

SAMPLETEK™

MODEL 24VE
PROGRAMMABLE VACUUM EXTRACTOR
OPERATOR'S MANUAL
(Version 4.0)



MAVCO INDUSTRIES, INC.

1634 Bypass South • Lawrenceburg, Kentucky 40342

Telephone: (606) 871-0044

www.sampletek.net

TABLE OF CONTENTS

Specifications	2
Set-Up Instructions	3
General Description	3
Electronic Controller	4
Operation	5
Maintenance	5
Extraction Set-Ups, Accessories and Supplies ...	6
Trouble Shooting	7
SampleTek Parts List	8
Warranty	9
Additional Products	10



SAFETY WARNING: Careful use is always important even though the Programmable Extractor was designed with safety in mind. **BEFORE LOADING, UNLOADING OR SERVICING, UNPLUG THE ELECTRICAL POWER SUPPLY CORD.**

SPECIFICATIONS

DIMENSIONS:

Diameter: 17³/₄"
Height: 23¹/₄" Lowered without syringes
27⁵/₈" Raised without syringes
33" Raised with extraction
syringes and sample
cylinders

WEIGHT: 46 lbs.

POWER REQUIREMENT:

115 VAC 60Hz or 220 VAC 50Hz

CAPA CITY:

24 Extraction Stations

CYCLE TIME:

Varies from 5 minutes to 24 hours.
Speed is determined by programmed
ML volume and time set.

OPTIONAL ACCESSORIES:

Upper cylinder reservoirs with stopper tips;
Sample cylinder barrels; Filter adapters; Filter
pads; Filter frits; Connector tubes; Extraction
syringes; Replacement rubber plunger tips;
Silicone lubricant for extraction syringe rubber
tips; Paste extractor cups; Filter paper; Tube clamps;
Filter adapter installation/removal tool.

SETUP INSTRUCTIONS

Choose a location which is convenient for work height and has access to the specified electrical outlet. Sufficient clearance should be allowed for the full extension of the syringes.

Remove extractor from carton. Be sure that all packing materials are cleared away. Insert the electrical cord into the socket that is located on the right hand side of the control panel.



SAFETY WARNING: THE ON/OFF ROCKER SWITCH SHOULD BE IN THE OFF POSITION EXCEPT DURING OPERATION.

GENERAL DESCRIPTION

The mechanical extractor has been used for many chemical analyses requiring a leaching procedure. Plastic syringes and/or extraction cups are supported in the three slotted discs on the extractor as required by the individual procedure.

The middle disk has numbers 1 through 24 adjacent to the syringe positions as shown in Figure No. 1. This serves to orient a set of numbered sample cylinders.

For convenience in loading/unloading, the power cord is detached and the extractor rotated on its base. When in use, a jack raises the two upper discs while the stationary lower disc grips the syringe plungers. The extractant is collected by the extraction syringes in a consistent manner since a vacuum develops sufficient to maintain uniform flow to the extraction syringe. Cycle time can be set for 5 minutes to 24 hours depending on the analysis requirements.



SAMPLETEK Vacuum Extractor

The extractor does not require operator attention during the cycle. The electronic controller automatically shuts down at the end of the cycle, as programmed, making it possible to conduct unattended extractions without concern for completion time.

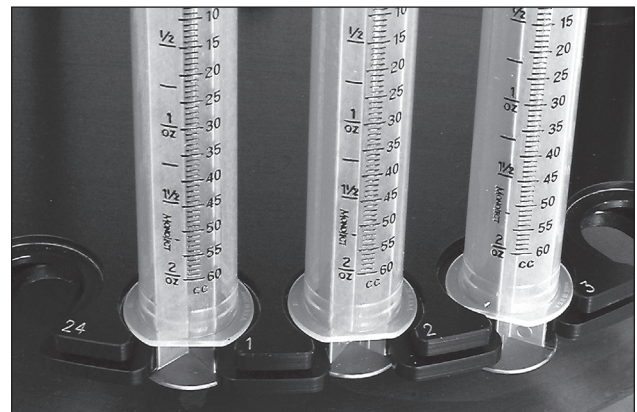


Figure No. 1

ELECTRONIC CONTROLLER (VERSION 4.0)



The Electronic Controller is a microprocessor based device that allows accurate timing functions to be performed.

There is an eighty character display which is used for communication to the operator and a red LED indicator that illuminates when an operation is in progress.

All operations are accomplished through the use of a sixteen button keypad located on the front panel. The key definitions are as follows:

PROGRAMMING RUN:

Keys "0 - 9" Are used for numeric input.

Key "C" Cancels program and/or clears the display of any errors.

RACK ADJUSTMENT:

Key "*" Initiates the "Adjust Menu" and will pause a run in progress should an adjustment be needed

Key "A" Press and hold to adjust the rack upward — useful in setting the starting point of a run.

Key "D" Press and hold to adjust the rack downward.

Key "B" Will exit the "Adjust Menu" and if a run was interrupted it will resume the run from the point of interruption.

Key "#" (No Function)

OPERATION

When the power switch is turned on, the operator will be prompted to enter an option.

There are 3 options available:

Press number "1" Repeat previous extraction process.

Press number "2" Extraction selections.

Press number "3" Retract extraction rack.

- If Option number "1" is entered, that is the only input required.
- If Option number "2" is entered, the sequence is as follows:

Prompt ML = volume of extractant or sample in milliliters. Enter a two digit number here: ten (10) through sixty (60) is valid.

Prompt HOURS = number of hours in the extraction period. Enter a two digit number here: double zero (00) through twenty-four (24) is valid.

Prompt MIN = number of minutes in the extraction period. Enter a two digit number here: double zero (00) through fifty-nine (59) is valid. **NOTE:** Fastest extraction time possible is 30 seconds/ml (cc).

The extraction process will begin and the "red" LED indicator light will illuminate.

The extraction rack will rise, causing the extraction to be completed during the amount of time entered. Normal operation will continue until the sample running time is completed or the operator presses Key "C" or the stroke limit is reached.

Option number "3" is used to return an empty rack to home position.

This operation may be cancelled by pressing Key "C".

When any of the operations have been completed, the "red" LED indicator light will turn off and the following prompt will appear:

"OPERATION COMPLETE,
PRESS ANY KEY"

"Option =" prompt will appear for continuation of use or power switch can be turned off when operation is completed.

NOTE: If power is interrupted when an operation is in progress, the operation will resume when power is restored.

MAINTENANCE

The extractor contains the recommended lubrication (type and amount) and is designed to require very limited maintenance. Any servicing required should be done by a qualified technician.



SAFETY WARNING: BEFORE PERFORMING MAINTENANCE, LOADING OR UNLOADING EXTRACTOR, UNPLUG ELECTRICAL CORD.

EXTRACTION SET-UPS, ACCESSORIES AND SUPPLIES

The Cation Exchange Capacity (CEC) is an analysis which illustrates the procedure well. The left side of Figure 2 shows the setup with the Sample Cylinder, Part No. 9256, set onto the upper disc and the Extraction Syringe, Part No. 9456, set onto the middle disc with its plunger secured to the under side of the lower disc and connected by a short piece of tube, Part No. 9406. When required, an auxiliary reservoir for extractant, Upper Cylinder Reservoir, Part No. 9156, can be used for procedures that benefit from fresh extractant dripping through to the sample.

A filter frit membrane is placed in the filter adapter, followed by a felt filter pad. This filter adapter pack is now installed on the sample cylinder barrel by hand or by using the available installation/removal tool. The sample to be processed is now added to the sample cylinder/adapter assembly. Extractant is added to the sample according to procedure directions and the Upper Cylinder Reservoir attached. Additional extractant is added and appropriate volume and time are set for completion.

For soil pastes, an Extraction Cup, Part No. 9606 (shown in the middle of Figure No. 2), is used instead of the sample cylinder. Filter papers, Parts No. 9706 and 9656, the smaller over the center hole, are placed in the cup before the sample. A Connector Tube, Part No. 9406 is used to connect the cup to the extraction syringe. Tube Clamps, Part No. 9756, are used on the connector tubes to prevent

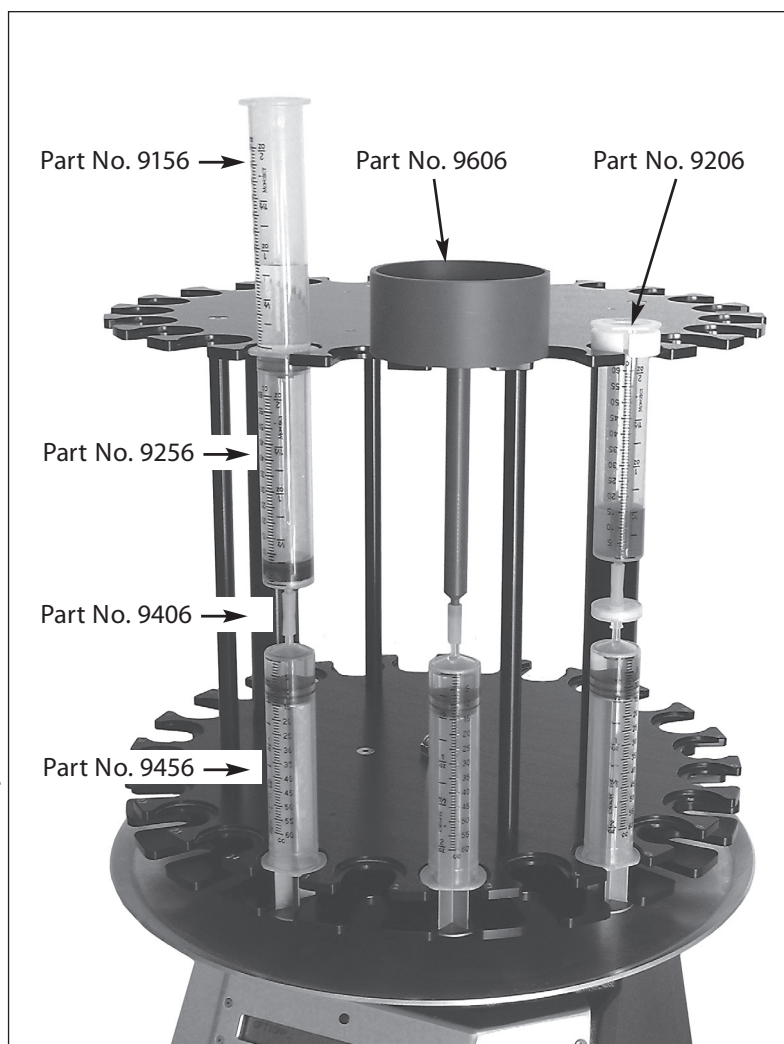


Figure No. 2

extractant loss during loading procedure.

Only 12 samples can be processed at one time when using the cups.

On the right side of Figure No. 2, a filtration procedure is set up with a disposable filter between the sample cylinder and the extraction syringe. A syringe spacer ring (Part No. 9206) is used to retain the sample cylinder in position.

Test standards are posted on the Sampletek web site at www.sampletek.com

EXTRACTION SET-UPS, ACCESSORIES AND SUPPLIES

NOTE: Weight taring of the Extraction Syringe sets allows for greater efficiency of computations. This is accomplished by determining the weight of all syringes in sets used for a specific analysis and choosing the heaviest one in the set as the reference. To add weight to the others, material such as silicone bathtub caulking is added to the plunger shafts, realizing that trimming may be required after drying.

A small amount of variation can be allowed (plus or minus .15 gram, for example). The barrels and plungers require corresponding numbers to maintain pairs. Lubrication of the plunger rubber seal rim with a small amount of Silicone Lubricant, Part No. 9556, should be done as needed. Glycerine is an alternate lubricant where silicone may be a part of the analysis.

TROUBLESHOOTING

If the vacuum extractor does not function properly, i.e., the display is missing or incorrect, the controller memory needs to be reset. The memory can be reset by following the steps listed below:

1. Turn off the power switch.
2. Press any key and hold down while turning the power switch back on. This should reset the memory of the last program run and allow one to continue.



PROGRAMMABLE VACUUM EXTRACTOR AND ACCESSORIES PARTS LIST

MODEL 24VE

PART #	DESCRIPTION																					
9006	PROGRAMMABLE VACUUM EXTRACTOR MODEL 24VE — 24 Sample Capacity 110 VAC/60 Cycle or 220 VAC/50 Cycle																					
9106	Electrical Connector Cord - Replacement for Model 9006 (Each)																					
9156	Upper Cylinder Reservoir with Stopper — 60cc (50/Pkg.)																					
9206	Sample Cylinder Spacer Ring— (25/Pkg.)																					
9256	Sample Cylinder — 60cc (50/Pkg.) (Filter Pulp Use Only)																					
9266	Sample Cylinder/Filter Retainer Set — 60cc (50/pkg) NEW!																					
9316	Filter Pads (500/pkg) NEW!																					
9326	Filter Frits (500/pkg) NEW!																					
9356	Tamper (For Compressing Pulp in Sample Cylinders) (2/Bag)																					
9406	Connector Tubes (50/Bag)																					
9456	Extraction Syringes — 60cc (50/Pkg.)																					
9506	Rubber Plunger Tips Replacement (50/Pkg.)																					
9556	Silicone Lubricant (For Extraction Syringe Seal) (2 oz.)																					
9606	Paste Extractor Cup — 9 cm ID (Each)																					
9656	Filter Paper — 4.25 cm (For Center Hole of Extraction Cup) (100/Box)																					
9706	Filter Paper — 9 cm (For Extraction Cup Sample Retention) (100/Box)																					
9756	Tube Clamps (12/Pkg.)																					
9856	Filter Adapter Installation/Removal Tool																					
9906	Supply Unit: includes a start-up quantity for performing tests such as Cation Exchange Capacity (CEC): Kit Includes: <table border="0" style="margin-left: 40px;"> <tr> <td>1 Package</td> <td>#9156</td> <td>Upper Cylinder Reservoirs</td> </tr> <tr> <td>1 Package</td> <td>#9266</td> <td>Sample Cylinder/Filter Retainer (50 pcs.)</td> </tr> <tr> <td>1 Package</td> <td>#9456</td> <td>Extraction Syringes</td> </tr> <tr> <td>2 Packages</td> <td>#9316</td> <td>Filter Pads 500/pkg</td> </tr> <tr> <td>2 Packages</td> <td>#9326</td> <td>Filter Frits 500/pkg</td> </tr> <tr> <td>2 Packages</td> <td>#9406</td> <td>Connector Tubes</td> </tr> <tr> <td>1 Bottle</td> <td>#9556</td> <td>Silicone Lubricant</td> </tr> </table>	1 Package	#9156	Upper Cylinder Reservoirs	1 Package	#9266	Sample Cylinder/Filter Retainer (50 pcs.)	1 Package	#9456	Extraction Syringes	2 Packages	#9316	Filter Pads 500/pkg	2 Packages	#9326	Filter Frits 500/pkg	2 Packages	#9406	Connector Tubes	1 Bottle	#9556	Silicone Lubricant
1 Package	#9156	Upper Cylinder Reservoirs																				
1 Package	#9266	Sample Cylinder/Filter Retainer (50 pcs.)																				
1 Package	#9456	Extraction Syringes																				
2 Packages	#9316	Filter Pads 500/pkg																				
2 Packages	#9326	Filter Frits 500/pkg																				
2 Packages	#9406	Connector Tubes																				
1 Bottle	#9556	Silicone Lubricant																				

ONE YEAR WARRANTY MODEL 24VE PROGRAMMABLE VACUUM EXTRACTOR

CONDITIONS

We warrant, to the original purchaser, that all Mavco Industries, Inc. parts are free from defects in material and workmanship under normal use. For a period of one year (12 months) from the date of release of shipment to the original purchaser, we will repair or replace with new or rebuilt parts, at our discretion, all Mavco manufactured parts proven to be defective in material or workmanship. Parts not manufactured by Mavco are covered under the original manufacturer's warranty.

Defective parts must be returned to Mavco Industries, Inc. for warranty service, freight/postage prepaid. Replacement/repairs will be returned freight collect. Our warranty is limited to repair or replacement of defective parts received and does not extend to providing field service, machine adjustments, field repair, freight, airfare, direct or consequential costs or other expenses resulting from or related to machine failure.

The warranty is void if the machine is altered, abused, misused or neglected.



SAMPLETEK™

MAVCO INDUSTRIES, INC.

1634 Bypass South • Lawrenceburg, Kentucky 40342

Telephone: (606) 871-0044

Printed in the U.S.A.

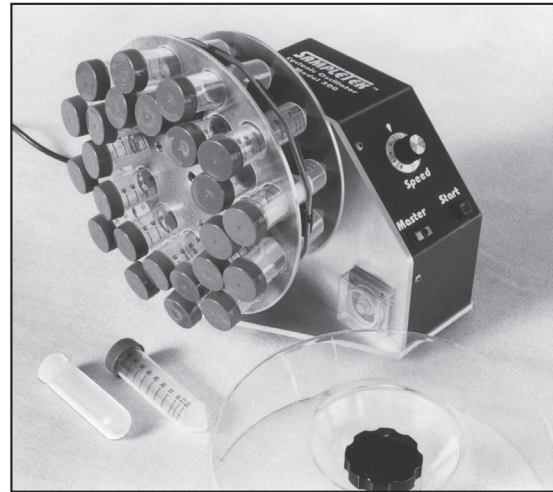


Innovator of Sample Preparation Equipment

Model 300 Cyclonic Oscillator (with Drum D24A)

The Cyclonic Oscillator provides continuous gravitational change to a contained sample making it ideal for keeping material in suspension, evaluating solubility or non-solubility and facilitating digestion or extraction of samples.

- Simultaneous rotation and oscillation
- Very gentle, thorough mixing of sample ideal for many applications
- Containment sockets handle a variety of containers holding from 30-50 ml
- Adjustability of speed up to 42 cycles per minute and highly versatile time settings
- Size: 12" H X 10 ¼" D X 12" W



Model 200 Vial Rotator

The Vial Rotator is designed to provide a safe, effective means of pulverizing dry materials into a fine talc-like powder in preparation for analyses, such as total carbon, nitrogen and sulfur. Changing roller spacing by removing rollers allows for the use of various sizes of sample containers.

- Reduces dry samples to less than 100-mesh overnight
- Features an adjustable speed control
- Holds up to 95 standard scintillation vials at one time
- Handles larger containers such as French square bottles
- Size: 37" L X 17" D X 5 ½" H

For more information on these other quality products, contact:

MAVCO INDUSTRIES, INC.

1634 Bypass South ■ Lawrenceburg, Kentucky 40342

Telephone: (606) 871-0044

On the web at: www.sampletek.net