ASE 300

Specifications

ASE 300 ACCELERATED SOLVENT EXTRACTOR

Oven:	• Accepts 34, and 66, 100 mL (internal volume) size cells • Auto-seal actuator places cell into oven and returns cell to tray after extraction • Temperature control up to 200℃ • Vertical cell orientation with flow from top to bottom
Pump:	• Fluid delivery pressure at 1500 psi • Automatic pressure sensor and pressure relief during heat-up
Fluid Sensors:	• IR sensors detect he arrival off luid into the collection via land fluid levels during extract collection
Display and Keyboard:	• Menuoperated • LCD 7 x 40 character display • Method and schedule editor • Method and schedule storage
Extraction Cells:	• 34,66,100 mL size cells • Internal cell diameter: 28.3mm • Hand-tight cell caps with compression seal for high-pressure closure
Extraction Cell Tray:	• 12 cell positions • 2 rinse positions • Automatic home position sensing • Multiple extractions per cell
Collection Bottle Tray:	• 12 bottle positions plus 1 bottle positions for rinse/waste collection • Tray compatible with 250mL collection bottles
Collection Bottles:	• 250 mL, VOC certified • Bottle lids with solvent-resistant septa (TFE-coated on solvent side)
Extraction Fluids:	• Compatible with a wide range of organic and aqueous-based solvents

Dimensions: (h x w x d):	• 59.4 cm x 58.8 cm x 60.4 cm (23.4 in x 23.1 in x 23.8 in)
Weight:	• 75.2 kg (165.4 lbs.)
Power Requirements:	• Consumption: • Voltage: 500–VA(watts)max. 100–240 V ac, 50–60Hz
Pneumatic Requirements:	• Airat400–827 kPa (60–120psi) • N at 1034–1340 kPa (150–200 psi)

AutoASE COMPUTER CONTROL SOFTWARE

System Requirements:
• Pentium®-basedPC
• Windows® 95, 98, or NT
• CD-ROM

ASE 300 SOLVENT CONTROLLER
Dimensions: (h x w x d)
• (20.3 x 35.6 x 49.8 cm)
• (8.0 x 14.0 x 19.6 in.)

Weight:
• 4.5kg(10lbs.)

Power Requirements:
• ProvidedviacablefromtheASE300

Extractions that normally take hours can be done in minutes using Accelerated Solvent Extraction. Compared to techniques like Soxhlet and sonication, ASE generates results in a fraction of the time. The new ASE 300 represents the latest development in ASE technology. It allows for the extraction of up to 100 mL quickly and easily using minimal amounts of solvent to handle all of your extraction needs.
The ASE 300 makes it faster and easier to achieve target analyte concentration for quantification. Samples containing high moisture content or non-homogeneous matrices can be efficiently extracted. In addition to speed, the ASE 300 delivers unparalleled labor savings. It can extract up to 12 samples unattended, and deliver filtered extracts, ready for cleanup and analysis.

Programming capabilities of the system allow you to quickly re-extract samples to confirm extraction efficiency and validate the method. Complex extractions can be completed by programming multiple extraction cycles of a single sample.
The Solvent Controller can be used to automatically mix and deliver solvents to reduce labor and solvent exposure. Additionally, samples can be extracted with different solvent polarities to achieve alternative extraction selectivity.
When used in conjunction with the AutoASETM 2.0 software, the ASE 300 becomes an even more powerful tool for the analytical chemist. AutoASE stores and tracks sample

information electronically for accurate reporting and storage. Speed up your extractions with the automation capabilities and technology of ASE

Large Sample Extractions
The new ASE 300 can handle large sample volumes up to 100 ml for all of your extraction needs.

Rapid Extractions in Less Than 15 Minutes
Sample analysis techniques have advanced rapidly to improve laboratory speed and throughput. Unfortunately, sample extraction can still take hours or days to complete. Traditional techniques, like Soxhlet, can take 4-48 hours. With ASE you can achieve analyze recoveries equivalent to those obtained using traditional extraction methods in only 15 minutes. Rapid extrations can now be a part of your productive lab.

Economical Operation
ASE offers a lower cost per sample than other extraction techniques. Compared to other techniques, ASE cuts solvent consumption by up to 90%. Less solvent means less expense, and ultimately a lower cost per sample. Because so little solvent is used, final clean-up and concentration is fast and easy. This saves additional time and money.

Reduced Exposure to Solvents
Reduce solvent exposure with the ASE 300. Solvents are stored in a self-contained unit and delivered automatically. This limits the amount of time chemists are exposed to potentially dangerous vapors. It also limits glassware handling, and facilitates a safe laboratory working environment.

Easy Start-up Using your current methods
Operation of the ASE 300 is so straightforward and easy, you can plan on extracting samples minutes after your unit is installed. Start by using the same solvent specified by your existing metho- often it will provide equivalent recoveries on the first attempt. Sample preparation is also the same for ASE as for other extraction techniques.

Unlike other extraction techniques, ASE independently controls temperature and pressure conditions for each sample cell. This control is critical for high analyte recovery and reproducibility, even with samples that contain varying amounts of moisture.

Easy Method Development
Need to develop a method for a new sample matrix? Use ASE. Approximately 75% of all ASE extractions are completed is less than 20 minutes using the standard ASE extraction conditions (100 °C, 1500 psi).
Method development starts with these conditions. If these initial parameters don’t provide the recoveries desired, simply increase the temperature to improve the efficiency of the extraction. Adding static cycles, increasing static time, and selecting a different solvent are additional variables that can be used to optimize a method. The simple developmemt steps of the ASE technology make method developmemt fast, easy, and automated.

Easily Validate this Method
Automation capabilities combined with the speed of extraction make it easy to validate a method using the ASE 300. Just program the schedule to extract the sample two to three times, into separate vials, analyze each vial for analyte content, and adjust the method parameters accordingly. It is often possible to transfer a method to ASE and vali- date the same day.

Approved for U.S. EPA Method 3545A
ASE is accepted for use in U.S. EPA SW-846 Method 3545A, which can be used in place of Methods 3540, 3541, 3550, and 8151. Method 3545A can be applied to the extraction of base/neutrals and acids (BNAs), chlorinated pesticides and herbicides, polychlorinated biphenyls (PCBs), organophosphorus pesticides, dioxins and furans and total petroleum hydrocarbons (TPH).

The ASE 300 Accelerated Solvent Extractor provides rapid and automated extraction of target analytes from a broad range of solid and semi-solid samples. Some of the proven applications and their recoveries are presented below.

Environmental
Extraction of environmental contami- nants from soil, sludges and sediments as documented in U.S. EPA Method 3545A for the following analyte classes:

• Organochlorine and Organophos- phorous pesticides (OCP, OPP)
• Base/Neutral and Acids (BNA)
• Chlorinated herbicides
• Polychlorinated Biphenyls (PCB)
• Dioxins and Furans
• Total Petroleum Hydrocarbons (TPH)

Pharmaceuticals
• Additives from animal feeds
• Active compounds from pills, preps, and patches
• Natural products and nutraceuticals

Enhance the performance of the ASE 300 with the Solvent Controller and AutoASE computer control software. Automatically mix and change solvents between extractions with the solvent controller and store and track sample information with AutoASE. Expand your ASE 300 reporting and control capabilities with these two additional automation modules.

ASE Extraction Steps
Prepared samples are loaded into the fingertight, stainless steel extraction cells and placed on the cell carousel. The carousel rotates the sample cell into position for transfer to the oven chamber. The cell is then transferred to the oven and automatically sealed under pressure. The cell is then filled with solvent, heated and pressurized. After the cell reaches the set temperature, it is held in the oven, at constant temperature and pressure,

for a user-set static time. The analytes and solvent are filtered and collected in the vial, and the cell is then flushed with fresh solvent, and purged by nitrogen gas. Once complete, the cell is returned to the carousel and the next sample is extracted.

Why ASE?
Accelerated Solvent Extraction is an automated technique for extracting solid and semisolid samples with liquid, organic or aqueous solvents. The ASE 300 uses patented* technologies that accelerate the extraction of analytes from samples. Common solvents are used at elevated temperatures and pressures to increase the speed and efficiency of the extraction process.
*U.S. patent numbers: 5,843,311; 5,647,976; 5,660,727; and 5,785,856

The benefits of using elevated temperature and pressure are:
Accelerated Extraction Kinetics with Elevated Temperature
• Higher analyte solubility
• Helps overcome matrix effects
• Faster desorption kinetics
• Lower solvent viscosity
• Efficient diffusion into matrix

Efficient Extractions with Elevated Pressure
• Keeps solvents liquid at temperatures above their atmospheric pressure boiling points
• Helps fill cells rapidly

Designed for Safety
The system incorporates multiple safety features to eliminate potential hazards. Sensors for temperature, pressure, and solvent leaks alert the operator to a problem by sounding an alarm, and if necessary shutting down the system.

Automate Your Solvent Delivery
With the Solvent Controller, up to four solvents can be mixed and delivered to the ASE 300. Four 2-L solvent bottles,which are used when mixing solvents in 5% increments, are stored in a convenient caddie designed to direct solvent spills to waste. This unique design decreases the amount of time you spend on laborious tasks like measuring and mixing solvents and reduces errors. Low solvent consumption, fast run times, and the ability to automatically change solvents between extraction runs make the ASE 300 with the solvent controller an optimium choice for enhanced sample extractions and lab safety and efficiently.

Effortless Routine Analysis
The solvent controller makes the task of extracting various analytes seem routine. For example, the system can run 6 BNA samples, then 6 TPH sam- ples, automatically changing the sol- vent for the new analyte class. The system can also be programmed to rinse with a different solvent or sol- vent mixture than you are using for extraction.

Systematic Method Development
Unsure of what solvent will achieve the best extraction efficiency for your analysis? Automate the development process with the capability of select- ing different solvents for your sample matrix. The Solvent Controller provides the flexibility to automatically program extractions with different solvents or solvent mixtures for simplified method development.

Automated Extraction Selectivity
Using the solvent controller you can automate the selectivity of your extraction. Samples can be re-extracted with different solvent polarities to achieve alternative extraction selectivity.

Reduced solvent exposure
The solvent controller's ability to mix solvents protects you against unnecessary solvent exposure. For example, you can reduce the exposure to solvents by pre-programming the system to mix solvents like hexane or acetone for organochlorine pesticide extraction.

AutoASE 2.0 is a control and report- ing software application for the ASE 300. GLP compliance is easy with the ability to electronically store and track sample identifica- tion, methods, and schedules. Run up to eight ASE systems, and keep track of all samples and solvents from one AutoASE location. Program and control your extraction results with the advanced automa- tion capabilities provided by AutoASE.

Accurate Reporting and Storage
• Track and printout sample information
• Monitor ASE 300 operation continuously
• Store and track sample information electronically
• Save unlimited methods and schedules
• Identify samples with text and numeric descriptors
• Monitor and track samples run on multiple systems with reporting capabilities

Operating Control
• Operate with variable rinse volumes
• Access ASE 300 control functions quickly with a user-friendly icon bar
• Control or monitor up to 8 ASE systems from one PC
• Bar code readers can be used

Schedule Editor Screen
Schedule extraction conditions for a series of extractions and control variable rinse volumes.

Operating Status Screen

All of the operating details of a method, including a graphical display of the current status and detailed information on operating parameters, can be viewed on this screen.