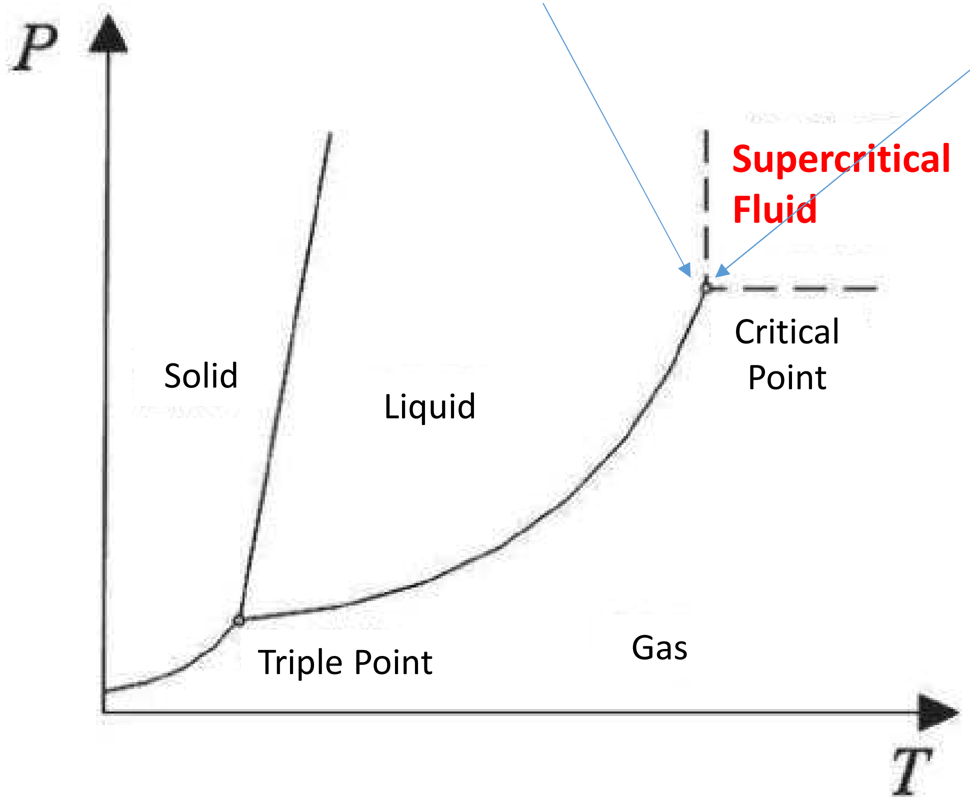
CO_2 is a good Supercritical Fluid for use because:

1. Critical temperature and pressure of CO_2 are 31.26℃, and 72.9 atm, respectively. These conditions are easy to achieve in laboratory conditions.
2. CO_2 is safe to use and more affordable than organic solvents.
3. No waste (organic solvents) to be disposed of.

Phase Diagram of CO_2

Supercritical CO_2 exists under conditions of:

P > 7.29 MPa; T > 31.26 ℃



Applications of CO_2 SFE

Wide applications in extracting and fractionating Pharmaceuticals, Herbel materials, heat sensitive Biologicals, Lipid mixtures, Hops, Pigments, refined natural and synthetic Fragrance：

1. Extraction and fractionation of bioactive materials from medicinal plants and alkaloids；
2. Recovery or removal of lipoid lipids from microorganisms, glycosides and proteins;
3. Anti-cancer substances are extracted from a variety of plants, especially paclitaxel from yew trees.
4. Vitamins, mainly vitamin E extraction
5. Purification of active substances (natural or synthetic) by removing unwanted molecules (such as pesticides from vegetable extracts) or "dregs" to obtain a purified product
6. Processing of various natural antibacterial or antioxidant extracts, such as basil, thyme, garlic, onion, chamomile, paprika, licorice and fennel seeds, etc.

In-process viewing (Bench top SFE-650M)

适宜安全佳品

适安佳科技
SHIANJIA TECHNOLOGY

Technical specification：SFE-650M

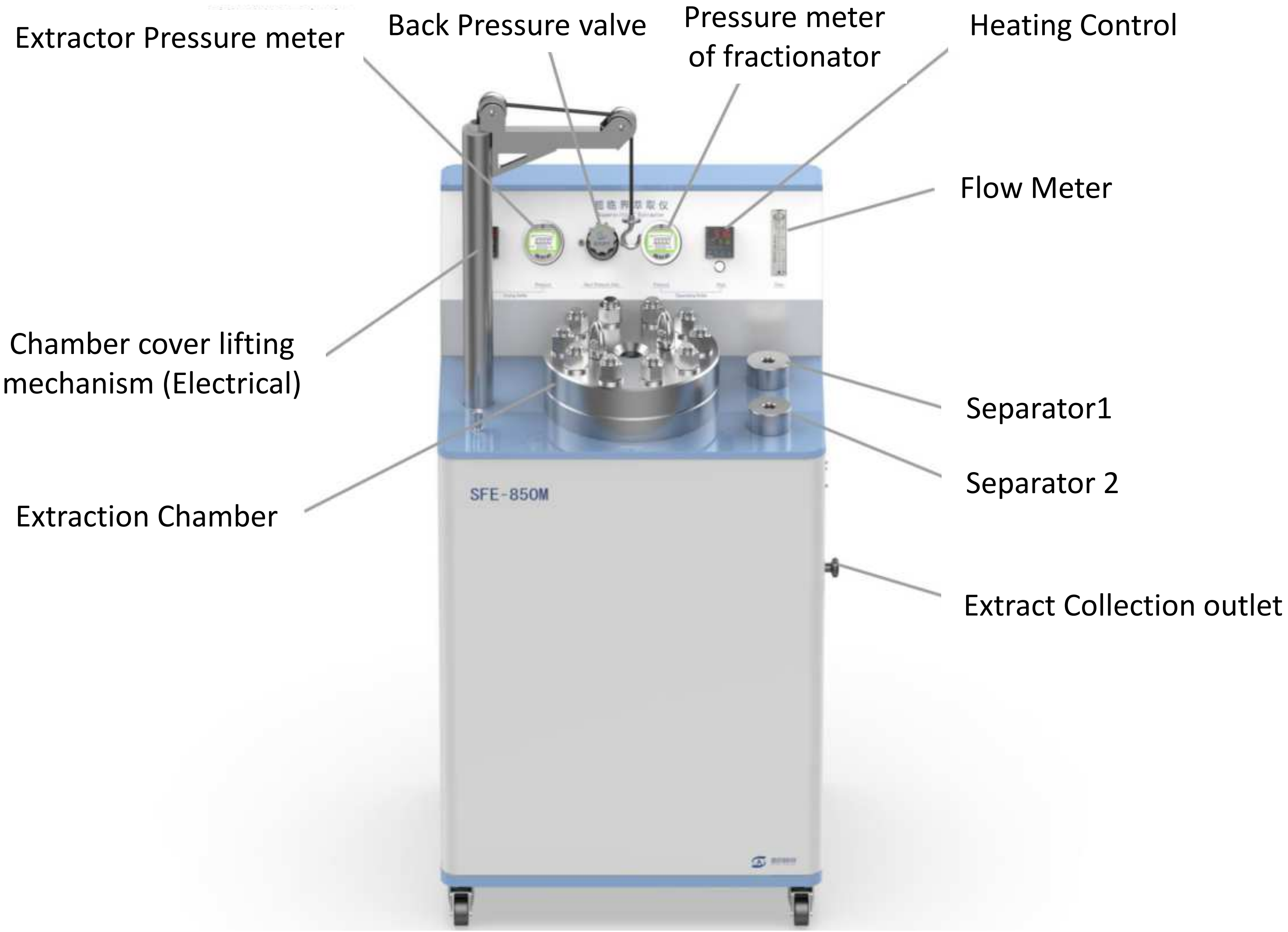
适宜安全佳品

1. Extraction Reactor: Volume of 100 – 3,000 mL，316 SS，heating system with tunable temperature，maximum working pressure of 40 MPa, Multi-extractors are available as option;
2. Fractionator: 50 – 500 mL in volume, 316 SS, heating system with tunable temperature, Maximum working Pressure of 30 MPa，Multi-fractionators are available as option;
3. Sapphire Viewing window of fractionator: observe extraction in progress;
4. High Pressure CO_2 Pump: flow rate of 0-10 mL/min, 0-100 mL/min (optional), maximum working pressure of 69 Mpa, with pump head cooling and CO_2 recycle inlet. Software control of constant flow and constant pressure;
5. Optional Modifier Pump: Flow rate of 10 mL/min, maximum working pressure of 40 Mpa;
6. Fluid Flow System: with various valves for each flow requirement.
7. Safety System: Automatic pressure released when over-pressure conditions occur；
8. Heating system: Electrical heating, tunable ambient to 200℃ ±1℃;
9. Pressure indicator: equipped with Pressure Transducer for easy control and measure pressure change within the extractor.
10. Optional CO_2 Recycle system: High pressure flow system with gas purification module.
11. Appearance: Compact and rugged with high automation capability, designed for laboratory use.

适安佳科技
SHIANJIA TECHNOLOGY

Floor Model: SFE-850M

适宜安全佳品



Technical parameters: SFE-850M

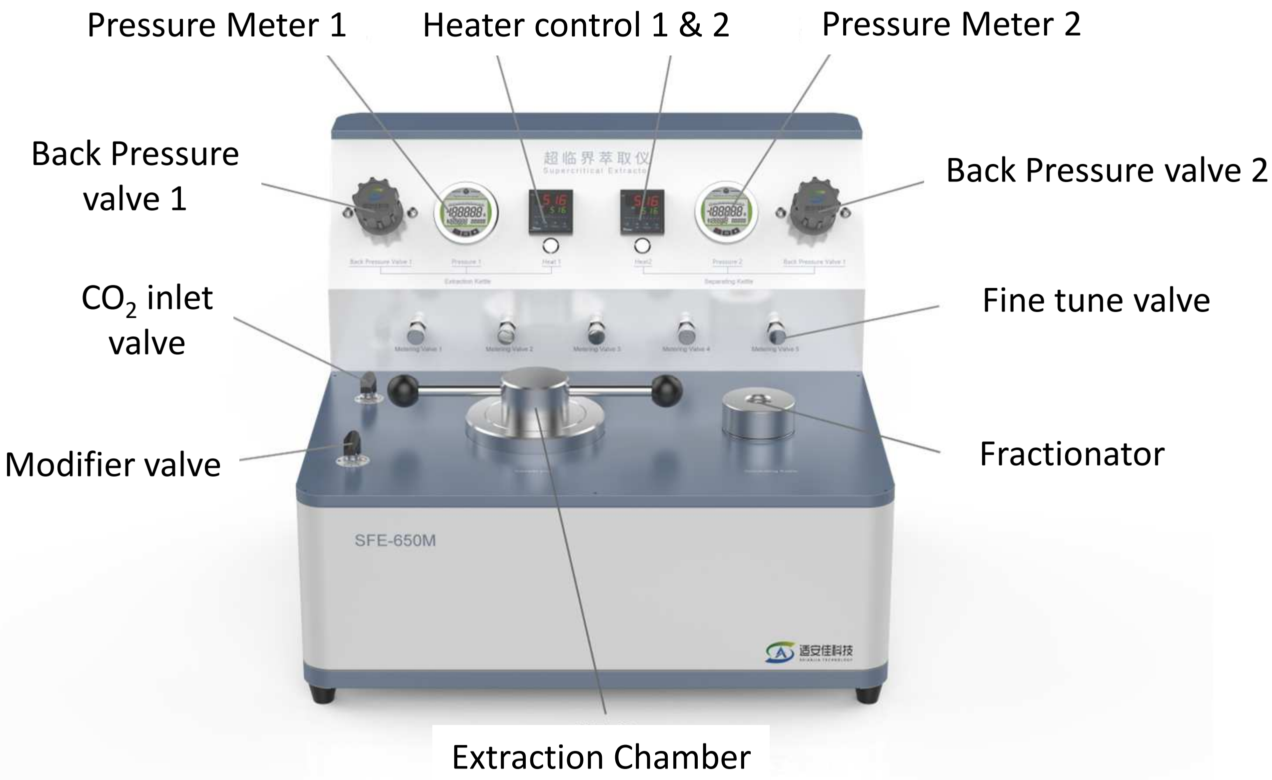
适宜安全佳品

1. Extraction Reactor: Volume of 3 - 30 L, 316 SS, heating system with tunable temperature, maximum working pressure of 40 MPa, Multi-extractors are available as option
2. Fractionator: 500 - 3000 mL in volume, 316 SS, heating system with tunable temperature, Maximum working Pressure of 30 MPa, Multi-fractionators are available as option
3. Sapphire Viewing window of fractionator: observe extraction in progress
4. High Pressure CO_2 Pump: flow rate of 0 -10mL/min, 0-100 mL/min (Optional), maximum working pressure of 69 Mpa, with pump head cooling and CO_2 recycle inlet. Software control of constant flow and constant pressure.
5. Optional Modifier Pump: Flow rate of 10mL/min, maximum working pressure of 40 MPa
6. Fluid Flow System: various valves are used for each flow requirement.
7. Safety System: Automatic pressure released when over-pressure conditions occur;
8. Heating system: Electrical heating, tunable ambient to 200℃ ±1℃;
9. Pressure indicator: Equipped with Pressure Transducer for easy control and measure pressure change within the extractor.
10. Optional CO_2 Recycle system: High pressure flow system with gas purification module.
11. Appearance: Compact and rugged with high automation capability, designed for laboratory use.

Special Features of Bench Top Model

适宜安全佳品

- Integrated design, small footprint;
- Design with ease of operation in mind;
- Use the best valves and tubing for maintaining high pressure and flow with high precision;
- Special design to ensure minimum residues remain in the system. This is important for valuable samples

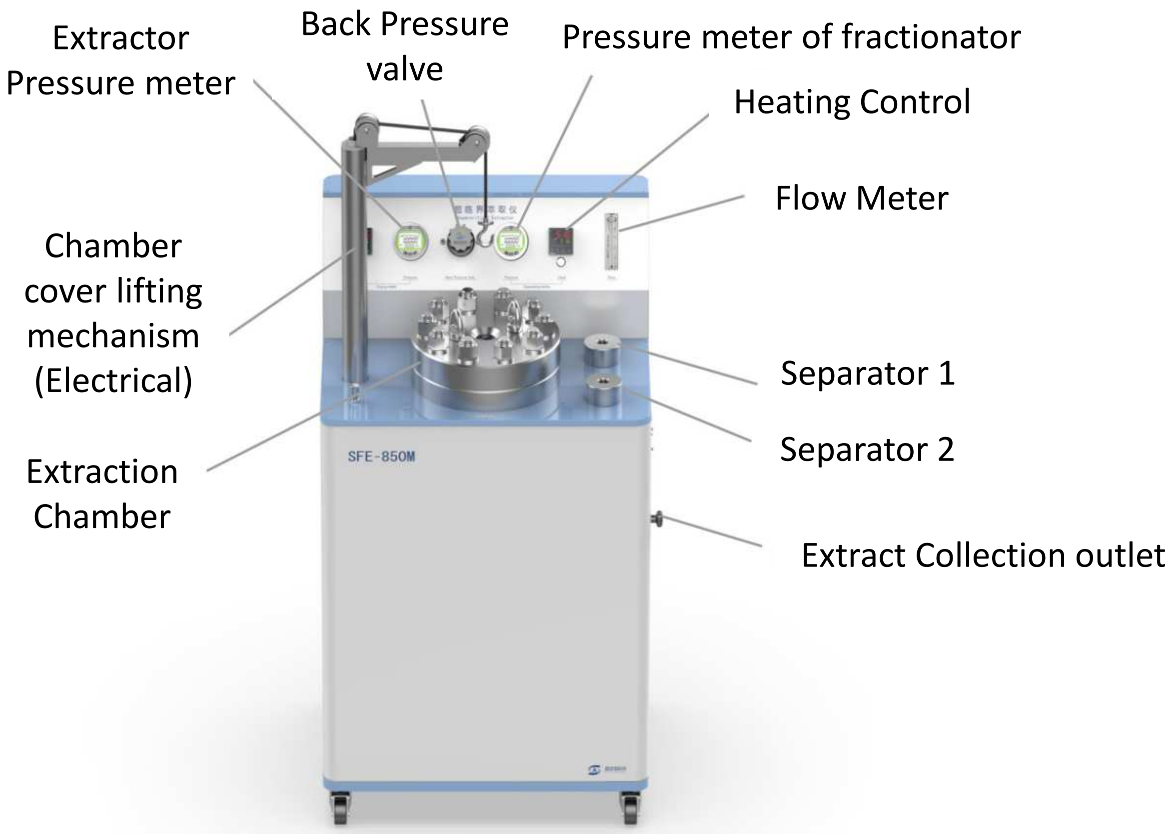


适安佳科技 SHIANJIA TECHNOLOGY

Special Features of Floor Model

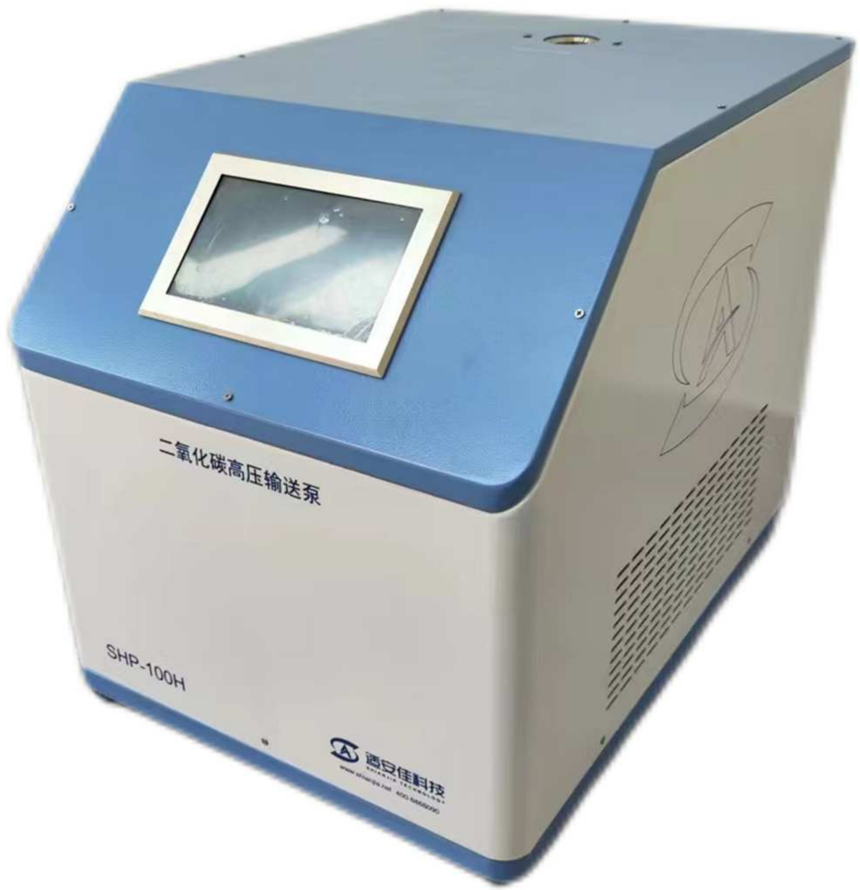
适宜安全佳品

- Dedicated high pressure CO_2 pump delivers in both constant flow and constant pressure modes. Small footprint with low noise makes it ideal for laboratory use；
- Extractor volume: choose from 10mL – 50000 mL options, 300、500、1000mL are standard sizes；
- Sapphire Viewing window of fractionator: observe extraction in progress；
- Optional CO_2 Recycle system：High pressure flow system with gas purification module. Lower extraction cost and environmental friendly。



SHP-100H High Pressure CO_2 Pump 适宜安全佳品

1. Pressure, flow, and temperature are controllable and displayed accordingly；
2. Maximum pressure: 30 - 40 MPa；
3. Flow rate：0-10 and 0-100 mL/min to choose，Precision：0.1 mL/min；
4. Cooled pump head with 5℃ design；
5. Operation: Choose from constant pressure or constant flow；
6. Dimension (L x W x H): 55 x 40 x 48 cm



High Pressure CO_2 Pump（Option 1）

- Flow rate：0.01 - 24.0 mL/min @ constant flow mode
- Pressure：0-10,000 psi @ constant pressure mode
- Pressure accuracy：±2% of full range
- RS-232 port
- High / Low Pressure Limits design
- Dimension (H x W x D): 15 x 28 x 54 mm
- Weight: 16.5 Kg

High Pressure CO_2 Pump（Option 2）

适宜安全佳品

Pressurization system：Pneumatic Pump，
Boost ratio：80:1

Flow rate：0.1-4 L/min liquid CO_2

Pressure output：0-60 MPa

Pressure accuracy：±2% of full range

Driving Pressure：3-8 Bar（Compressor)

Driving Gas Flow rate：600-800 L/min

Dimension：70cmH x 55cmW x 60cmD

Weight：35kg

Accessories

Standard w/ System：

- ✓ Flexible, high pressure Liquid CO_2 tubing，1.5M，for connecting cylinder and instrument；
- ✓ External filter (0.5μm)，with high pressure flexible tubing；
- ✓ Sample bags for powder；
- ✓ Anti-static tubing (2), 1.5M (each)；
- ✓ Spare seals for extractor and fractionator（10)；
- ✓ Installation Kit；
- ✓ Operation Manual；
- ✓ One year standard warranty and free life-long technical support。

Optional：

Modifier pump
CO_2 recycle module

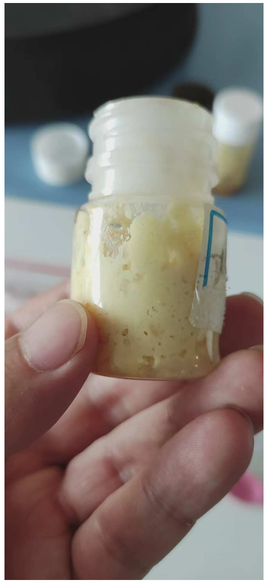
User supply：

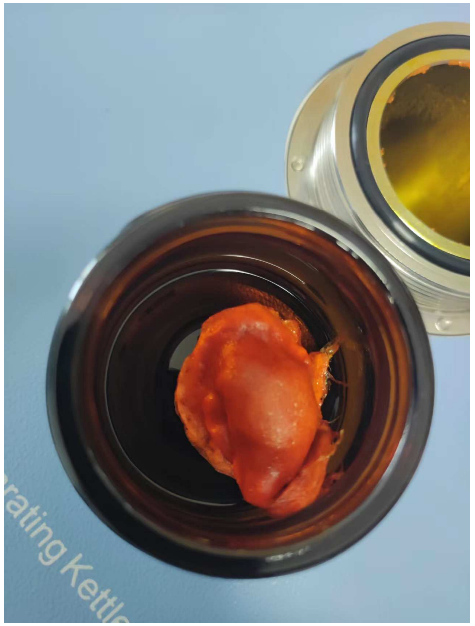
CO_2 in gas cylinder；
Modifier

适安佳科技
SHIANJIA TECHNOLOGY

Kaempferol, Rose oil and Pepper oil

适宜 安全 佳品





适安佳科技
SHIANJIA TECHNOLOGY

Guyline

For more information please contact us

eMail: gm@guyline.com.hk
Tel: +852 2856 0606
Rm. 1611 Eastern Harbour Centre,
28 Hoi Chak St., Quarry Bay,
Hong Kong