

**Sample  
Preparation**

**Chemical  
Purification**

**Better  
Solutions for  
Chromatography**

**Chemical  
Analysis**

# Bonna-Agela

## Comprehensive Product Manual



Official Website

Best Value  
Guaranteed Product Quality  
Innovation to Benefit Customers

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Starting from synthesizing silica gel materials, Bonna- Agela is a global company focusing on sample preparation and purification. We provide top-quality products including bulk materials, HPLC columns, and SPE cartridges and plates to scientists worldwide who conduct drug discovery research, food and environmental testing, forensic and clinical research. We also provide customized solutions due to our strong R&D team.



## Sample Pretreatment Series

### Biological Sample Pretreatment



Cleanert® 96-well plates

➤ Cleanert® M96  
Positive Pressure SPE  
Instrument

### Automated Sample Pretreatment



Cleanert® SPE cartridges

➤ Qdaura® Automated  
SPE Workstation



## LC Preparative and Purification Series



Claricep™ Flash column

➤ OCTOPUS LC  
Purification System

AZOFF  
AZO SLE Automated  
Workstation



CHEETAH®  
FLASH Preparation  
and Purification  
System



➤ WHALE  
High Performance Preparative  
Liquid Chromatography System



## Chromatography Consumables



HPLC Columns  
Cleanert® SPE  
Consumables

## Key Products

### HPLC Columns & Prep Columns

#### Fast Separation Columns

Bonna-Agela offers 1.9  $\mu\text{m}$  UPLC column also 2.7  $\mu\text{m}$  coreshell stationary phase could be used for MS and Fast Separation columns characterized by acid resistant, general hydrophilic, alkali resistant and poroshell, etc.

**Core-shell structure chromatographic columns:** 2.7  $\mu\text{m}$  Bonshell Series compatible with HPLC also UHPLC system.



#### Featured HPLC Columns

**Hydrophilic:** Unisol C18 (2), Unisol C18, Venusil® AQ C18

**Anti-polluted Material:** Venusil® XBP C18 (L), Venusil® C18 Plus

**Stable in Extreme pH Condition:** Durashell C18 (L) pH 1.5-12,  
Venusil® ASB pH 1.0-6.0



#### HPLC Preparative Columns

**Semi-Preparative & Preparative:** Innoval ODS-2, Venusil Series,  
Durashell Series

**Preparative Sorbent:** Innoval ODS-2

5  $\mu\text{m}$ , 10  $\mu\text{m}$  preparative LC column also raw material for DAC columns



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## Solid Phase Extraction (SPE) Solutions

Bonna-Agela provides a variety of SPE consumables with different specifications, including SPE column, 96 well plates, IC cartridges, MAS-QuEChERS, and bulk media products, etc.,

MAS QuEChERS are new developed Fast and easy operation method used for pesticide residues, veterinary drugs and food additive detections.

In addition, we offer a series of customized products specifically used for customized applications along with methods. With strong application support in sample preparation products, we deliver fast, reliable and unique total solutions!



### Solid Phase Extraction Cartridges of Various Specifications

- (1) **Silica Based SPE:** AQ C18 (Hydrophilic end capped), C18 (Endcapped), C18-N (Non Endncapped), C8, CN, NH<sub>2</sub>, PSA, SAX, COOH, PRS, SCX, Silica, Diol.
- (2) **Polymer Based SPE:** PEP, PEP-2, PAX, PCX, PWCX, PWAX, PS.
- (3) **Non Silica Based Adsorbents:** Florisil (magnesium silicate), PestiCarb (graphitized carbon black), alumina (Alumina-N, neutral; Alumina-A, acid; Alumina-B, alkaline), PestiCarb / NH<sub>2</sub>;
- (4) **Ion Chromatography SPE Columns :** IC-RP, IC-P, IC-H, IC-Na, IC-Ag, IC-Ba, IC-A, IC-M, IC-Ag / H, IC-Ba / H.



### Application Based SPE Solutions *more convenient, more stable!*

- **Cleanert® TPT** (Triple Phase SPE for Tea)
- **Cleanert® PA** (Remove Pigment)
- **Cleanert® BaP** (Benzopyrene detection)
- **Cleanert® TPH** (Triple Phase SPE for Herb)
- **Cleanert® PAE** (Plasticizer Detection)
- **Cleanert® SLE** (Azo dye Detection)
- **Cleanert® ACA** (Acrylamide Detection)
- **Cleanert® EC** (Ethyl Carbamate Detection)
- **Cleanert® EPH** (Extractable Petroleum Hydrocarbon Analysis)
- **Cleanert® SUDAN** (Sudan red Detection)
- **Cleanert® DNPH** (Aldehydes and Ketones Gas Detection)



### MAS-QuEChERS Products

**Cleanert® MAS-Q** Series is a series of fast samples pre-treatment based on QuEChERS principle applicable to areas of pesticide residues, veterinary drug residues and food additives detection.

**Cleanert® PC, Cleanert® PSA, Cleanert® C18** with MgSO<sub>4</sub> is used with different combinations for various fruits and vegetables samples to remove matrix such as acid, fat also pigment.





## Cleanert® 96-well Plates



1. Cleanert® Protein precipitation plate
2. Cleanert® MAS plate
3. Deep 96-well SLE Plate
4. Cleanert® SLE plate
5. Micro 96-well SPE plate

## Sample Preparation Apparatus

### Vacuum Manifold

This product provides continuous equilibrium conditions for sample pretreatment, which simplifies the processes. The vacuum chamber design saves processing space. Two specifications i.e. 12 bits and 24 bits are available for this product.



### NV-8G & NV-15G Nitrogen Evaporator

NV-8G Nitrogen Evaporator is widely used in all kinds of chemical labs. The compact design make it easy to put into fuming hood. Maximal 8 samples for NV- 8G and 15 samples for NV-15G could be processed simultaneously, and each channel could be closed when less sample is processing. And the heating block is compatible with common tubes and 12 mL vials.

The venting needles could be lifted or brought down to adjust the height, and keep the airflow close to the liquid interface.

The product has officially been used in fields of food safety, pharmaceutical testing, and environmental testing.

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## Purification and Preparative LC Solutions

Bonna-Agela Technologies Claricep™ Flash column with irregular also Spherical material. By using the unique packing technique, the pre-packed column ensures the high efficiency and reproducible performance.



### Claricep™ Flash Screw-on Flash Columns

- Choice of loading method based on sample properties
- High pressure resistance (up to 180psi)
- Standard luer connector also luer-lock design were compatible with most of the instrument in the market
- Dry-loading of solid impregnated samples minimizes band broadening

### Glass Columns

- Good pressure tolerance: can be used at higher flow rate to speed up separation
- Special column inlet design improves performance, peak shape and efficiency

### Thin Layer Chromatography Plates (TLC)

- Analysis plate (G type)
- Fluorescence analysis plate (GF254 type)
- High efficiency analysis plate (H type)
- High efficient fluorescent analysis plate (HF254 type)

## Accessories

- Filtration Products  
(Clarinet™ syringe filters, filtration membrane, and solvent filters, etc.)
- GC columns
- Vials, caps, septa
- Reagents, standards
- Immune-affinity products
- Other consumables  
(Syringes, disposable syringes, and disposable gloves, etc.)

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# Biological Sample Pretreatment Series

## Cleanert® V96 N<sub>2</sub> Evaporator

Bonna Agela Technologies introduces the latest sample preparation instrument innovation, Cleanert® V96 Nitrogen Evaporator with Unique Gas Heating System.

Cleanert® V96 N<sub>2</sub> Evaporator is designed to increase sample processing throughput. This product is ideal for analysts who are ready to semi-automate their sample preparation work.

Application: Compatible with all well plate formats; Selection of 48 and 96 needles; Anti-corrosion coating to prevent corrosion caused by acid solvent is optional; N<sub>2</sub> Evaporator is advised to be operated in fume hood cupboard.

- Gas and electric system are well separated in the Instrument to provide safety to the user during the operation
- Unique design directs N<sub>2</sub> gas evenly and directly into each well of the plate
- Nitrogen gas is only allowed to release during heated mode to avoid waste
- Interchangeable Needle Heads helps in cleaning the needle comfortably
- Two individual 96-well plate evaporation stations allow simultaneous use for high throughput processing



Cleanert® V96 N<sub>2</sub> Evaporator



## Cleanert® M96 Positive Pressure Device

Cleanert® M96 biological sample pretreatment instrument is a positive pressure sample pretreatment device, which is designed for high-throughput drug discovery and clinical drug testing. The device is suitable for 96-well protein precipitation plate, solid phase extraction plate, SLE plate, MAS plate and filter plate. This product features compact design, simple and easy operation, etc.

- Highly uniform flow for each well on the plate.
- Improvement of reproducibility, accuracy and performance efficiency.
- Parallel processing up to 96 samples for increased sample throughput.
- The instrument is compatible with various collection plates and the actual liquid flow is visible.
- Dual pressure regulators allow the user to set different pressure for extraction and plate drying.
- High pressure (up to 60 psi) supplying greater motive force for viscous samples.
- Supply gas automatic on/off when the gas block moves down and up.



Cleanert® M96  
Positive Pressure Device

## MiracleBox Biosample Thaw Station

Programmed  
temperature  
Unfreezing



Thermostat  
and reaction  
temperature  
control

Applicable to various biosample thawing and thermostat!

- ▲ Applicable to thawing and thermostat operation of blood, animal body fluids, tissues and other frozen samples
- ▲ Dry warm up method is easy for operation, which has the characteristics of wide temperature range and high precision
- ▲ Dual functions of sample unfreezing and sample cryo-preservation
- ▲ Dry ambient avoiding label tag come off
- ▲ Temperature range from 0 °C to room temperature, with accuracy of  $\pm 1$  °C
- ▲ Thermostat pool may support 96 samples operation simultaneously at maximum, with sample sizes of 1.5 mL, 2 mL, 5 mL, and 10 mL
- ▲ Compatible with various sample holders, tube racks and different size of 96 well collection plates
- ▲ Multi-point temperature control to ensure all kinds of sample tubes are controlled under the same condition
- ▲ User-friendly interactive software, touch-screen operation, real-time status display

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# Sample Pretreatment

## Fully Automatic SPE Instruments

### Qdaura® Automated SPE System

Designed for Food Safety, Environmental and Forensic Applications!

- 4 channels in parallel running to improve sample throughput
- 6 samples of each channel sequence operation to improve efficiency
- Compatible with 1-25 mL SPE cartridge
- Multiple fraction collection, convenient for method development
- Individual sample loading channels to ensure zero cross-contamination
- User-friendly operating software to prevent operational errors
- Automatic operation to improve result accuracy and reproducibility



Qdaura® Automated SPE System



Sequence Editor  
clear and easy to understand



Method Editor  
easy and convenient



Operation interface  
Real-time status monitoring

## Platform Expansion

SPE-60 is automatic solid phase extraction system compatible with small volume of sample loading. This system was design for high throughput sample process requirement. The System can process 48 samples by sequence, greatly improved the efficiency of the experiment.



Applicable for food analysis, pharmaceutical and environmental sample analysis!



## SPE-10 Automatic Solid Phase Extraction System

- Modular design, flexible configuration combinations
- Unique large / small sample volumes compatible design
- Compatible with 1-12 mL SPE cartridge
- Aqueous and Organic Waste could be collected separately
- Paralleled sample loading, zero cross-contamination
- Over pressure sensor ensure system safety
- Modularly design, each module could process 6 samples gradually
- One control module could control max 4 extraction modules, and 24 samples could be processing in line

## Positive Pressure Solid Phase Extraction Device



### SPE-M Positive Pressure Solid Phase Extraction Series

SPE-M series positive pressure solid phase extraction devices apply the general positive pressure technology of automatic SPE device to achieve pressure equalization for each cartridge, so as to eliminate the differences in flow rate between cartridges in vacuum negative pressure device due to different distances between the cartridge outlet and vacuum ports. SPE-M series is suitable for single, two cartridges tandem mode applications, as well as large volume sample loading and collection. SPE-M08 can be extended or a large volume of water sample.

- SPE-M08 support Single cartridge, tandem cartridges operation
- Adjust flow-rate of each cartridge individually
- Compatible with most of the commercial SPE columns in the market
- Dual pressure adjustment switch for strong also tiny gas flow adjustment
- Low variation on the flow rates between the cartridges, improving the extraction consistency
- Manual SPE step indicator (Condition\Load\Wash\Dry\Elute)



SPE-M08



SPE-M12



SPE-M48

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# Purification Chromatography Series



## OCTOPUS LC Purification System

### ■ High Productivity

The OCTOPUS can handle not only the flash column but also preparative HPLC columns to maximize purification of compounds and load ability of crude sample in a single system.

With ATS autosampler and column switcher, high throughput applications can be achieved.

### ■ High Flexibility

Three interchangeable pump modules is designed to carry out binary or quaternary gradient application. The pressure range is from 200 psi to 3000 psi with the flow-rate ranging from 1 mL/min to 200 mL/min. The basic system can be extended by coupling with various detectors, autosampler and column switcher for advanced purification experiments.

### ■ High Efficiency

All in one system saves time and increases throughput. Plug and play function results in easy performance.

Automatic features trigger system alarms to avoid loss of samples and ensures safety of instrument and lab.

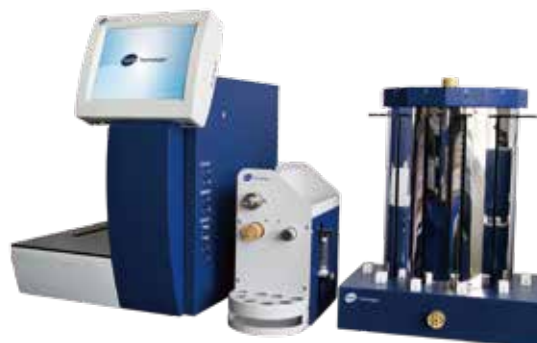
Plug and play functions facilitate the usage of various pumps, autosampler, column switcher and racks swiftly.





Bonna-Agela Technologies introduces CHEETAH® MP & HP Series PURIFICATION system to significantly improve the throughput of purification in synthetic and natural product chemistry. CHEETAH® MP Series are designed to automate purification process with on-line peak detection and fraction collection. The systems are a revolutionized replacement of traditional column chromatography. CHEETAH® HP 100 is an automated high pressure preparative LC system featuring binary gradient pump, UV detector and fraction collector. It is a solution to purify complex sample employing high-solutions columns packed with small particle media.

## CHEETAH® All-in-one Series



## WHALE High Performance Preparative Liquid Chromatography System



### High-throughput to Improve Work Efficiency

- Large volume sample loading, Pumps flow range from 300-1000 mL/min
- High efficiency sample loading at high flow rate up to 1000 mL/min
- Large volume of fraction collection, 6 individual fraction collecting channels avoids cross-contamination

### High Performance to Improve Separation Capacity

- Compatible with 5um, 10um HPLC preparative column also DAC system
- Compatible with Bigger Scale Flash Columns 800 gm, 1500 gm, 3000 gm and 5000 gm
- Binary gradient system ensures excellent separation performance

### Flexibility with different parameters

- Compatible with PDA, UV-Vis, ELSD, RI detectors
- Automatic Sampler
- Column Switcher

### User-friendly Software

- User-friendly interface and intelligent control
- Individual Solvent Recycling to save Solvent Cost
- Compatible with normal phase LC and reversed phase LC applications

## Other Accessories



ELSD Detector



RI Detector



ATS Series  
Auto-sampler



FLEXA™ Series  
Column Switcher

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# Special Application Instrument

Following market trend closely, Bonna-Agela has developed a series of special instruments including the instrument for automatic AZO dyes extraction experiments; an edible oil polar components (EOPC) separation system that meets the requirements of "Measurement on Edible Oil Polar Components (PC)"; and a fast oil component separation system (AcceleSep) used for separating common rock soluble organics and group components (such as saturated hydrocarbons, aromatics and gums) from crude oil. All these special instruments are characterized by high stability, reliability and accuracy, and are fully backed by our total solution which integrates the consumables, the equipment, and the application methods.



## AZOFF SLE Automated Workstation

Liquid-Liquid Extraction (LLE) is one of the most common sample preparation method using in Pharmaceutical, Food testing, Environmental monitoring, and chemicals analysis. But the method was limited by a lot of disadvantage such as low efficiency, Human error and turbid problem.

In BS EN 14362-1:2012(E), Methods for determination of certain aromatic amines derived from azo colorants. There was a self packed diatomaceous earth cartridge was used for sample pretreatment. Agela provided Pre-packed cartridge with automated workstation AZOFF to simplify the whole process. The system improve throughput, repeatability, safety of the operator, is a good choice to make the Liquid-Liquid Extraction process automated.

- AZOFF has a modular control which could control maximum of three extraction module, each module could process 8 samples parallelly;
- A Positive Pressure ensure a steady flow rate which improves the sample recovery and method stability;
- Seamless integration with positive pressure operation ensures;
- Operator has less exposure to the organic solvent.

## EOPC Automatic Separation System for Polar Compounds in Edible Oils

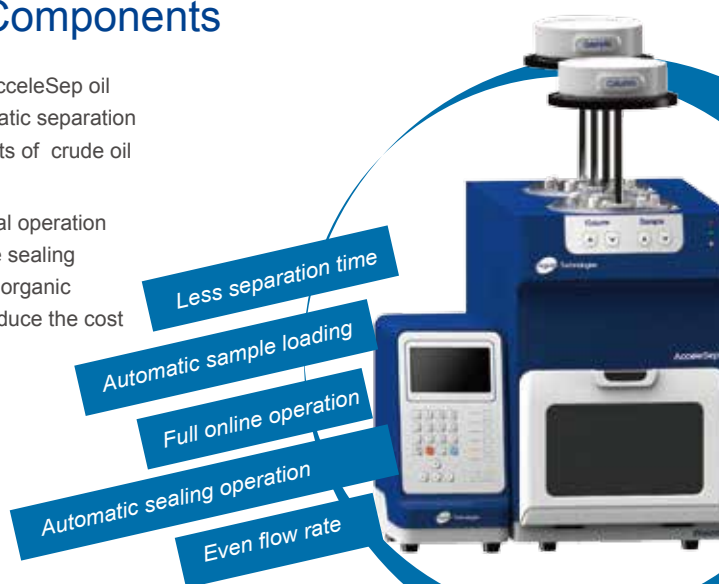


- Pre-packed columns replacing manual packing glass columns, with stable performance to save time and labor
- Fully automatic separation of sample components, automatic control of flow rate and fraction collection
- Online testing, real-time monitoring
- 40 mins to complete the separation and analysis process

## AcceleSep Fast Separation System for Crude Oil Components

In contrast with manual operation systems, AcceleSep oil components separation system allows automatic separation of the soluble organics and group components of crude oil in rock.

This system can quickly reduce 4-hour manual operation period to 30-40 minutes for each sample. The sealing operation of this system can effectively avoid organic solvents' harm to human body, and greatly reduce the cost for organic solvent also labor.





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