

ISP 600 Integrated Sample Prep

Fully automated sample preparation, unattended operation



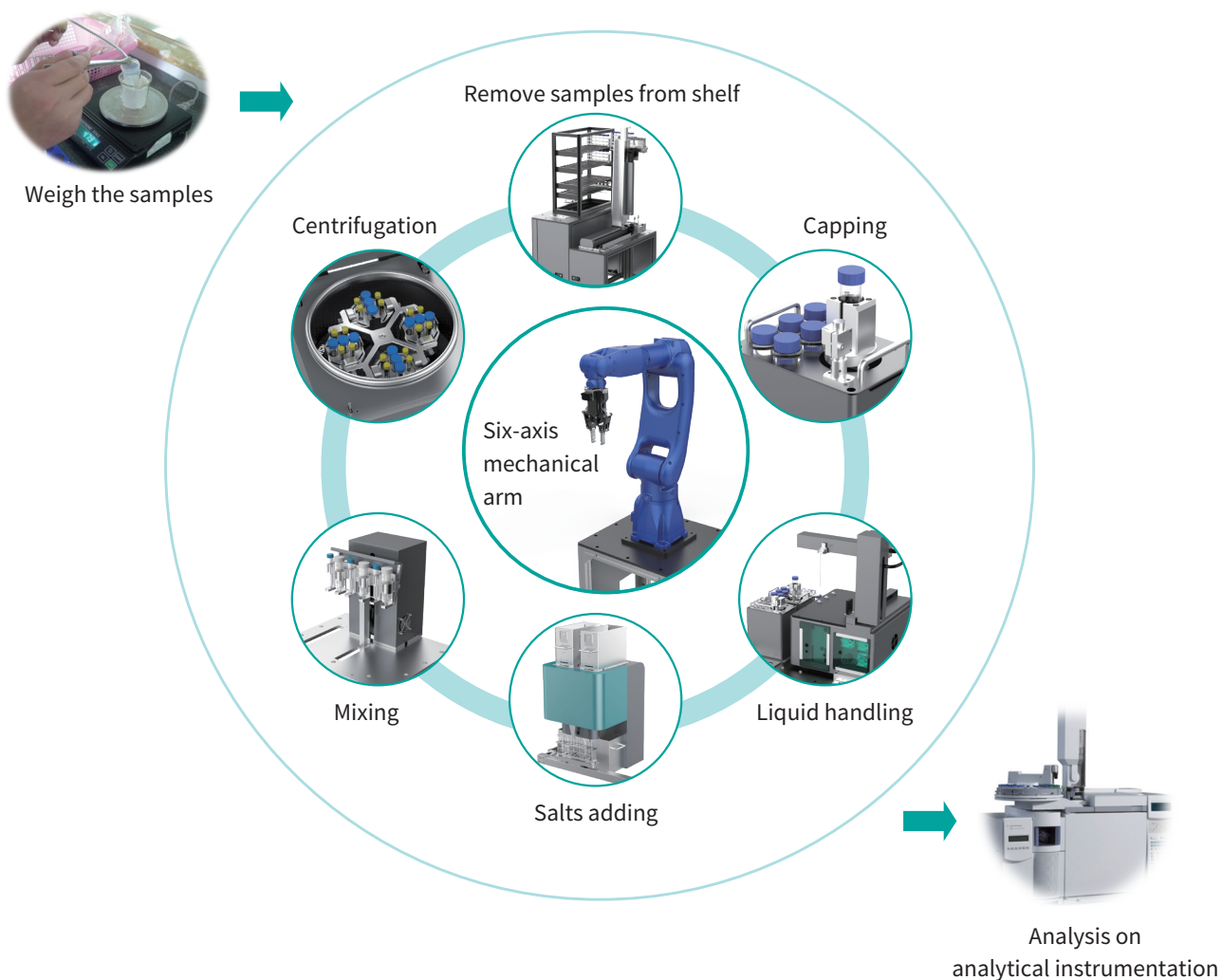
Sample preparation is an important procedure in modern chromatographic analysis. It accounts for 61% of the time and 30% of the error sources in the entire analysis. In addition, the proficiency of lab technicians in manual sample preparation can not guarantee accuracy and precision, and long-term exposure to organic solvents also harms the health of lab technicians.

ISP 600 Integrated Sample Prep is an automated sample preparation workstation built on the platform of six-axis mechanical arm combined various modules commonly used in laboratories, such as liquid adding and standard spiking, extraction, separation, salts adding, centrifugation, purification, concentration. And it contains a central sample management module as an intermediate shelf during the process, minimize user interaction. Operator only needs to weigh the samples before ISP600, it can greatly reduces any possible interference from manual sample preparation and liberates the labors of lab technicians.

Fully automated sample preparation



ISP600 Integrated Sample Prep can be applied to complete the entire sample preparation process of QuEChERS on the six-axis mechanical arm platform, it integrates the modules of sample management, liquid handling, lid capping, mixing, salts addition, centrifugation and separation, fully automate the entire QuEChERS process. Six samples can be processing in each batch, more efficient and faster.



High throughput

Six samples in each batch, overlapping batch processing, minimal 120 samples can be completed per day.

Accuracy & Precision

Mechanical operation, eliminates manual interference, consistent sample preparation process allows precision and accuracy of data to meet the standard requirements.

Fully automated

Unattended operation platform, operator only needs to weigh samples and load analytes in chromatography.

Safety

Minimal solvent usage, avoid contact between operators and solvents.

Sample management module

It conducts centralized management on all samples, sample tubes and residues used in the process. It is the only module required manual interaction before analytical instruments, including putting weighed samples and to remove analytes after sample preparation for chromatographic analysis.

Vial lid handling module

It cooperates with mechanical arm to cap and decap all sample tubes. It contains force feedback function, which can accurately determine any possible errors including lid sliding and falling off during the procedure.

Liquid handling module

This module is used to add extraction solution, spike internal standards and transfer extracted analytes. It uses double high-precision injection pumps to complete the whole procedure and ensure accuracy. Twelve kinds of solvents and four types of internal standards are available for selection. Three needle rinsing stations eliminate the risk of cross-contamination caused by residues in the system.

Centrifugation module

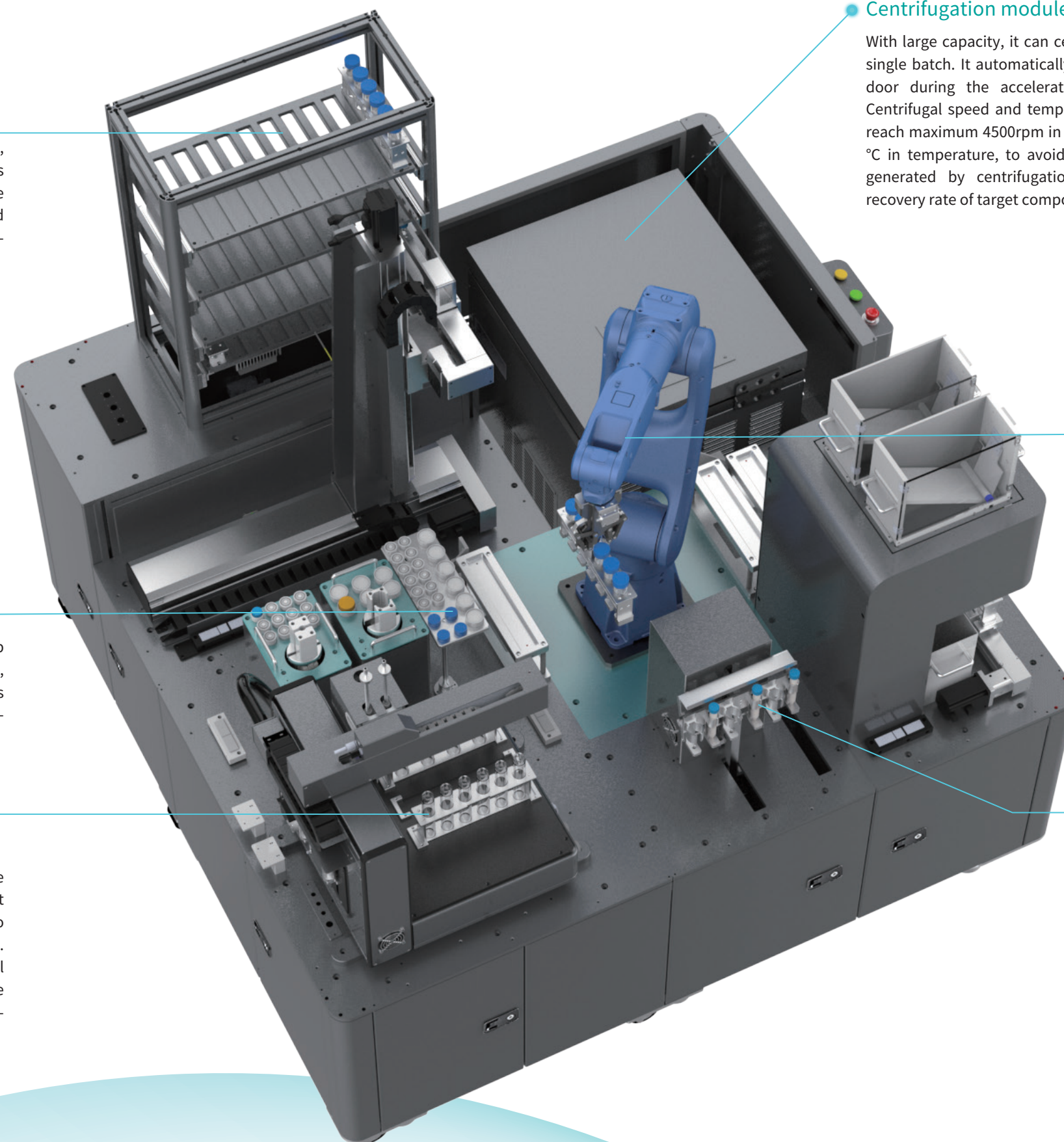
With large capacity, it can centrifuge 24 samples in single batch. It automatically opens and closes the door during the acceleration and deceleration. Centrifugal speed and temperature can be set and reach maximum 4500rpm in speed, and minimum 4 °C in temperature, to avoid the high temperature generated by centrifugation from affecting the recovery rate of target compounds.

Six-axis mechanical arm

It mimics the actions of manual sample transfer process. Sample rack or sample is grabbed and placed at the location corresponding to the procedure. Compared with XYZ three-axis, the six-axis mechanical arm is more flexible and extensible, and has a higher utilization rate of space.

Mixing module

It is the most important step in QuEChERS, vertical shake-to-mix mode simulates manual shaking and mixing actions, with adjustable shaking frequency and duration, to ensure efficient and optimal extraction.



Functional module	ISP 600
Vial lid handling module	<ul style="list-style-type: none"> • Compatible with 50mL, 15mL centrifugal tubes and 2mL GC vial • Determine the opening state of vial lids
Liquid handling module	<ul style="list-style-type: none"> • Needle rinsing • Self-inspection of needle blockage • Liquid level following • Settable liquid dispensing amount • Dispensing precision: < 1% RSD • Dispensing accuracy: $\pm 2\%$ • 6-channel processing
Mixing module	<ul style="list-style-type: none"> • Automated sample loading • 3-channel processing • Settable shaking frequency • Self-contained isolation support base
Six-axis mechanical arm	<ul style="list-style-type: none"> • 6-axis automatic control • Pause at collision • Remain clamping state when power failure • Contain force control function for clamping and holding • Drop detection
Sample management module	<ul style="list-style-type: none"> • Batch storage of samples • Accommodate placement and storage for 100mL, 50mL, 15mL round-bottom centrifugal tubes and 2mL GC vials • Automatically remove or insert sample racks • With refrigeration function, it can store samples required for low-temperature environment • Information management
Centrifugation module	<ul style="list-style-type: none"> • Compatible with 100mL, 50mL and 15mL round-bottom centrifugal tubes • 6-channel processing for 100mL, 50mL centrifuge tubes and 12-channel processing for 15mL centrifuge tubes • Automatically place and take out centrifuge tubes • Automatic positioning of rotor • With temperature control function, between 4~30°C • Speed range: 0~4500rpm

Simple and clear software interface

<ul style="list-style-type: none">• Intuitive graphical interface	<ul style="list-style-type: none">• Simple method setting
<ul style="list-style-type: none">• Visual display for instrument status• Easy to intervene at any time	<ul style="list-style-type: none">• Built-in QuEChERS methods• Users can directly access• Easy to learn and operate

Applications

Agriculture: determination of pesticide residues in plant-derived foods.

Traditional Chinese medicine: determination of pesticide residues in traditional Chinese medicine.



Examples of applications

Determination of glufosinate residues in plant-derived foods - LC-MS

Determination of clopyralid residues in plant-derived foods - LC-MS

Determination of chlorpyrifos residues in plant-derived foods - LC-MS

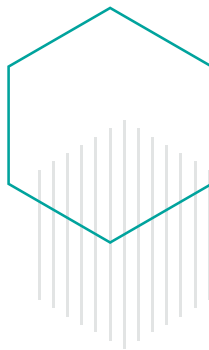
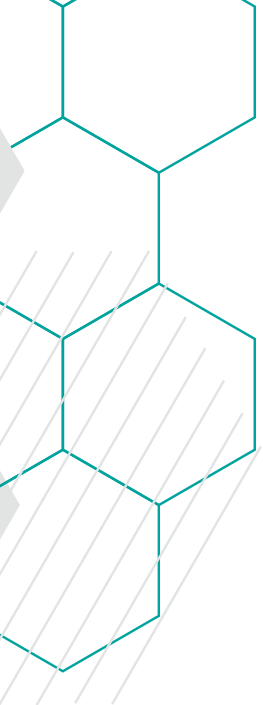
Determination of Residues of Azoxysulfuron in Plant-derived Foods - LC-MS

Determination of 9 carbamate pesticides and their metabolite residues in plant-derived foods - LC - post-column derivatization

Determination of 208 pesticide and metabolite residues in plant-derived Foods - GC-MS

Determination of fenoxanid and its metabolite residues in eggs - LC-MS

Method for determination of pesticide residues



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