

LI-2100 Automatic vacuum condensation extraction system

LI-2100 is a fully automatic vacuum condensation extraction system independently developed by LICA and has passed CE certification. It fundamentally solves the problem of water extraction from plants and soil, overcoming the complexity of traditional liquid nitrogen cooling. Not only does it prevent isotope fractionation, but it is also safe and efficient, and will not damage plants and soil. It can be used in conjunction with a water isotope analyzer and a mass spectrometer.

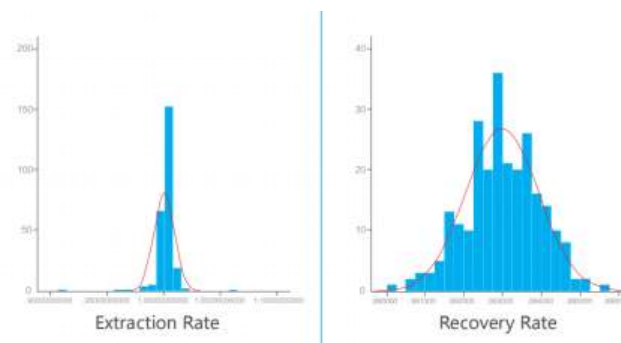


1. Using the traditional classic vacuum distillation freezing method, the data is reliable
2. No liquid nitrogen required: compressor refrigeration improves safety
3. Fast and efficient: 14 samples can be extracted at the same time
4. Fully automatic extraction: unattended operation throughout the process
5. Safe and convenient: self-power off and self-protection functions
6. Quality control: fault prompt and automatic alarm
7. Patented technology
8. Hydrogen and oxygen stable isotope pretreatment

Hydrogen and oxygen stable isotopes in different water bodies can be used to study the sources of plant water use, water vapor transport, soil water migration and recharge mechanisms, recharge sources and groundwater dynamics, water evaporation, the distinction between plant transpiration and soil evaporation, runoff formation and convergence, and the reconstruction of paleoclimate. Therefore, it has attracted widespread attention from hydrologists, ecologists, and climatologists. But the question is: How to extract the water in the plant xylem and soil without fractionation before conducting water stable isotope testing?

Specification

- Extraction speed: >110 samples/day
- Number of samples that can be extracted simultaneously: 14
- System vacuum: <1000 Pa
- System leakage rate: <1 Pa/s
- Extraction rate: >98%
- Recovery rate: 99%-101%
- Vacuum pump: 5 L/min, 24 V, maximum pressure 5mbar
- Refrigeration: No liquid nitrogen required with a cold trap, the lowest temperature is 95°C
- Heating: Electromagnetic heating, the highest heating temperature can reach 130°C
- Display and operation: TFT LCD (7 inches) touch-type
- High Temperature Automatic Protection
- Automatic alarm: Refrigeration system fault prompt alarm, and vacuum leakage fault alarm
- Dimensions: 90 cm (H)×74 cm (W)×110 cm (D)
- Weight: 120 Kg



The equipment adopts the principle of ultra-low-pressure vacuum distillation and freezing. The water in the sample is heated and distilled in an ultra-low-pressure environment, and condensed and collected in a low-temperature environment, thereby realizing the extraction of water without fractionation. The system is mainly composed of an ultra-low-pressure system, a heating system, a freezing system, and a control system. The entire process is automatically completed under the control system's monitoring.

Since its development and production, LI-2100 has sold nearly 200 units in China. Domestic scientific researchers have published many papers using this instrument, which has received many favorable comments from users. With the widespread application of the LI-2100 in China and the publication of numerous papers, some foreign scientists have also begun to pay attention to the LI-2100, developed and produced by LICA. This has actively promoted the product overseas, paving the way for the LI-2100 to gain international recognition.



Brazil Space Academy



Flinders University, Australia



Beijing Forestry University



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Technology (Guangzhou)**