

OrganomationTM

Laboratory Evaporators and Extractors

TM
MICROVAP

Nitrogen Evaporation System

Instruction Manual



For Models: 11801, 11803, 11815 and 11824 (all configurations)

Your Partners In Sample Preparation since 1959

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Items Shipped

Carefully check the contents of all cartons received for damage which may have occurred in transit. Retain all cartons and packaging materials until all components have been checked against the packing slip, the component list below, and the equipment has been assembled and tested. Contact Organomation immediately if any damage or discrepancies are found.

Your shipment should contain one or more of the instruments shown below. Option codes are listed on the next page.

Cat #	Instrument Size
11801	1 Position N-EVAP Nitrogen evaporation system
11803	3 Position N-EVAP Nitrogen evaporation system
11815	15 Position N-EVAP Nitrogen evaporation system
11824	24 Position N-EVAP Nitrogen evaporation system
	Flowmeter Assembly with Mounting Bracket & Connector Tube
NA1421	0-30 LPM for 1 position MICROVAP
NA1804	0-100 LPM for 3 position MICROVAP
NA1221	0-10 LPM for 15 position MICROVAP
NA1521	0-20 LPM for 24 position MICROVAP
NA1807	19ga x 2" Stainless Steel Needles, blunt end 8 dz for 1 Position MICROVAP (pre-installed) 24 dz for 3 Position MICROVAP (pre-installed)
NA0603	19ga x 4" Stainless Steel Needles, blunt end 15 each for 15 Position MICROVAP 2 dz for 24 Position MICROVAP
B1801	OA-HEAT heater 180W, for 1, 15 & 24 position MICROVAP
B1803	OA-HEAT heater 540W, for 3 position MICROVAP
V10127	T-Handle Hex Key adjustment tools 1 ea. 1/8" x 6" Long, for all MICROVAP units 1 ea. 5/32" x 6" Long, for all MICROVAP units.
V10124-MT	Manual for MICROVAP models 11801, 11803, 11815 & 11824

Option Codes and additional items shipped

The following list contains option codes and items which may have been shipped in conjunction with the standard parts shown on the previous page. Please check your packing list and order information carefully to determine if these items are included in your shipment. For a complete list of available accessories, please refer to the Accessories Section.

Your shipment may contain the following optional items:

Option	Description
-Z	OA-HEAT heating unit has been modified for the Type-Z Purge Intrinsically Safe bath option (passive operation). Additional parts include: differential pressure gauge, mounting bracket, and tubing.
-2	OA-HEAT heating unit is wired as a 240 Volt unit.

Instrument Description

The MICROVAP Nitrogen Evaporation System is designed for general evaporation and / or concentration of analytical or biological samples in 96 well titer plates or sample tubes under controlled and reproducible conditions. Other micro well plate configurations are available.

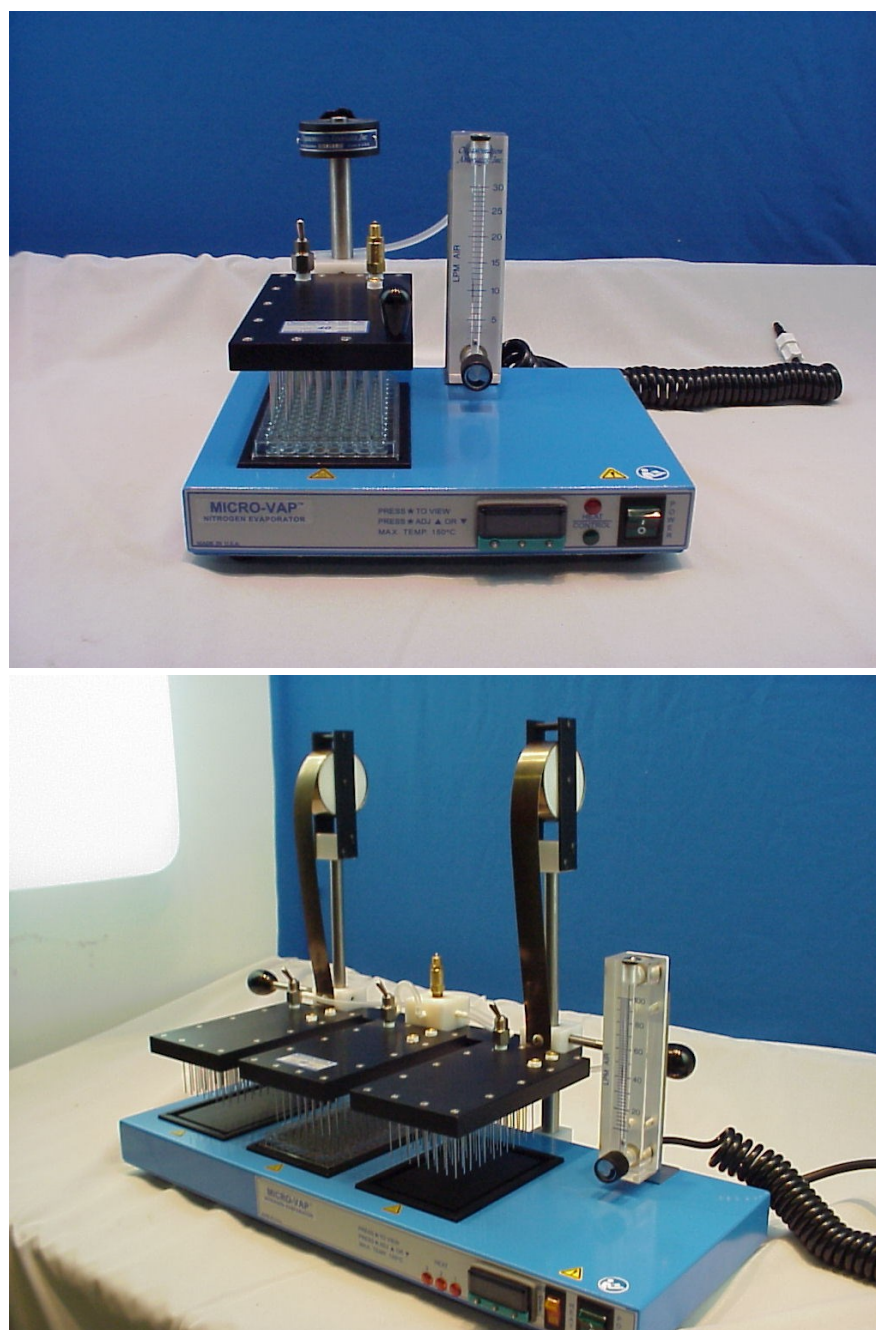


Figure 1

Safety Considerations

READ THIS SECTION BEFORE EQUIPMENT OPERATION!

This equipment is designed for use in the Analytical or Environmental Laboratory by trained laboratory personnel for evaporative applications. Use of this equipment beyond its stated intended purpose and operating parameters is not recommended and will be the sole responsibility of the user. This equipment should not be modified or altered. Organomation assumes no liability for any misuse of or modification to this product and such misuse or modification will immediately void all warranties.

This equipment should be used in accordance with the operating instructions contained in this manual. For alternative uses not covered in this manual, please contact Organomation technical department for product suitability, safety, and alternative operating instructions.

The following are general safety guidelines recommended when using this product. Please consult your laboratory safety officer for any additional safety steps which may be necessary for your specific application or material.

1. Thoroughly review your MSDS (Material Safety Data Sheets) for all chemicals to be used with this equipment.
2. Do not use this equipment with materials with auto ignition points below 150 °C.
3. Hand and eye protection are required when using this product. Additional protection may be required with respect to the materials being used. Please consult your laboratory safety officer.
4. This product should only be used in a chemical fume hood with adequate ventilation.
5. Do not move the product when hot - BURN HAZARD!
6. Do not open bath enclosure while energized - SHOCK HAZARD!
7. Repairs of electrical components should be conducted by a trained electrical technician. Incorrect replacement parts or assembly may damage the product and create a serious safety hazard for the user. Factory repair is recommended.
8. Highly flammable materials such as Petroleum Ether should not be used with this product unless the Type-Z Purge intrinsically safe bath option is installed and operating.
9. Use of acidic or base materials may damage this product and is not recommended unless the product was ordered with the optional protective coating in PTFE.

1, 15 & 24 POSITION MICROVAP VISUAL ASSEMBLY INSTRUCTIONS

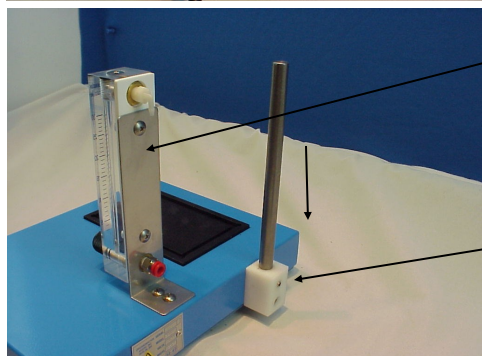


1. Gather and identify all components.

Heating Unit
1 Position Manifold
Flowmeter 0-30 LPM
Flowmeter Bracket
Stainless Steel Rod
Coiled Connector Tube
Thumb Screw with Black Knob

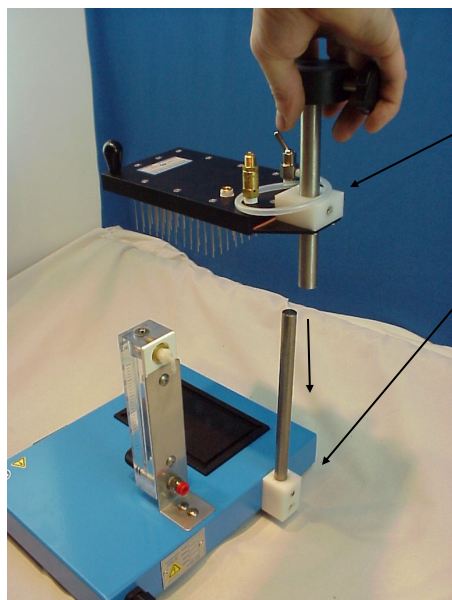


2. Position heating unit on flat surface.
3. Remove 10-32 screws (2) from rear top surface.
4. Position flowmeter bracket over the holes as shown.
5. Replace 10-32 screws to hold flowmeter bracket in place.



6. Remove 10-32 screws (2) from rear of flowmeter.
7. Position flowmeter on bracket as shown.
8. Replace 10-32 screws to hold flowmeter in place.
9. Loosen, but do not remove, the upper set screw in the white block on the rear of the unit.
10. Mount the SS rod in the white block as shown.
11. Push each rod downward into the white block as far as it will go.
12. Tighten the upper set screw to secure the rod in place. Over tightening may damage the plastic block.

1, 15 & 24 POSITION MICROVAP VISUAL ASSEMBLY INSTRUCTIONS



13. Place the one position manifold over the end of the SS Rod.

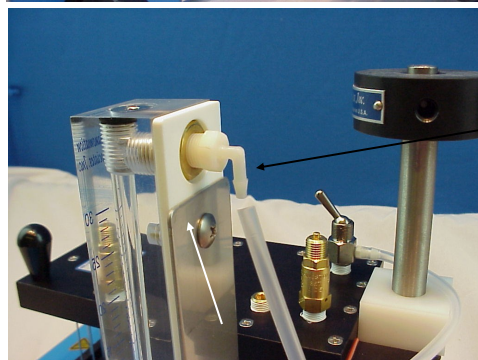
Lower the manifold until the SS tube touches the white block.



14. Attach the black coiled gas connector tube to the lower rear fitting on the flowmeter. The tubing will slide into the fitting 0.375" to 0.500".

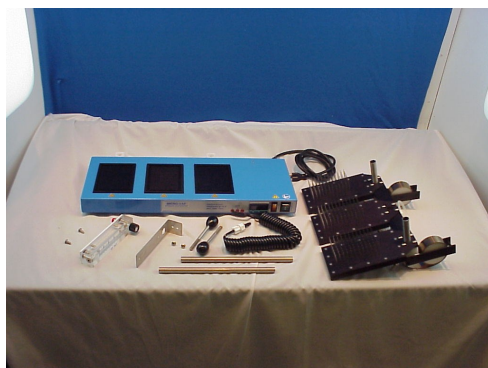
To remove, depress the red or grey ring on the fitting and pull the tubing out of the fitting.

15. Attach the other end of the connector tube to a suitable gas source (10-30 PSIG).



16. Attach the manifold gas tube (1/8" ID x 1/4" OD) to the fitting located on the top rear of the flowmeter.

3 POSITION MICROVAP VISUAL ASSEMBLY INSTRUCTIONS

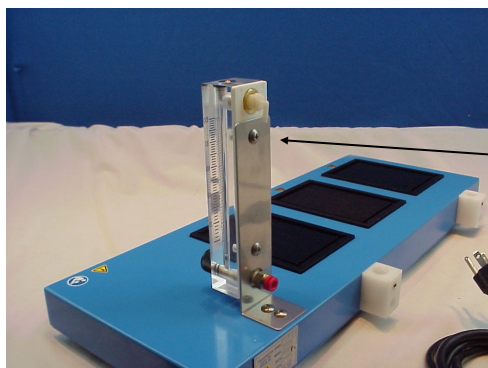


1. Gather and identify all components.

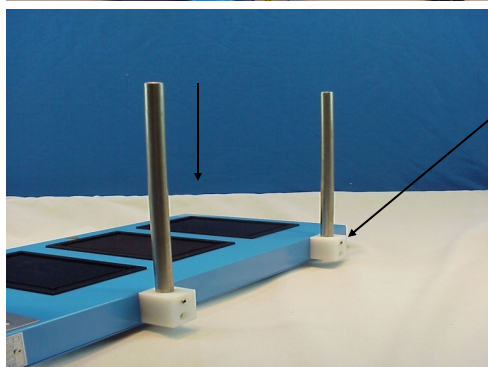
Heating Unit
3 Position Manifold
Flowmeter 0-100 LPM
Flowmeter Bracket
Stainless Steel Rods (2)
Coiled Connector Tube
Handles with Black Knob (2)



2. Position heating unit on flat surface.
3. Remove 10-32 screws (2) from rear top surface.
4. Position flowmeter over holes as shown.
5. Replace 10-32 screws to hold flowmeter bracket in place.

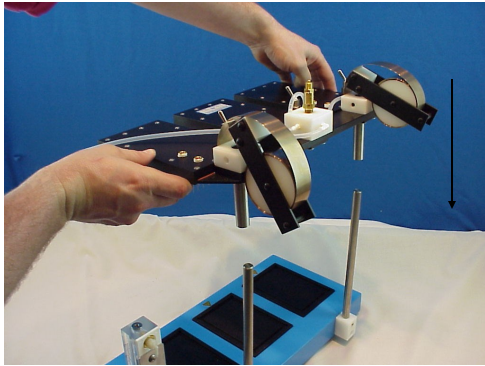


6. Remove 10-32 screws (2) from rear of flowmeter.
7. Position flowmeter on bracket as shown.
8. Replace 10-32 screws to hold flowmeter in place.

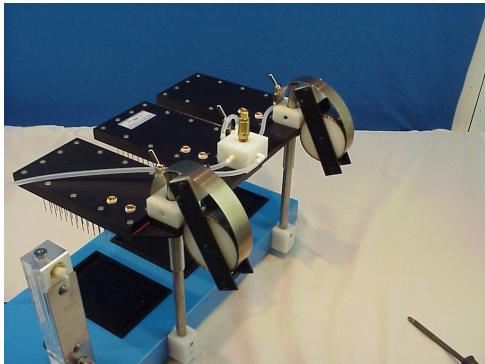


9. Loosen, but do not remove, the upper set screw in in each white block on the rear of the unit.
10. Mount each SS rod in each white block as shown.
11. Push each rod downward into the white block as far as it will go.
12. Tighten the upper set screw to secure the rod in place. Over tightening may damage the plastic block.

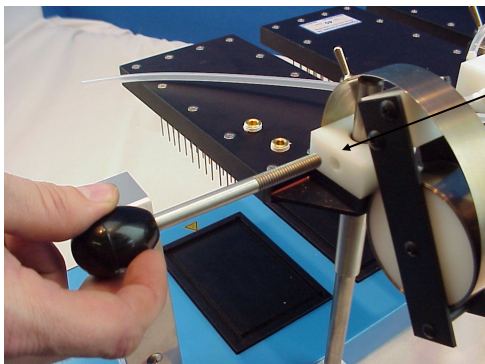
3 POSITION MICROVAP VISUAL ASSEMBLY INSTRUCTIONS



13. Place the 3 Position Manifold over the end of the SS Rods as shown.

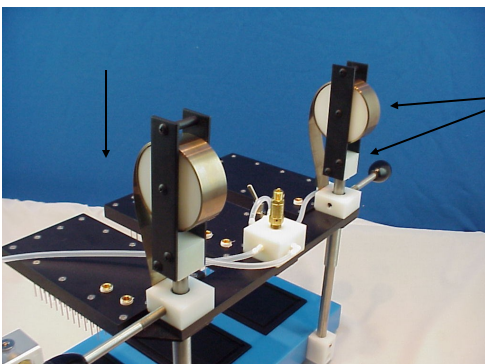


14. Screw the handle with black knob into the hole on the side of the white block on the rear of the manifold.



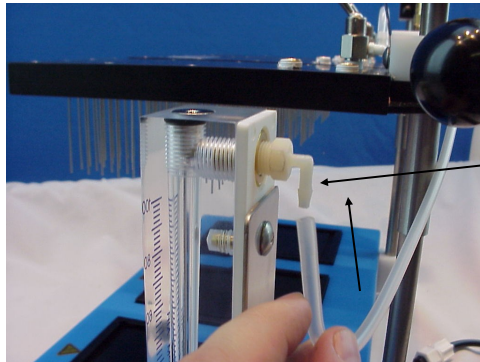
15. Repeat for the block on the other side of the manifold.

16. Turn the handles until the manifold is locked onto the SS Rods.

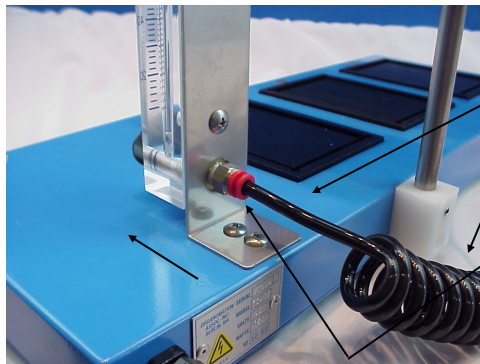


17. Lift the spring assembly upwards with the white block facing downwards and then lower the assembly onto the top of the block

3 POSITION MICROVAP VISUAL ASSEMBLY INSTRUCTIONS



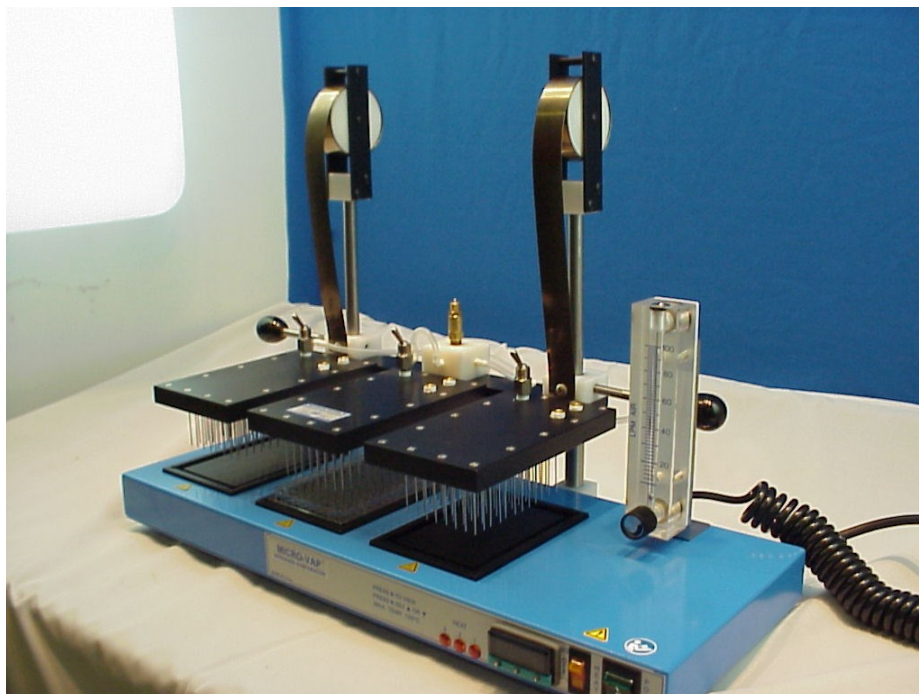
18. Attach the manifold gas tube (1/8" ID x 1/4" OD) to the fitting located on the top rear of the flowmeter.



19. Attach the black coiled gas connector tube to the lower rear fitting on the flowmeter. The tubing will slide into the fitting 0.375" to 0.500".

To remove, depress the red or grey ring on the fitting and pull the tubing out of the fitting.

20. Attach the other end of the connector tube to a suitable gas source (10-30 PSIG).



Location

The MICROVAP Evaporator System should be located on a bench top or in a chemical fume hood if hazardous or flammable materials and solvents are to be used. The location should provide the necessary support services for the instrument. These include electrical power (required for heat unit) and a clean inert gas source (Air or Nitrogen). Please review the Specifications Section for further information.

Heating unit Setup

1. Position the unit in a chemical fume hood.
2. Turn the green bath rocker switch to the “OFF” position.
3. Plug the bath electrical cord into a 3 wire grounded electrical outlet rated for 110-120 VAC, 50-60 Hz, single phase, 10 amps.

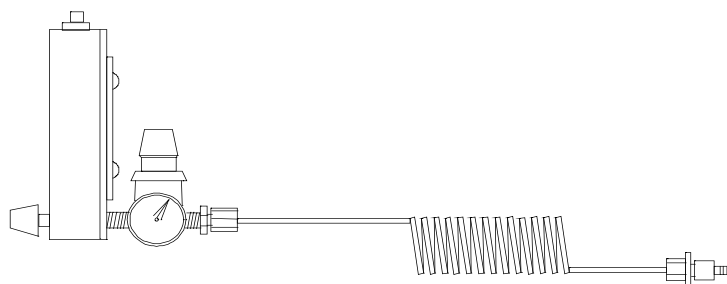
Optional 220 VAC baths are clearly marked and should be plugged into a 3 wire grounded electrical outlet rated for 220-240 VAC, 50-60 Hz, single phase, 10 amps.

Bath Setup (Continued)

5. Pressure Reducing Regulator Option - If you do not have this option, proceed to the next section. When purchased with a MICROVAP System, this item is pre-installed onto the flowmeter, between the flowmeter and the Connector Tube. Refer to Figure below.

To install a pressure reducing regulator, please follow the instructions below.

- A. Remove the flowmeter from the bracket.
- B. Remove the Connector Tube and fitting from the flowmeter.
- C. Connect the Pressure Reducing Regulator to the lower fitting on the back of the flowmeter. Position the regulator such that the adjustment knob is straight up and the gauge points away from the bath.
- D. Connect the Connector Tube to the regulator.
- E. Re-connect the flowmeter to the bracket.



Flowmeter Regulator Assembly shown with Gas Connector Tube.

Instrument Controls

Green Rocker Switch - Located on the front right. Turns power to the unit on and off.

Digital Controller - Located on the front right bath label. Adjusts the bath temperature.

Amber Light(s) - Located on the front right. Indicates heating when heaters are energized, will cycle at temperature.

Rocker Switch - Heater power to second and third heat plate (3 position unit only).

Planning and Preparation

It is important to understand the procedures and equipment operation prior to the use of the equipment. High speed nitrogen evaporation requires a balance of sample volume, nitrogen flow, temperature, needle position and adjustment. Improper use can impair performance, contaminate samples or result in loss of samples. Environmental conditions are also important, examples include use of dry or wet heating media, hood airborne contaminants, gas purge purity, and sample handling procedures. If you are unfamiliar with the use of the MICROVAP System or are working with a new procedure, it is recommended that a trial run be made using a sample blank to determine optimal operating conditions.

The MICROVAP System is designed to handle one to three 96 well plates simultaneously up to the capacity of the equipment. 96 position deep well plates may also be used. Other well plates of different capacities can also be accommodated, consult Organomation for details.

The MICROVAP System is manufactured utilizing inert materials. The white translucent and black coiled tubing used is free of phthalate presence.

Bath Operation

1. Press the reset button on the GFCI (if present).
2. Turn the bath rocker switch on. The illuminated portion should glow.

Bath Operation (Continued)

3. **Digital Electronic Control** - Adjust the digital controller to the desired temperature set point.

The controller set point may be adjusted by depressing the “*” on the front panel and depressing the up or down arrow keys to the desired temperature. Release the “*” key when the temperature desired is shown on the display. This setting will be retained even after the system is turned off.

To view the current set point, depress and hold the the “*” key. Release when done.

4. Maximum temperature 130°C
5. Three Position Unit - Turn on second black toggle switch to engage second position (middle plate) and third position (left hand plate).
6. Allow the bath to heat to the desired temperature and stabilize.

Note: Heating unused positions will not harm the instrument.

Instrument Operation

1. Preheat the heat block
2. Swing the manifold away from the heat block - 1 position unit, or raise the manifold upwards - 3 position unit. Loosen the thumb knob if necessary.
3. Place 96 position well plate(s) on the heat block(s) or place sample tubes inside heat block
4. Return the manifold back in position over the well plate / sample tubes and secure by tightening the thumb screw. The manifold is properly positioned with the needles centered on the well plates / sample tubes and the needle tips vertically positioned 6 mm away from the plate.
5. Turn the manifold gas valve on.
6. Turn the flow meter needle valve off.
7. Turn on the gas flow to the MICROVAP

Instrument Operation (Continued)

8. Slowly increase the gas flow by opening the valve on the flow meter until a visible dimple appears on the surface of the solution..
9. Evaporate as necessary or until dry.
10. Turn off the manifold gas valve.
11. Swing or raise the manifold away and remove plate.
12. Repeat 4 - 11 or turn off gas and unit power.

Maintenance and Cleaning

The MICROVAP Evaporation system is manufactured from extremely durable materials and may last for years if operated and maintained properly. The following guidelines are recommended for use with MICROVAP systems.

- | | |
|----------------------|--|
| Cleaning - | The metal components may be cleaned with a soft cloth or damp sponge.

Epoxy coated parts (blue in color) should be cleaned with non-abrasive materials only, otherwise scratching will result and the coating will be compromised. |
| Acidic Environment - | When in contact with or exposed to acidic materials, vapors, or samples. The instrument should be cleaned immediately after use and neutralized with a suitable mild base solution of sodium bicarbonate or similar material followed by a clean water wipe. Prolonged contact with acidic materials may damage the instrument unless precautions are taken. |
| Needles - | Needles may be cleaned periodically as needed by rinsing the tips with a squirt bottle. |
| Immersion - | The bath case is water resistant, not water tight. Under no circumstances should the bath be immersed in any liquid or placed in a location where this may occur. |

SYMPTOMS	CAUSES	SOLUTIONS
No Power to unit.	Electrical outlet not energized. Unit power cord not plugged in. Internal electrical fault.	Energize electrical outlet. Plug in bath power cord. Contact factory for instructions.
Unit does not heat. (heat light is on)	Bad wire connection. Defective high temperature protection switch. Defective SSR (relay)	Bath will require service, contact factory for instructions.
No temperature control. (temperature continues to rise)	Defective digital control	Replace controller, contact factory for instructions.
Surface deterioration on equipment.	Use of acidic materials in or near equipment.	Clean carefully with soft cloth. Remove source of acidic presence.
Phthalate Contamination	Human error	Purchase Phthalate free tubing. Exercise better handling procedures, avoid latex gloves, hand cream, rubber tubing.
Inconsistent evaporation rates. (or excessive Nitrogen use)	Nitrogen leaks. Missing needles Incorrectly seated hoist assembly	Check all connections, soap/water. Use luer plugs for positions not in use (15& 24 Position only) Lift up assembly and reposition

Service and Returns

In the event a product purchased from Organomation needs service or must be returned please follow the outlined procedures below.

1) **Contact Organomation Technical Support Department**

Before returning any product to Organomation Associates for any reason, please contact the Technical Support Department, toll free at 888-838-7300 or email sales@organomation.com. Support is available Monday through Friday from 8:30 AM to 4:30 PM EST. Support is available free of charge to customers of Organomation in good standing for all products manufactured by Organomation.

2) **Pack the product for return shipment**

The product should be packaged in its original shipping carton if available. If other packaging is required, use a suitable shipping container which will allow a minimum of two (2) inches clearance between the product and the side walls of the shipping carton. Peanuts, semi rigid foam, cardboard, and other items may be used inside for packaging. Care should be taken when packaging heavy items. Some packaging, such as peanuts, will allow the item to shift in transit and may result in damage.

3) **Insurance**

Most common carriers offer insurance. UPS and Federal Express automatically insure your product up to \$100.00 without charge. It is highly recommended that you insure your product. **Organomation is not liable for any return shipping damages.**

4) **Documentation**

When returning items to Organomation, Return Authorization Form must be included with the following information: Contact persons name and phone number, return address, and statement of the problem.

5) **How will your return be handled?**

Organomation will evaluate the returned item for damage. If the return is a repair, the product will be examined for problems and a repair estimate will be made. The contact person will be contacted, at which time a Purchase Order will be requested. After the PO is issued, the product will be repaired and return shipped. Most repairs are done within a 24 hour period. Return for credit items will be evaluated and your account credited after the item is received. The contact person will be notified immediately in the event shipping damage has occurred.

Shipping - Claims for damage and shortage

Organomation Associates Inc. makes a sincere effort to ensure your purchase is properly packed and all items listed on the packing slip are in fact enclosed with the shipment. In the event that your purchase is damaged or if any items are missing, please follow the procedures below.

- 1) All packaging materials must be retained until the issue is resolved.
- 2) Thoroughly search all packing materials for the missing items. Review your packing list for back ordered items and the manual for a list of items affiliated with your purchase.
- 3) Contact Organomation immediately at 888-838-7300 or sales@organomation.com
- 4) If a damaged item needs to be replaced, Organomation will send this item under warranty at no charge. The damaged item must be returned to Organomation. Please follow the instructions listed in the Service and Returns section. **Important - items not returned or which are further damaged or destroyed in transit are the responsibility of the customer and will be billable.**
- 5) No claims for shipping damage or shortage will be accepted after 15 days of receipt of the items by the purchaser.
- 6) **Please contact Organomation prior to making any returns.**

All items should be returned to:

**Organomation Associates, Inc.
266 River Road West
Berlin, MA 01503**

Specifications

Electrical Requirements:	120 or 240 VAC single phase, non switchable, 50 - 60 Hz. 3 wire grounded outlet required. GFCI (Ground Fault Circuit Interrupter) optional. Model 11801 1 Position unit 180 W* Model 11815 15 Position unit 180 W* Model 11824 24 Position unit 180 W* Model 11803 3 Position unit 540 W* * 240V units divide wattage by 2.
Electrical Compliance's:	EC compliance EN55014, EN61010.
Water Services Required:	None.
Gas Services Required:	Nitrogen, clean air, or other inert gas, 5 - 30 Psig, adjustable. Flow indication standard with all complete N-EVAP™ systems. Quiet air compressor available.
Sample Sizes Accepted:	96 well standard and deep titer plates. 15 Position: 10-22mm diameter test tubes 24 Position: 10-17mm diameter test tubes Consult factory for optional smaller & larger sizes.
Sample Types Utilized:	Organic Solvents with Boiling Point range 30 - 130 Celsius. Water and aqueous solutions.
Safety Provisions	3 wire grounded power cord. High Temperature Protection Switch Digital temperature controlled unit. Optional Type-Z intrinsically safe bath purge. EC Compliance.

CE Declaration of Conformity Revised June 1, 2015

We, Organomation Associates Inc a corporation registered in Massachusetts, United States of America, declare under sole responsibility that the following equipment to which this declaration relates, meets the principal protection requirements and is in conformity with relevant sections of the applicable CE standards and other normative documents. If changes are made to the products covered by this declaration then the declaration is no longer valid.

Equipment type: Laboratory sample preparation instruments.
Bench top size, multiple sample position.
Analytical evaporators and extractors.

Model(s): N-EVAP Nitrogen evaporator models:
11106, 11155, 11250, 11634, 11645
MULTIVAP Nitrogen evaporator models:
11364, 11300, 11809, 11830, 11848, 11880
11801, 11803, 11815, 11824
S-EVAP solvent evaporator models:
12060, 12080, 12008
12027, 12037, 12010, 12018, 12048

Rot-X-Tract-S solid-liquid extractor models:
13070, 13090, 13008
Rot-X-Tract-L liquid-liquid extractor models:
13318, 13308

All of the above wired for 110 and 220 volts (-2 option code).
All of the above with dry bath and aluminum beads (-DA option code).
All of the above with acid resistant coatings (-RT option code).
All of the above with intrinsically safe, purged bath case (-Z option code).

EC Directives and Amendments: 89/336/EEC - Electromagnetic Compatibility Directive (EMC).

Harmonized Standards and
IEC publications used: EN61326, EN61010-1

Authorized signature	Title	Date
	President	June 1, 2015

CE Declaration of Conformity 2015