

### **50L lab multi-functional extraction tank**

Developed upon studies of international similar products, Pilotech YC-050 Lab multi-functional extraction and concentration recovery unit machine can be used for extraction and concentration of Chinese medicinal herbs and natural products (water and organic solvents) and recovery of volatile aromatic oil with a concentration ratio of 1.1-1.38. Equipment consists of extracting tank, reflux condenser, reflux cooler, aromatic oil collector, extractor filters, tubular heater, evaporator, recovery condenser, recovery cooler, collecting tank, stainless steel rack and connecting pipe valves, and meters, etc.

Function: static water extraction or alcohol extraction, ordinary pressure hot reflux water extraction or alcohol extraction, ordinary pressure outer circulation concentration, ordinary pressure concentration, reduced pressure vacuum concentration, organic solvent recovery (ordinary or reduced pressure) (online ultrasonic extraction function is optional)

#### **Features**

- 1) Small area coverage of 5-10m<sup>2</sup>. Works directly with water and power with a minimum inventory of 1.5KG and a maximum inventory of 15KG.
- 2) Extraction system is equipped with a reflux condenser, reflux cooler, oil-water separator that can recover aromatic oil in materials in an effective manner.
- 3) Circular heating of conduction oil (no pressure between lamination) and uniform heating. The heater is far away from the extraction tank which is more secure for organic solvent extraction and concentration.
- 4) Units are equipped with outer circular evaporating concentrator with a more concentrating efficiency, concentration ratio reaching 1.1 ~ 1.38.
- 5) Can be applied to water, alcohol and solvent extraction and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice and recovery of organic solvents in research institutions, universities, hospitals, pharmaceutical factory and food industry.
- 6) It combines multi-functional extraction, vacuum concentration and organic solvent recovery as a whole and simplify operations with functions of heat reflux circular

extraction, concentration, conventional extraction, concentration, water sedimentation (alcohol sedimentation).

7) Unit parts contacting materials are made of stainless steel that works in negative pressure, ordinary pressure and positive pressure conditions.

8) Low temperature concentration ensures product quality. Dynamic circular evaporation increases heat transfer efficiency, provides an effective solution to decreased heat transfer efficiency with increased concentration, saves energy and improves efficiency.

9) Dregs leach through the digestion basket to greatly improve the working environment and efficiency.

10) Optional on-line ultrasonic extraction function: adopts energy-concentrating ultrasonic generator. The unique physical process and cavitation of ultrasonic wave can break or deform plant cell tissues and enhance the strength of solute particle vibration, acceleration shock and sound pressure. Local extreme high temperature and pressure formed on materials make large-volume Chinese herbal medicines fully exposed to the ultrasound probe, which accelerates uniform precipitation of active ingredients and significantly increases extraction rate compared with traditional techniques. Ultrasonic extraction works under normal temperature and effectively reduces the loss of heat-sensitive components. Selectable frequency range contains 15KHz, 20KHz, 28 KHz, 30 KHz, 35 KHz, 40 KHz, 50 KHz, 60KHZ.

#### **Technical parameters**

1. Extraction tank volume: 0.05m<sup>3</sup>; raw material inventory: 1.5-15Kg/batch; minimum inventory: 1.5KG.

2. Extraction system is equipped with a reflux condenser, reflux cooler and oil-water separator that can recover aromatic oil in materials in an effective manner.

3. Units are equipped with outer circular evaporating concentrator with an evaporation capacity (water) of: 10Kg/h. Low concentration temperature and dynamic circular evaporation provide an effective solution to decreased heat transfer efficiency with increased concentration, save energy and improve efficiency so that a higher concentrated concentration ratio of up to 1.1 ~ 1.38 (traditional Chinese medicine extract) is reached.

4. Evaporation chamber vacuity:  $\sim 0.08\text{MPa}$
  5. Extraction temperature can be controlled and set with accuracy of  $\pm 2^{\circ}\text{C}$ .
  6. Heating power: 380V/18Kw
  7. System configuration: extraction tank, reflux condenser, reflux cooler, aromatic oil collector, extractor filter, tubular heater, evaporator, recovery condenser, recovery cooler, collecting tank, conduction oil heating tank, vacuum pump, stainless steel rack and connecting pipe valves, and meters, etc.
  8. Cooling water consumption: 3t/h. Cooling water pressure:  $<0.3\text{ MPa}$ .
  9. Circular heating of conduction oil (no pressure between lamination) and uniform heating. The heater is far away from the extraction tank. Can be applied to water, alcohol and solvent extraction and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice and recovery of organic solvents in research institutions, universities, hospitals, pharmaceutical factory and food industry.
  10. It combines multi-functional extraction, vacuum concentration and organic solvent recovery as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation (alcohol sedimentation).
  11. Unit parts contacting materials are made of stainless steel that works in negative pressure, ordinary pressure and positive pressure conditions.
  12. Dregs leach through the digestion basket.
  13. Body material: SUS304. Size: 1900X1100X2100mm.
- More options of 10L, 20L, 30L, 100L, 200L, 500L are available. Always welcome your inquiries.