Nitrogen Evaporators

Nitrogen Blow Down Sample Concentrators

PRODUCT BROCHURE

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CONTENT

N-EVAPs, MULTIVAPs, and MICROVAPs
used for over 50 years in laboratories around the world

Organomation nitrogen evaporators combine a heated bath with nitrogen blow down for fast and gentle sample concentration.

Organomation instruments are valuable to sample preparation for research and testing with applications in fields such as:

- Environment
- Agriculture
- Food and Beverage
- Medicine
- Quality Assurance
- Forensic Science
- Government
- Academia
- Oil and Grease

N-EVAP series

Flexibility and Individualization for Diverse Samples

N-EVAP nitrogen evaporators are extremely well suited for numerous sample preparation methodologies.

MULTIVAP series

Consistency for Large Batch Concentrations

MULTIVAPs are ideal for concentrating large batches of samples, and are used in numerous sample preparation methodologies.

MICROVAP series

Compact for Microplates and Small Batches

MICROVAP nitrogen evaporators are light, compact and digitally controlled for ease of use.

N-EVAP Series

Nitrogen Evaporators (Sample Concentrators)

Organomation's N-EVAP nitrogen evaporators are extremely well suited for numerous sample preparation methodologies. We have created a diverse product line with instruments ranging from six to forty-five sample positions. Our nitrogen evaporators utilize adjustable nitrogen blow down technology allowing for full control of nitrogen flow to samples, with no wasted nitrogen gas. We combine this technology with uniform heat applied efficiently through either water or dry baths. This technique saves labs money by simultaneously maximizing solvent evaporation volume and rate.

N-EVAP 6 Position Nitrogen Evaporator

N-EVAP 12 Position Nitrogen Evaporator

N-EVAP 24 Position Nitrogen Evaporator

N-EVAP 34 Position Nitrogen Evaporator

N-EVAP 45 Position Nitrogen Evaporator

N-EVAP 20 Position Auto Nitrogen Evaporator

N-EVAP 6 Position Nitrogen Evaporator

The 6 position N-EVAP's ability to expand the sample size range with an optional large sample holder makes it an ideal instrument for laboratories that will be evaporating up to 6 samples at once and are using a wide range of sample flask outside diameters. The standard instrument fits samples with an outside diameter of 10-30 mm, and the optional large sample holder can accommodate samples with an outside diameter of 30-56 mm.

The 6 position N-EVAP nitrogen evaporator (cat# 11106) was adapted from the 12 position N-EVAP (cat# 11155) in the early 1970s. Since its inception, it has proven to be durable, reliable, and the most affordable member of Organomation's N-E-VAP line. These economical units provide controlled concentration of sample vials through the application of nitrogen gas within a heated water bath. The N-EVAP's circular rotating design permits each sample to be accessible from the front of the instrument for easy insertion and retrieval. The chrome plated needle valves are individually milled from solid brass, and allow precise adjustment of the gas flow rate at each sample position. This promotes efficient and safe sample reduction with minimal nitrogen waste. The stainless steel construction of the bath ensures that the instrument is long lasting.

Advantages:

- **Small Footprint:** N-EVAP Model# 111 has the smallest footprint of all the N-EVAPs
- **Flexible:** A large sample holder option can be added to accommodate vials with a larger outside diameter in the range of 30-56 mm
- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves

Standard Features:

- Nitrogen filter
- Adjustable flow meter, 0-10 lpm
- High pressure phthalate free tubing for safety
- High temperature limit switch for safety
- Dual band spring hoist assembly (except in dry bath model)
- Precision needle valve tube assembly
- Needles, 102 mm x 19 gauge with chrome plated brass hub and stainless steel shaft

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 539: *Determination Of Hormones In Drinking Water By Solid Phase Extraction (SPE) And Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC-ESI-MS/MS)*

In this method, hormones are extracted from finished drinking water by a solid phase extraction method. After the extracted analyte is eluted from the SPE disk, the extract is concentrated to dryness in an N-EVAP. The water bath is set to 45ºC and a gentle stream of nitrogen is applied to each sample. The N-EVAP allows for precise control of nitrogen flow at each sample position, which helps prevent damage to delicate samples.

Other Applications:

- EPA Methods 415.3, 548.1, 523.1

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 6 Position Nitrogen Evaporators.

Instrument Catalog Number	11106	11106-DA	11106-O
Number of Sample Positions	6	6	6
Overall Dimensions (width x depth x height)	33 x 28 x 79 cm	33 x 28 x 70 cm	31 x 21 x 79 cm
Sample Holder and Gas Manifold Layout	Circular, Single Ring	Circular, Single Ring	Circular, Single Ring
Standard Sample Holder Test Tube Range	10-30 mm	10-30 mm	10-30 mm
Optional Sample Holder Test Tube Range	30-56 mm	30-56 mm	30-56 mm
Gas Flow Meter Range	0-5 L/min	0-5 L/min	0-5 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga	102 mm x 19 ga
Sample Tray Lift Mechanism	Dual Band Spring Hoist Assembly	None/Fixed	Dual Band Spring Hoist Assembly
Rotating, Leak Tight Gas Fitting	Standard	n/a	Standard
Standard Gas Input Range	20-30 psig	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig	30-160 psig
Acid Resistant Coating (cat#-RT)	Optional	Optional	Optional
Heating Device Specifications			
Bath Model Number	5585	5085	n/a
Bath Type	Water Bath	Dry Bath	None
Heating Medium	Water	Aluminum Beads (Glass Beads in -RT Models)	None
Inside Dimensions (Diameter x Depth)	21,6 x 11,4 cm	21,6 x 11,4 cm	n/a
Outside Dimensions (width x depth x height)	33 x 28 x 18 cm	33 x 38 x 18 cm	n/a
Heaters Total Watts	550 W	500 W	n/a
Bath Temperature Range	30-90°C	40-130°C	n/a
Temperature Controller Type and Accuracy	Mechanical Thermostat +/-2°C	Mechanical Thermostat +/-2°C	n/a

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

N-EVAP 12 Position Nitrogen Evaporator

The 12 position N-EVAP nitrogen evaporator (cat# 11155) is a compact unit that allows for up to 12 samples to be evaporated simultaneously. At each individual sample position the gas flow can be controlled via a precision needle valve. This is ideal for the simultaneous evaporation of samples with varying evaporation end points. The sample tray has a spring tensioner which allows any test tube between 10-30 mm to be processed without any modifications to the instrument. An optional small sample holder allows samples with an outside diameter of 5-16 mm to be processed.

First introduced in 1959 as The Meyer N-EVAP, the 12 position N-EVAP (cat# 11155) was the first nitrogen evaporator created by Organomation. It has proven to be an extremely durable, time tested and highly affordable member of Organomation's N-EVAP line. These economical units provide controlled concentration of sample vials through the application of nitrogen gas within a heated water bath. The N-EVAP's circular rotating design permits each sample to be accessible from the front of the instrument for easy insertion and retrieval. The chrome plated needle valves are individually milled from solid brass, enabling precise, uniform adjustments for your nitrogen blow down. This promotes efficient and safe sample reduction with minimal nitrogen waste.

Advantages:

- **Small Footprint:** N-EVAP Model# 111 has the smallest footprint of all the N-EVAPs
- **Flexible:** A small sample holder option can be added to accommodate vials with a smaller outside diameter in the range of 5-16 mm
- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves

Standard Features:

- Nitrogen filter
- Adjustable flow meter, 0-10 lpm
- High pressure phthalate free tubing for safety
- High temperature limit switch for safety
- Dual band spring hoist assembly (except in dry bath model)
- Precision needle valve tube assembly
- Needles, 102 mm x 19 gauge with chrome plated brass hub and stainless steel shaft

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 415.3: *Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water*

This method provides procedures for the determination of total organic carbon (TOC), dissolved organic carbon (DOC), and UV absorption at 254 nm (UVA) in source waters and drinking waters. The DOC and UVA determinations are used in the calculation of the Specific UV Absorbance (SUVA). For TOC and DOC analysis, the sample is acidified and the inorganic carbon (IC) is removed prior to analysis for organic carbon (OC) content using a TOC instrument system. In this method, the N-EVAP laboratory evaporator is used as a sparging device. The stainless steel needles of the N2 Evaporator are lowered into the 40- mL sample vials containing the TOC or DOC samples to remove inorganic carbon by sparging with nitrogen gas.

Other Applications:

- EPA Methods 539, 548.1, 523.1

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 12 Position Nitrogen Evaporators.

Instrument Catalog Number	11155	11155-DA	11155-O
Number of Sample Positions	12	12	12
Overall Dimensions (width x depth x height)	33 x 28 x 79 cm	33 x 28 x 70 cm	31 x 21 x 79 cm
Sample Holder and Gas Manifold Layout	Circular, Single Ring	Circular, Single Ring	Circular, Single Ring
Standard Sample Holder Test Tube Range	10-30 mm	10-30 mm	10-30 mm
Optional Sample Holder Test Tube Range	5-16 mm	5-16 mm	5-16 mm
Gas Flow Meter Range	0-10 L/min	0-10 L/min	0-10 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga	102 mm x 19 ga
Sample Tray Lift Mechanism	Dual Band Spring Hoist Assembly	None/Fixed	Dual Band Spring Hoist Assembly
Rotating, Leak Tight Gas Fitting	Standard	n/a	Standard
Standard Gas Input Range	20-30 psig	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig	30-160 psig
Acid Resistant Coating (cat#-RT)	Optional	Optional	Optional
Heating Device Specifications			
Bath Model Number	5585	5085	n/a
Bath Type	Water Bath	Dry Bath	None
Heating Medium	Water	Aluminum Beads (Glass Beads in -RT Models)	None
Inside Dimensions (Diameter x Depth)	21,6 x 11,4 cm	21,6 x 11,4 cm	n/a
Outside Dimensions (width x depth x height)	33 x 28 x 18 cm	33 x 38 x 18 cm	n/a
Heaters Total Watts	550 W	500 W	n/a
Bath Temperature Range	30-90°C	40-130°C	n/a
Temperature Controller Type and Accuracy	Mechanical Thermostat +/-2°C	Mechanical Thermostat +/-2°C	n/a

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

N-EVAP 24 Position Nitrogen Evaporator

The 24 position N-EVAP is our most adaptable evaporator. The basic model (cat# 11250) offers all of the standard features from our N-EVAP line. Additionally, the 24 position N-EVAP offers the most customizable options for your sample preparation needs. The standard sample holder can accommodate samples with an outside diameter of 10-30 mm. However, with the optional 8 position large sample holder, vials with an outside diameter of 30-70 mm can be processed. The 24 position N-EVAP can also be upgraded to include digital controls for heat and time with the addition of the side control box (cat# 11202).

These economical units provide controlled concentration of sample vials through the application of nitrogen gas within a heated water bath. The dual band spring hoist assembly provides a simple and effective means of removing samples from the heated water bath. The N-EVAP's circular rotating design permits each sample to be accessible from the front of the instrument for easy insertion and retrieval. The chrome plated needle valves are individually milled from solid brass, enabling precise, uniform adjustments for your nitrogen blow down. This promotes efficient and safe sample reduction with minimal nitrogen waste. Time tested technology and proven construction ensure a long lasting, user-friendly experience.

Advantages:

- **Flexible:** A large sample holder option can be added to accommodate vials with a larger outside diameter in the range of 30-70 mm
- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves

Standard Features:

- Nitrogen filter
- Adjustable flow meter, 0-20 lpm
- High pressure phthalate free tubing for safety
- High temperature limit switch for safety
- Dual band spring hoist assembly (except in dry bath model)
- Precision needle valve tube assembly
- Needles, 102 mm x 19 gauge with plated brass hub and stainless steel shaft

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)
- Side control box with built-in digital controller, timer, and pressure regulator (Option Code -CB)

Highlighted Application:

EPA Method 1660: *The Determination of Pyrethrins and Pyrethroids in Municipal and Industrial Wastewater*

In this method, pyrethrins and pyrethroids are extracted from industrial waste water and analyzed by high performance liquid chromatography (HPLC) with a ultra-violet detector (UV). After extraction each sample is transferred to a K-D concentrator tube and concentrated in the N-EVAP. This method extracts up to 20 samples at once so the 24 position N-EVAP is optimum for this procedure.

Other Applications:

- EPA Methods 415.3 Rev 1.2, 1668, 1668A, 8280A

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 24 Position Nitrogen Evaporators.

Instrument Catalog Number	11250	11250-DA	11250-O
Number of Sample Positions	24	24	24
Overall Dimensions (width x depth x height)	41 x 38 x 84 cm	41 x 38 x 70 cm	39 x 31 x 81 cm
Sample Holder and Gas Manifold Layout	Circular, Single Ring	Circular, Single Ring	Circular, Single Ring
Standard Sample Holder Test Tube Range	10-30 mm	10-30 mm	10-30 mm
Optional Sample Holder Test Tube Range	30-70 mm	30-70 mm	30-70 mm
Gas Flow Meter Range	0-20 L/min	0-20 L/min	0-20 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga	102 mm x 19 ga
Sample Tray Lift Mechanism	Dual Band Spring Hoist Assembly	None/Fixed	Dual Band Spring Hoist Assembly
Rotating, Leak Tight Gas Fitting	Standard	n/a	Standard
Standard Gas Input Range	20-30 psig	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig	30-160 psig
Acid Resistant Coating (cat#-RT)	Optional	Optional	Optional
Heating Device Specifications			
Bath Model Number	9125	5125	n/a
Bath Type	Water Bath	Dry Bath	None
Heating Medium	Water	Aluminum Beads (Glass Beads in -RT Models)	None
Inside Dimensions (Diameter x Depth)	30,5 x 11,4 cm	30,5 x 11,4 cm	n/a
Outside Dimensions (width x depth x height)	46 x 41 x 18 cm	41 x 38 x 18 cm	n/a
Heaters Total Watts	900 W	540 W	n/a
Bath Temperature Range	30-90°C	40-130°C	n/a
Temperature Controller Type and Accuracy	Mechanical Thermostat +/-2°C	Mechanical Thermostat +/-2°C	n/a

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

N-EVAP 34 Position Nitrogen Evaporator

Our 34 position nitrogen evaporator (cat# 11634) offers a large number of sample positions, without compromising any of the classic N-EVAP features. This time-tested, durable system provides one of the least expensive prices per position of all our N-EVAPs. The evaporative system, along with the standard flow control and pressure reducing regulator, enables the operator to achieve the desired level of concentration with efficient nitrogen usage. Our unique dual band spring hoist assembly ensures easy and effective operator use.

Additionally, the 34 position N-EVAP includes a side control box, which provides timed and digitally controlled water bath temperatures to produce even evaporation rates. The pressure regulator and timer combine to allow timed automatic gas flow cut off which slows evaporation to a minimum once the timed cycle has been completed. In order to prevent damage to delicate samples, the timer also provides the option for the heat to shut off once the cycle is complete.

Advantages:

- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves
- **Digital Controls:** The water bath come standard with a side control box which contains a pressure regulator, timer, and digital temperature controller

Standard Features:

- Nitrogen filter
- Adjustable flow meter, 0-30 lpm
- Built-in pressure reducing regulator
- Side control box
- Digital temperature controller
- Electronic timer
- Safety control cover plate
- High pressure phthalate free tubing for safety
- High temperature limit switch for safety
- Dual band spring hoist assembly (except in dry bath model)
- Precision needle valve tube assembly
- Needles, 102 mm x 19 gauge with brass plated hub and stainless steel shaft

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 3550C: *Ultrasonic Extraction*

This SW-846 method describes a procedure for extraction of nonvolatile and semivolatile organic compounds from solids. The ultrasonic method of extraction ensures close contact of the solid sample with the extraction solvent. Sample extracts are placed into K-D concentrator tubes and concentrated in the 30ºC water bath of the N-EVAP, under a gentle stream of nitrogen. The 34 position N-EVAP rotates to allow for excellent sample visibility and access, which eases handling of volatile samples.

Other Applications:

- EPA Methods 515.2, 550, 1668B, 8280B

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 34 Position Nitrogen Evaporators.

Instrument Catalog Number	11634	11634-O
Number of Sample Positions	34	34
Overall Dimensions (width x depth x height)	61 x 48 x 86 cm	48 x 43 x 81 cm
Sample Holder and Gas Manifold Layout	Circular, Single Ring	Circular, Single Ring
Standard Sample Holder Test Tube Range	10-30 mm	10-30 mm
Gas Flow Meter Range	0-30 L/min	0-30 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga
Built-in Nitrogen Gauge Input	50-110 psig	50-110 psig
Sample Tray Lift Mechanism	Dual Band Spring Hoist Assembly	Dual Band Spring Hoist Assembly
Rotating, Leak Tight Gas Fitting	Standard	Standard
Acid Resistant Coating (cat#-RT)	Optional	Optional
Heating Device Specifications		
Bath Model Number	13165	n/a
Bath Type	Water Bath	None
Heating Medium	Water	None
Inside Dimensions (Diameter x Depth)	40,6 x 11,4 cm	n/a
Outside Dimensions (width x depth x height)	61 x 48 x 15 cm	n/a
Heaters Total Watts	1400 W	n/a
Bath Temperature Range	30-90°C	n/a
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 0,5°C	n/a
Side Mount Function Control Box with Timer for Nitrogen & Heat	Standard	n/a

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

N-EVAP 45 Position Nitrogen Evaporator

Our 45 position nitrogen evaporator (Catalog # 11645) offers the largest number of sample positions in our N-EVAP line. The sample holder has dual circular rings. The outer ring has 30 positions and can accommodate samples with an outside diameter of 10-19 mm. The inner ring has 15 positions and can accommodate samples with an outside diameter of 16-30 mm.

This time-tested, durable system provides the least expensive price per position of all our N-EVAPs. The evaporative system, along with the standard flow control and pressure reducing regulator, enables the operator to achieve the desired level of concentration with efficient nitrogen usage. Our unique dual band spring hoist assembly ensures easy and effective operator use. Additionally, the 45 position N-EVAP includes a side control box. Timed, digitally controlled water bath temperatures provide even evaporation rates. The pressure regulator and timer combine to allow timed automatic gas flow cut off which slows evaporation to a minimum once the timed cycle has been completed. The heat can also be shut off with the gas after a timed cycle.

Advantages:

- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves
- **Digital Controls:** The water bath come standard with a side control box which contains a pressure regulator, timer, and digital temperature controller

Standard Features:

- Nitrogen filter
- Adjustable flow meter, 0-30 lpm
- Built-in pressure reducing regulator
- Side control box
- Digital temperature controller
- Electronic timer
- Safety control cover plate
- High pressure phthalate free tubing for safety
- High temperature limit switch for safety
- Dual band spring hoist assembly (except in dry bath model)
- Precision needle valve tube assembly
- Needles, 102 mm x 19 gauge with brass plated hub and stainless steel shaft

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

USGS SOP No. HC521A: *Extraction and Lipid Separation of Fish Samples for Contaminant Analysis and Lipid Determination*

This method describes the extraction of fish samples for organic analysis by gas chromatography (GC) or gas chromatography/mass spectrometry (GC/MS). After the extraction from the fish tissue, a gel permeation chromatography (GPC) column is used for lipid separation and removal. After the lipid and contaminants are fully removed, the samples are transferred to a graduated culture tube and evaporated to 0.5ml using the N-EVAP. For this method, samples are processed in sets of 5-14 so the 45 position N-EVAP allows for 1-3 complete sample sets to concentrate at once.

Other Applications:

- EPA Methods 1694, 8321B, 428, 527

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 45 Position Nitrogen Evaporators.

Instrument Catalog Number	11645	11645-O
Number of Sample Positions	45	45
Overall Dimensions (width x depth x height)	61 x 48 x 86 cm	48 x 43 x 81 cm
Sample Holder and Gas Manifold Layout	Circular, Dual Rings	Circular, Dual Rings
Standard Sample Holder Test Tube Range	Outer Circle (30) 10-19 mm Inner Circle (15) 16-30 mm	Outer Circle (30) 10-19 mm Inner Circle (15) 16-30 mm
Gas Flow Meter Range	0-30 L/min	0-30 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga
Built-in Nitrogen Gauge Input	50-110 psig	50-110 psig
Sample Tray Lift Mechanism	Dual Band Spring Hoist Assembly	Dual Band Spring Hoist Assembly
Rotating, Leak Tight Gas Fitting	Standard	Standard
Acid Resistant Coating (cat#-RT)	Optional	Optional
Heating Device Specifications		
Bath Model Number	13165	n/a
Bath Type	Water Bath	None
Heating Medium	Water	None
Inside Dimensions (Diameter x Depth)	40,6 x 11,4 cm	n/a
Outside Dimensions (width x depth x height)	61 x 48 x 15 cm	n/a
Heaters Total Watts	1300 W	n/a
Bath Temperature Range	30-90°C	n/a
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 0,5°C	n/a
Side Mount Function Control Box with Timer for Nitrogen & Heat	Standard	n/a

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

N-EVAP 20 Position Auto Nitrogen Evaporator

The automatic 20 position N-EVAP (Catalog # 11220-A) is the most advanced instrument Organomation has developed to date. It combines our classic N-EVAP with timed automation technology, and optional nitrogen self generation. This unit can run in automatic or manual mode due to the integration of our unique pneumatic system. The automatic mode removes samples from the heating medium when the designated time cycle has been completed. You can also manually remove samples when the evaporation process is completed with the flip of a switch. The automatic concentration cycle reduces the likelihood of loss or damage to samples. A digital control system provides the operator with timed control of gas flow and bath temperature.

Advantages:

- **Automation:** Samples are raised out of the bath and the gas flow is shut-off after the timed endpoint has been reached
- **Gentle:** N-EVAP nitrogen evaporators combine nitrogen blow down with a heated bath to gently concentrate delicate samples
- **Digital Control:** Digital controls allow exact temperature regulation
- **Individualized Control:** Gas flow can be controlled at each sample position via needle valves

Standard Features:

- Adjustable flow meter, 0-25 lpm
- Built-in pressure reducing regulator
- High pressure phthalate free tubing
- High temperature limit switch for safety
- Safety control cover
- Digital temperature controller
- Electronic timer
- Dual nitrogen filters
- Precision variable valve technology
- Pressurized cylinder technology
- Safety circuit breaker
- Precision needle valve tube assembly
- Set of 20 needles, 102 mm x 19 gauge with plated brass hub and stainless-steel shaft

Optional Features:

- Z-Purge/positive pressure purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

California Department of Food and Agriculture EMON-SM-11.3 Revision 2: *Determination of N-methylcarbamate Pesticides in Surface Water using High Performance Liquid Chromatography and Post-column derivatization*

This method uses a seperatory funnel extraction method to extract pesticides from surface water. The extraction solvent used in this method is methylene chloride. After the sample has been extracted, it is concentrated in a 38ºC water bath under a gentle stream of nitrogen. The 20 position Automatic N-EVAP is excellent for concentration of methylene chloride solvent because the water bath provides even heat to every sample. The instrument can be used in manual mode or the timer can be set to raise the samples out of the water and turn off the nitrogen.

Other Applications:

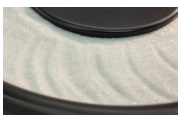
- EPA Methods 525.3, 1614, 1698
- USDA SOP No: CLG-AVR.04

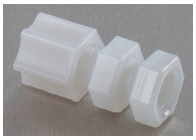
SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of N-EVAP 20 Position Auto Nitrogen Evaporators.

Instrument Catalog Number	11220-A
Number of Sample Positions	20
Overall Dimensions (width x depth x height)	49 x 46 x 92 cm
Sample Holder and Gas Manifold Layout	Circular, Single Ring
Standard Sample Holder Test Tube Range	10-30 mm
Optional Sample Holder Test Tube Range	30-54 mm
Gas Flow Meter Range	0-25 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Built-in Nitrogen Gauge Input	50-110 psig
Sample Tray Lift Mechanism	Gas Piston
Rotating, Leak Tight Gas Fitting	Standard
Built-in Control Box with Timer for Nitrogen & Heat	Standard
Acid Resistant Coating (cat#-RT)	Optional
Heating Device Specifications	
Bath Model Number	11196
Bath Type	Water Bath
Heating Medium	Water
Inside Dimensions (Diameter x Depth)	49 x 46 x 14 cm
Outside Dimensions (width x depth x height)	49 x 46 x 18 cm
Heaters Total Watts	1100 W
Bath Temperature Range	30-100°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 0,5°C

Accessories and Replacement Parts for N-EVAP Series

Item Description		Picture
Stainless steel needle, 102 mm x 19 gauge, 304 grade shaft, brass plated hub		
Set of one dozen	NA0603	
Set of 50	NA1303	
Stainless steel needle, 102 mm x 19 gauge, 304 grade shaft, plastic hub		
Set of one dozen	NA0604-19	
Set of 50	NA1304-19	
FEP coated needles, 102 mm x 19 gauge, for corrosive solvents		
Set of one dozen	NA0603-T	
Set of 50	NA1303-T	
Pasteur pipette adapter and flow controller, male luer to fluted nut		
Set of one dozen	NA0636	
Set of 50	NA1325	
Pasteur pipette adapter and flow controller, male luer to 1/8 hose barb		
Set of one dozen	NA0637	
Set of 50	NA1329	
Nitrogen Gas Generator		
Single Cartridge, 40 lpm	NA1950	
Double Cartridge, 80 lpm	NA1970	
Pressure reducing regulator for gas		
30-160 psig in, 0-30 psig out	NA0630	
12 position sample holder for small glassware 5-16 mm in diameter		
Compatible with N-EVAP 111	NA1132	
6 position sample holder for large glassware 30-56 mm in diameter		
Compatible with N-EVAP 111	NA1113	
8 position sample holder for large glassware 30-70 mm in diameter		
Compatible with N-EVAP 112	NA1228	
Aluminum beads for dry bath		
3,5 liters for N-EVAP 111	NA1119	
5,5 liters for N-EVAP 112	NA1219	
Glass beads for acid resistant dry bath		
3,5 liters for N-EVAP 111-RT	NA1120	
5,5 liters for N-EVAP 112-RT	NA1220	

Item Description		Picture
1,83 meter gas connector tube connects the gas source to the flow meter		
Coiled polyurethane plastic	NA1101	
Swivel tube fitting for stainless steel gas supply tube		
Push-fit technology	P1204	
Paper filled air filter for N_2 supply, Z purge or air compressor		
Overall length: 8,26 cm	NA0403	
Thermometer, 15,24 cm long, for N-EVAP water bath		
100°C	NA1110	
150°C	NA1121	
Valve tube assembly chrome with rear mount hose barb		
for N-EVAPs made after 1997	P0627	
Luer and washer in chrome plated brass		
for N-EVAP valve tube	P0607	
Nylon 3-part tube fitting		
for N-EVAP valve tube	P0634	
Hoist pulley and band spring		
For 6 and 12 Position N-EVAPs	P1224-M	
For 24 Position and Auto-20 N-EVAPs	P1224	
For 34 and 45 Position N-EVAPs	P1524	
Flow meter		
0-10 LPM, for 6 and 12 Position N-EVAPs	NA1221	
0-20 LPM, for 24 Position N-EVAPs	NA1521	
0-30 LPM, for 34 and 45 Position N-EVAPs	NA1421	
Gas Supply Tube		
Delivers gas to instrument	P1230	
Thumb Screw		
Adjusted Sample Holder	P0612-N	

MULTIVAP Series

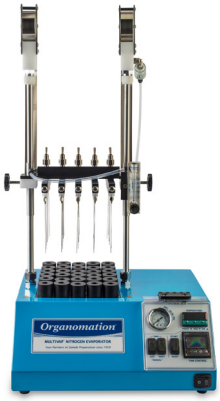
Nitrogen Evaporators (Sample Concentrators)

Organomation's MULTIVAPs are ideal for concentrating large batches of samples, and are used in numerous sample preparation methodologies. The 9, 30, 48, and 80 position units are available in high temperature dry block models, while the 64 and 100 position models utilize our classic water bath to maximize sample evaporation. Nitrogen gas is delivered to each sample via individual stainless steel needles connected to the hand built gas distribution manifold. All of our MULTIVAPs include a built in timer to shut heat and nitrogen gas off for maximum efficiency.

Our nitrogen evaporators utilize adjustable nitrogen blow down technology allowing for full control of nitrogen flow to samples, with no wasted nitrogen gas. We combine this technology with uniform heat applied efficiently through either water or dry baths. This technique saves labs money by simultaneously maximizing solvent evaporation volume and rate.

MULTIVAP 9 Position Nitrogen Evaporator

MULTIVAP 30 Position Nitrogen Evaporator



MULTIVAP 48 Position Nitrogen Evaporator

MULTIVAP 80 Position Nitrogen Evaporator

MULTIVAP 64 Position Nitrogen Evaporator

MULTIVAP 100 Position Nitrogen Evaporator

MULTIVAP 9 Position Nitrogen Evaporator

The 9 position MULTIVAP (Catalog# 11809) is a high temperature dry block model designed to evaporate large volume samples. The instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly, allowing the needles to be raised and lowered with ease. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 3 samples, which allows the individual rows to be shut off when evaporating batches of less than 9 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.

The 9 position MULTIVAP uses a heated aluminum dry block to reach evaporative temperatures ranging from 30°C to 120°C. The sample block is built to fit beakers with an outside diameter of 50 mm, and 9 beakers are included with the instrument. If another sample size is to be used, inserts can be purchased and customized for your sample. Please specify sample size (outside diameter and length to nearest 0.1 mm) when placing an order for inserts. All models can withstand contact with organic solvents; however, acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate samples of up to 100ml each
- **Precise:** Digital controls allow precise temperature regulation
- **Wide Temperature Range:** The temperature is controlled up to 120°C to accomplish evaporation of solvents with higher boiling points
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-25 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)
- Pasteur pipette adapters in place of needles (cat# -P)

Highlighted Application:

EPA Method 1699: *Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS*

This method is for determination of selected organochlorine, organo-phosphorus, triazine, and pyrethroid pesticides in multi-media environmental samples by high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). This Method was developed for use in EPA's Clean Water Act (CWA) programs; other applications are possible. Concentration is achieved by nitrogen blowdown and a heated bath.

Other Applications:

- EPA Methods 539, 548.1, 523.1

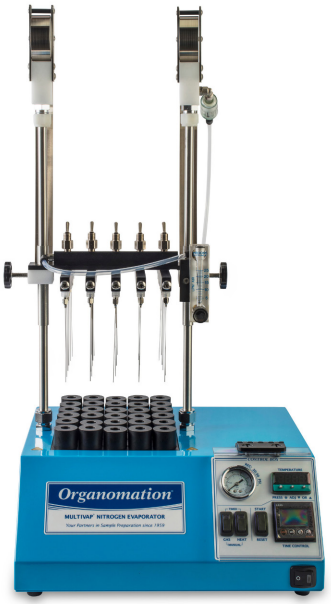
SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 9 Position Nitrogen Evaporators.

Instrument Catalog Number	11809
Number of Sample Positions	9
Overall Dimensions (width x depth x height)	41 x 36 x 56 cm
Sample Holder and Gas Manifold Layout	Rectangular, 3 x 3 Array
Center to Center Spacing Between Positions	5,87 cm
Sample Vial Diameter	50 mm OD beakers
Optional Test Tube Diameter	16-40 mm
Gas Flow Control On/Off Valve	Every Row of 3
Gas Flow Meter Range	0-25 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 14 ga
Needle Guide	Optional, for Test Tubes
Hoist Assembly	Dual Pulley & Band Springs
IntegratedControl Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	9156
Heater Type	Dry Block
Outside Dimensions (width x depth x height)	41 x 36 x 15 cm
Heaters Total Watts	900 W
Temperature Range	30-120°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2 °C

MULTIVAP 30 Position Nitrogen Evaporator

The 30 position MULTIVAP nitrogen evaporator (Catalog# 11830) is a high temperature dry block model. This instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 5 samples, which allows individual rows to be shut off when evaporating batches of less than 30 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.



The 30 position MULTIVAP uses a heated aluminum dry block to reach evaporative temperatures ranging from 30°C to 120°C. Sample blocks are customized for the user's sample size for maximum and even heat transfer. Inserts can be customized for sample vial outside diameters of 10-30 mm.

One set of inserts is included with the instrument. Since these inserts and heat blocks are made-to-order, we will request that you deliver us three sample vials for each unique vial size upon placing an order for a 30, 48 or 80 Position MULTIVAP. In situations where shipping sample vials to Organomation is not possible, we need precise measurements of your sample vials.
All models can withstand contact with organic solvents; however acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate batches of up to 30 samples, with outside diameters of up to 30 mm
- **Precise:** Digital controls allow precise temperature regulation
- **Wide Temperature Range:** The temperature is controlled up to 120°C to accomplish evaporation of solvents with higher boiling points
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-25 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)
- Needle guide plate for small tubes 15 mm and under
- Pasteur pipette adapters in place of needles (cat# -P)

Highlighted Application:

EPA Method 523.1: *Determination of Triazine Pesticides and their Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)*

This is a gas chromatography/mass spectrometry (GC/MS) method for the determination of triazine pesticides and their degradation products in finished drinking waters. Precision and accuracy data have been generated for the method analytes in reagent water, drinking water from a groundwater source, and drinking water from a surface water source. The extracts are dried using anhydrous sodium sulfate (Na_2SO_4) and concentrated using a nitrogen evaporation system. A single stream of nitrogen is injected into each sample tube.

Other Applications:

- EPA Methods 415.3, 548.1, 1699

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 30 Position Nitrogen Evaporators.

Instrument Catalog Number	11830
Number of Sample Positions	30
Overall Dimensions (width x depth x height)	41 x 36 x 56 cm
Sample Holder and Gas Manifold Layout	Rectangular, 5 x 6 Array
Center to Center Spacing Between Positions	3,33 cm
Sample Tube Diameter	10-30 mm
Gas Flow Control On/Off Valve	Every Row of 5
Gas Flow Meter Range	0-25 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Needle Guide	Optional
Hoist Assembly	Dual Pulley & Band Springs
Integrated Control Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	9156
Heater Type	Dry Block
Outside Dimensions (width x depth x height)	41 x 36 x 15 cm
Heaters Total Watts	900 W
Temperature Range	30-120°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2 °C

MULTIVAP 48 Position Nitrogen Evaporator

The 48 position MULTIVAP nitrogen evaporator (Catalog# 11848) is a high temperature dry block model. This instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 6 samples, which allows individual rows to be shut off when evaporating batches of less than 48 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.

The 48 position MULTIVAP uses a heated aluminum dry block to reach evaporative temperatures ranging from 30°C to 120°C. Sample blocks are customized for the user's sample size for maximum and even heat transfer. Inserts can be customized for sample vial outside diameters of 10-22 mm.

One set of inserts is included with the instrument. Since these inserts and heat blocks are made-to-order, we will request that you deliver us three sample vials for each unique vial size upon placing an order for a 30, 48 or 80 Position MULTIVAP. In situations where shipping sample vials to Organomation is not possible, we need precise measurements of your sample vials.
All models can withstand contact with organic solvents; however acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate batches of up to 48 samples, with outside diameters of up to 22 mm
- **Precise:** Digital controls allow precise temperature regulation
- **Wide Temperature Range:** The temperature is controlled up to 120°C to accomplish evaporation of solvents with higher boiling points
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-50 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing
- Needle guide

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)
- Pasteur pipette adapters in place of needles (cat# -P)

Highlighted Application:

EPA Method 1658: *The Determination of Phenoxy-Acid Herbicides in Municipal and Industrial Wastewater*

This method is designed to meet the survey requirements of the Environmental Protection Agency (EPA). It is used to determine (1) the phenoxy-acid herbicides and herbicide esters associated with the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act; and (2) other compounds amenable to extraction and analysis by automated, wide-bore capillary column gas chromatography (GC) with electron capture or halogen-selective detectors. Extracts are concentrated by nitrogen evaporation using a heated bath that can be maintained at 35 to 40°C

Other Applications:

- EPA Methods 539, 548.1, 523.1

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 48 Position Nitrogen Evaporators.

Instrument Catalog Number	11848
Number of Sample Positions	48
Overall Dimensions (width x depth x height)	41 x 36 x 56 cm
Sample Holder and Gas Manifold Layout	Rectangular, 6 x 8 Array
Center to Center Spacing Between Positions	2,54 cm
Test Tube Diameter	10-22 mm
Gas Flow Control On/Off Valve	Every Row of 6
Gas Flow Meter Range	0-50 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Needle Guide	Standard
Hoist Assembly	Dual Pulley & Band Springs
Integrated Control Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	9156
Heater Type	Dry Block
Outside Dimensions (width x depth x height)	41 x 36 x 15 cm
Heaters Total Watts	900 W
Temperature Range	30-120°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C

MULTIVAP 80 Position Nitrogen Evaporator

The 80 position MULTIVAP nitrogen evaporator (Catalog# 11880) is a high temperature dry block model. This instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 8 samples, which allows individual rows to be shut off when evaporating batches of less than 80 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.

The 80 position MULTIVAP uses a heated aluminum dry block to reach evaporative temperatures ranging from 30°C to 120°C. Sample blocks are customized, within a range of 10-17 mm, for the user's sample size for maximum and even heat transfer.

Since the heat block is made-to-order, we will request that you deliver us three sample vials for each unique vial size upon placing an order for a 30, 48 or 80 Position MULTIVAP. In situations where shipping sample vials to Organomation is not possible, we need precise measurements of your sample vials.
All models can withstand contact with organic solvents; however acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate batches of up to 80 samples, with outside diameters of up to 17 mm
- **Precise:** Digital controls allow precise temperature regulation
- **Wide Temperature Range:** The temperature is controlled up to 120°C to accomplish evaporation of solvents with higher boiling points
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-25 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing
- Needle guide

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 532: *Determination Of Phenylurea Compounds In Drinking Water By Solid Phase Extraction And High Performance Liquid Chromatography With UV Detection*

This is a high performance liquid chromatographic (HPLC) method for the determination of phenylurea pesticides in drinking waters. This method is applicable to phenylurea compounds that are efficiently extracted from the water using a C18 solid phase cartridge or disk. Identification of target and surrogate analytes and quantitation is accomplished by comparison of retention times and analyte responses using external standard procedures. To concentrate extracts in 15 mL conical tubes, a lab evaporator which blows a stream of nitrogen to each of the sample positions.

Other Applications:

- EPA Methods 415.3 Rev 1.2, 1668A, 8280A

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 80 Position Nitrogen Evaporators.

Instrument Catalog Number	11880
Number of Sample Positions	80
Overall Dimensions (width x depth x height)	41 x 36 x 56 cm
Sample Holder and Gas Manifold Layout	Rectangular, 8 x 10 Array
Center to Center Spacing Between Positions	2,03 cm
Test Tube Diameter	10-17 mm
Gas Flow Control On/Off Valve	Every Row of 8
Gas Flow Meter Range	0-25 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Needle Guide	Standard
Hoist Assembly	Dual Pulley & Band Springs
Integrated Control Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	9156
Heater Type	Dry Block
Outside Dimensions (width x depth x height)	41 x 36 x 15 cm
Heaters Total Watts	900 W
Temperature Range	30-120°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C

MULTIVAP 64 Position Nitrogen Evaporator

The 64 position MULTIVAP nitrogen evaporator (Catalog# 11364) is a water bath model. This instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 8 samples, which allows individual rows to be shut off when evaporating batches of less than 64 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.

The 64 position MULTIVAP uses a heated water bath to reach evaporative temperatures ranging from 30°C to 100°C. Sample racks are customized within a range of 11-30 mm for the user's sample size. Please specify sample size (outside diameter and length to nearest 0.1 mm) when placing an order. All models can withstand contact with organic solvents; however acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate batches of up to 64 samples, with outside diameters of up to 30 mm
- **Precise:** Digital controls allow precise temperature regulation
- **Optimum Heat Transfer:** The water bath provides even heating and optimum heat transfer up to 100°C
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-50 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing
- Needle guide

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 527: *Determination of Selected Pesticides and Flame Retardants in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatography/ Mass Spectrometry (GC/MS)*

This is a gas chromatography/mass spectrometry (GC/MS) method for the determination of selected semi volatile organic compounds in drinking water. Accuracy and precision data have been generated in reagent water. Extracts are concentrated using a blowdown evaporator with nitrogen using water bath set at 40°C

Other Applications:

- EPA Methods 1614, 1698
- USDA SOP No: CLG-AVR.04

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 64 Position Nitrogen Evaporators.

Instrument Catalog Number	11364
Number of Sample Positions	64
Overall Dimensions (width x depth x height)	48 x 43 x 86 cm
Sample Holder and Gas Manifold Layout	Square, 8 x 8 Array
Center to Center Spacing Between Positions	3,33 cm
Test Tube Diameter	11-30 mm
Gas Flow Control On/Off Valve	Every Row of 8
Gas Flow Meter Range	0-50 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Needle Guide	Standard
Hoist Assembly	Dual Pulley & Band Springs
Integrated Control Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	11196
Heater Type	Water Bath
Inside Dimensions (Diameter x Depth)	28 x 28 x 14 cm
Outside Dimensions (width x depth x height)	48 x 43 x18 cm
Heaters Total Watts	1100 W
Temperature Range	30-100 °C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C

MULTIVAP 100 Position Nitrogen Evaporator

The 100 position MULTIVAP nitrogen evaporator (Catalog# 11300) is a water bath model. This instrument contains a rectangular gas distribution system mounted on a frame and dual post assembly. The manifold delivers nitrogen gas to the needles or glass pipettes, which direct the gas onto the sample's surface. This method results in rapid solvent evaporation and sample concentration. In order to conserve nitrogen gas, the manifold has a toggle switch for every row of 10 samples, which allows individual rows to be shut off when evaporating batches of less than 100 samples. Nitrogen gas flow is also controlled by an adjustable flow meter and a built in pressure regulator.

The 100 position MULTIVAP uses a heated water bath to reach evaporative temperatures ranging from 30°C to 100°C. Sample racks are customized within a range of 11-22 mm for the user's sample size. Please specify sample size (outside diameter and length to nearest 0.1 mm) when placing an order. All models can withstand contact with organic solvents; however acid resistant models are also available for use with corrosive solutions.

Advantages:

- **Capacity:** Evaporate batches of up to 100 samples, with outside diameters of up to 22 mm
- **Precise:** Digital controls allow precise temperature regulation
- **Optimum Heat Transfer:** The water bath provides even heating and optimum heat transfer up to 100°C
- **Cost-Effective:** Conserve gas by using ON/OFF valve for rows not in use

Standard Features:

- Adjustable flow meter, 0-50 lpm
- Dual band hoist spring assembly
- High temperature limit switch for safety
- Safety control cover plate
- Digital temperature controller
- Electronic timer
- Reset circuit
- Nitrogen filter
- Gas distribution manifold
- Built-in pressure reducing regulator
- High pressure tubing
- Needle guide

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)
- Acid resistant coating on instrument and needles (cat# -RT)

Highlighted Application:

EPA Method 1694: *Pharmaceuticals and Personal Care Products in Water, Soil, Sediment, and Biosolids by HPLC/MS/MS*

EPA Method 1694 determines pharmaceuticals and personal care products (PPCPs) in environmental samples by high performance liquid chromatography combined with tandem mass spectrometry (HPLC/MS/MS) using isotope dilution and internal standard quantitation techniques. This method has been developed for use with aqueous, solid, and biosolids matrices. Extracts are concentrated by a nitrogen blowdown evaporator–equipped with water bath controlled in the range of 30 – 60°C.

Other Applications:

- EPA Methods 415.3, 548.1, 523.1

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of ULTRAVAP 100 Position Nitrogen Evaporators.

Instrument Catalog Number	11300
Number of Sample Positions	100
Overall Dimensions (width x depth x height)	48 x 43 x 86 cm
Sample Holder and Gas Manifold Layout	Square, 10 x 10 Array
Center to Center Spacing Between Positions	2,54 cm
Test Tube Diameter	11-22 mm
Gas Flow Control On/Off Valve	Every Row of 10
Gas Flow Meter Range	0-50 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga
Needle Guide	Standard
Hoist Assembly	Dual Pulley & Band Springs
Integrated Control Box with Timer for Nitrogen & Heat	Standard
Built-in Nitrogen Gauge Input	50-110 psig
Acid Resistant Coating (cat#-RT)	Optional
OA-SYS Heating Device Specifications	
Model Number	11196
Heater Type	Water Bath
Inside Dimensions (Diameter x Depth)	28 x 28 x 14 cm
Outside Dimensions (width x depth x height)	48 x 43 x 18 cm
Heaters Total Watts	1100 W
Temperature Range	30-100 °C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C

Accessories and Replacement Parts for MULTIVAP Series

Item Description		Picture
Stainless steel needles, 102 mm x 19 gauge, 304 grade shaft, brass plated hub		
Set of one dozen	NA0603	
Set of 50	NA1303	
FEP coated needles, 102 mm x 19 gauge, for corrosive solvents		
Set of one dozen	NA0603-T	
Set of 50	NA1303-T	
Pasteur pipette adapter and flow controller, male luer to 1/8 hose barb		
Set of one dozen	NA0637	
Set of 50	NA1329	
Plastic luer plug		
for unused luer fittings	NA1307	
Nitrogen Gas Generator		
Single Cartridge, 40 lpm	NA1950	
Double Cartridge, 80 lpm	NA1970	
Pressure reducing regulator for gas		
30-160 psig in, 0-30 psig out	NA0630	
Custom sized inserts for 11809		
Each	NA1891	
Custom sized inserts for 11830		
Each	NA1831	
Set of 30	NA1832	
Custom sized inserts for 11848		
Each	NA1801	
Set of 48	NA1803	
Custom sized inserts for 11880		
Each	NA1881	
Set of 80	NA1882	

Item Description		Picture
1,83 meter gas connector tube connects the gas source to the flow meter		
Coiled polyurethane plastic	NA1101	
Paper filled air filter for N_2 supply, Z purge or air compressor		
Overall length: 8,26 cm	NA0403	
Thumb Screw		
Adjusted Sample Holder	P0612-N	
Luer and washer in polypropylene		
for MULTIVAP manifold	P1306	
Custom sized racks		
for MULTIVAP 11364	NA1360	
Custom sized racks		
for MULTIVAP 11300	NA1361	
Pasteur pipette adapter and flow controller, male luer to fluted nut		
Set of one dozen	NA0636	
Set of 50	NA1325	

MICROVAP Series

Nitrogen Evaporators (Sample Concentrators)

Organomation's MICROVAP laboratory evaporators are used in numerous sample preparation methodologies, and are designed for controlled concentration of small samples.

These instruments are light, compact and digitally controlled for ease of use.

The MICROVAPs are offered in four different models, providing versatility for many different sample preparation applications. The single and triple position MICROVAP microplate evaporators condense samples held within 96 well plates, and can accommodate both deep well and micro well plates. The 15 and 24 position MICROVAP laboratory evaporators are intended for small batch solvent evaporations, such as concentrations of sample batches in microcentrifuge tubes.

MICROVAP Single Position Microplate Evaporator

MICROVAP Triple Position Microplate Evaporatoe

MICROVAP 15 Position Nitrogen Evaporator

MICROVAP 24 Position Nitrogen Evaporator

MICROVAP Single Position Microplate Evaporator

The single plate MICROVAP microplate evaporator is one of the most compact sample concentrators available, and it continues to meet the needs of the life science and pharmaceutical industries. This microplate concentrator is ideal for laboratories needing efficient solutions for the gentle evaporation of high capacity, low volume samples in 96-well microplates and 96-well deep well plates.

In order to evaporate high boiling point solvents effectively, the digital temperature controller and solid aluminum heating unit provide uniform heat up to 130°C with temperature accuracy of +/- 0,5°C. The gas delivery manifold offers continuous evaporation via 2 inch x 19 gauge stainless steel needles. A version without heat is available for evaporations that will be performed at ambient temperatures.

Advantages:

- **Compact design:** The MICROVAP product line has the smallest footprint of all of Organomation's nitrogen evaporators
- **Ease of use:** Temperature and gas levels are easily set using the digital temperature controller and gas flow meter
- **Versatility:** Quickly convert dry block and/or gas manifold to 15 or 24 positions using conversion kits

Standard Features:

- Adjustable flow meter
- Digital temperature control
- High temperature limit switch
- High pressure tubing
- 50,8 mm x 19 gauge needles
- Nitrogen filter
- Anodized aluminum dry block

Optional Features:

- Z-Purge/intrinsically safe purge case (Option Code -Z)
- Manifold and stand only; no heating platform (Option Code -O)
- Acid resistant coating on instrument and needles (Option Code -RT)

Highlighted Application:

EPA Method 600/R-13022: *High Throughput Determination of Ricinine, Abrine, and Alpha-Amanitin in Drinking Water by Solid Phase Extraction and High Performance Liquid Chromatography Tandem Mass Spectrometry (HPLC/MS/MS)*

This document provides the standard operating procedure for determination of ricinine (RIC), abrine (ABR), and α-amanitin (AMAN) in drinking water by isotope dilution liquid chromatography tandem mass spectrometry (LC/MS/MS). This method is designed to support site characterization and inform site-specific cleanup goals of environmental remediation activities following a homeland security incident involving one or a combination of these analytes. The samples are pipetted into a well of a preconditioned 96-well solid phase extraction plate and extracted. The extract is concentrated to dryness under nitrogen and heat in a laboratory evaporator.

Other Applications:

- EPA Methods 415.3, 548.1, 523.1

SPECIFICATIONS

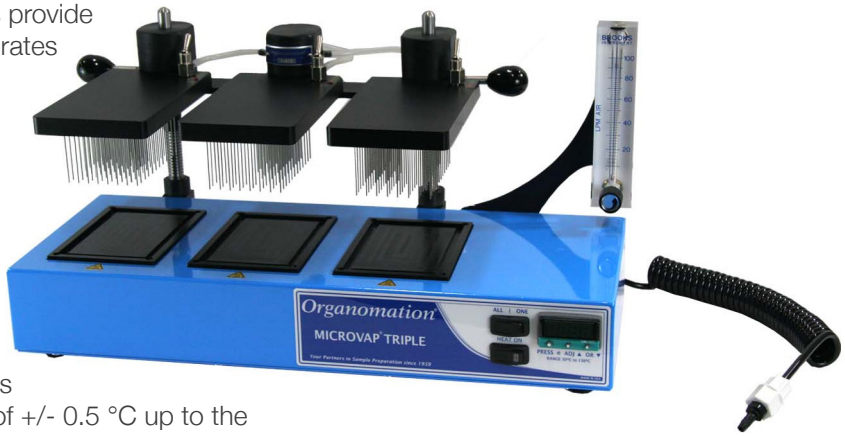
The following Product Specifications table contains detailed technical information for the different models of MICROVAP Single Position Microplate Evaporator.

Instrument Catalog Number	11801	11801-O
Number of Sample Plates	1	1
Overall Dimensions (width x depth x height)	25,4 x 27,9 x 35,6cm	21,6 x 33,0 x 35,6 cm
Sample Holder and Gas Manifold Layout	Single, 8 x 12 Array	Single, 8 x 12 Array
Center to Center Spacing Between Positions	9mm	9 mm
Micro Plate Dimensions (width x depth)	8,5 x 13 cm	8,5 x 13 cm
Gas Flow Control	Single Toggle Valve	Single Toggle Valve
Gas Flow Meter Range	0-30 L/min	0-30 L/min
Stainless Steel Needles (Length & Gauge)	51 mm x 19 ga	51 mm x 19 ga
Hoist Assembly	Manual	Manual
Standard Gas Input Range	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig
Heating Device Specifications		
Model Number	18103	N/A
Heater Type	Aluminum Heat Plate	None
Outside Dimensions (width x depth x height)	25,4 x 21,3 x 7,6 cm	N/A
Total Watts	180 W	N/A
Temperature Range	40-130°C	Ambient temperature
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C	N/A

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

MICROVAP Triple Position Microplate Evaporator

The triple plate MICROVAP microplate evaporator combines three 96 needle manifolds and three heat blocks into a single platform. This allows for simultaneous evaporation of up to three 96 well plates. The triple plate MICROVAP's solid aluminum heating units provide consistent temperature for uniform evaporation rates throughout all three plates.



Each 96 needle manifold is equipped with its own toggle switch to shut down gas flow when all three microplates are not in use to conserve nitrogen gas, saving laboratories money. A convenient dual band spring hoist assembly ensures ease of use for the operator when lowering and raising the needle manifolds. The digital temperature controller is easy to read and allows temperature to be controlled with an accuracy of +/- 0.5 °C up to the maximum temperature of 130°C. An adjustable 0-100 lpm flow meter is included for precise control over the nitrogen gas delivery system.

Advantages:

- **High throughput:** Evaporate up to three 96 well plates at once
- **Ease of use:** Temperature and gas levels are easily set using the digital temperature controller and gas flow meter
- **Flexibility:** Toggle switches allow gas flow to be turned on and off at each plate

Standard Features:

- Adjustable flow meter
- Digital temperature control
- High temperature limit switch
- High pressure tubing
- 50,8 mm x 19 gauge needles
- Nitrogen filter
- Anodized aluminum dry block

Optional Features:

- Z-Purge/intrinsically safe purge case (cat# -Z)

Highlighted Application:

EPA Method from the Journal of Analytical Toxicology: *3-Chlorotyrosine and 3,5-Dichlorotyrosine as Biomarkers of Respiratory Tract Exposure to Chlorine Gas*

Environmental and occupational exposure to chlorine or chlorinating compounds occurs by various routes of administration including inhalation. Inhalation of chlorinating compounds at low doses will result in mild to moderate airway irritation (coughing, sore throat, etc.), and high to severe exposure may result in chest tightening, dyspnea, bronchospasm, non-cardiogenic pulmonary edema, and death.
The isolated upper respiratory tract (URET) of anesthetized male and female Fisher 344 (F344) rats were exposed for 90 min to various combination sets of exposure concentrations and unidirectional flow rates. Nasal tissue samples were isolated, placed in polypropylene screw-cap micro centrifuge tubes (1500 IJL), and frozen immediately after necropsy in liquid nitrogen. Samples were diluted 1:10 with DI water and applied to a 96-well mixed mode caution exchange plate and dried at 40°C overnight in a 96-well plate lab evaporator.

Other Applications:

- EPA Methods 539, 548.1, 523.1

SPECIFICATIONS

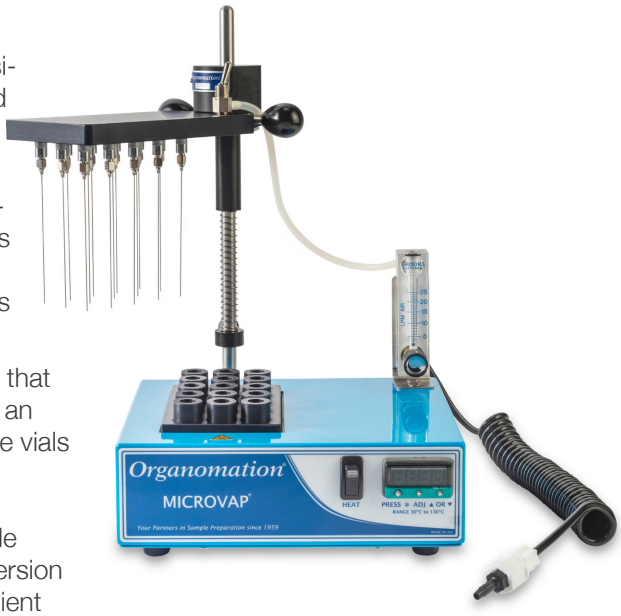
The following Product Specifications table contains detailed technical information for the different models of MICROVAP Triple Position Microplate Evaporator.

Instrument Catalog Number	11803
Number of Sample Plates	3
Overall Dimensions (width x depth x height)	61,0 x 22,9 x 35,6 cm
Sample Holder and Gas Manifold Layout	Triple, 8 x 12 Array
Center to Center Spacing Between Positions	9 mm
Micro Plate Dimensions (width x depth)	8,5 x 13 cm
Gas Flow Control	Single Toggle Valve
Gas Flow Meter Range	0-100 L/min
Stainless Steel Needles (Length & Gauge)	51 mm x 19 ga
Hoist Assembly	Dual Band Spring Hoist Assembly
Standard Gas Input Range	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig
Heating Device Specifications	
Model Number	54243
Heater Type	Aluminum Heat Plate
Outside Dimensions (width x depth x height)	61,0 x 22,9 x 7,6 cm
Total Watts	540 W
Temperature Range	40-130°C
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 0,5°C

MICROVAP 15 Position Nitrogen Evaporator

The 15 position MICROVAP evaporator is intended for small batch solvent evaporations, such as concentrations of sample groups in microcentrifuge tubes. It offers an effective and compact evaporation solution for samples in life science and pharmaceutical laboratories.

Each MICROVAP uses minimal hood space while providing optimal temperature control for high and low boiling point solvents. The 15 position MICROVAP comes standard with stainless steel luer lock hubs and 4 inch x 19 gauge stainless steel needles for easy removal.



Up to 15 samples can be accommodated at once, and the instrument comes customized for one sample size with an outside diameter of 10-22mm. If multiple sample sizes will be used with the instrument, inserts can be purchased for each additional sample size.
Each of the sample blocks and inserts are customized to your samples for a precise fit and optimum heat transfer.

Since these inserts and heat blocks are made-to-order, we will request that you deliver us three sample vials for each unique vial size upon placing an order for a 15 Position MICROVAP. In situations where shipping sample vials to Organomation is not possible, we need
precise measurements of your sample vials.
The digital temperature controls and solid aluminum heating unit provide uniform heat up to 130°C with temperature accuracy of +/- 0.5°C. A version without heat is available for evaporations that will be performed at ambient temperatures.

Advantages:

- **Compact design:** The MICROVAP product line has the smallest footprint of all of Organomation's nitrogen evaporators
- **Ease of use:** Temperature and gas levels are easily set using the digital temperature controller and gas flow meter
- **Versatility:** Quickly converts to a 24 position MICROVAP or single position MICROVAP microplate evaporator using dry block and gas manifold conversion kits

Standard Features:

- Adjustable flow meter
- Digital temperature control
- High temperature limit switch
- High pressure tubing
- 102 mm x 19 gauge needles
- Nitrogen filter
- Anodized aluminum dry block

Optional Features:

- Z-Purge/intrinsically safe purge case (Option Code -Z)
- Manifold and stand only; no heating platform (Option Code -O)

Highlighted Application:

EPA Method 535: *Measurement of Chloroacetanilide and Other Acetamide Herbicide Degradates in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)*

This method is used for determination of ethanesulfonic acid (ESA) and oxanilic acid (OA) degradates of the chloroacetanilide and other acetamide herbicides in finished drinking water by LC/MS/MS. After samples are extracted by SPE, the extracts are concentrated to dryness. The sample concentration procedure is performed in a 60ºC-65ºC bath under nitrogen blow down. The 15 position MICROVAP is ideal for the concentration of small batch samples, such as those from SPE extracts. The dry block is capable of applying steady even heat to each sample, while the manifold provides even nitrogen flow at each position. These features allow for fast and gentle removal of solvents, including the ammonium acetate/methanol extraction solvent from this method.

Other Applications:

- EPA Methods 3542, 1658
- US FDA: DFS/ORA/FDA Lib No. 4306
- BASF Method No. D1001, Study 360473, p. 138-161

SPECIFICATIONS

The following Product Specifications table contains detailed technical information for the different models of MICROVAP 15 Position Nitrogen Evaporators.

Instrument Catalog Number	11815	11815-O
Number of Sample Positions	15	15
Overall Dimensions (width x depth x height)	25,4 x 27,9 x 35,6 cm	21,6 x 33,0 x 35,6cm
Sample Holder and Gas Manifold Layout	Rectangular, 3 x 5 Array	Rectangular, 3 x 5 Array
Center to Center Spacing Between Positions	2,54 cm	2,54 cm
Aluminum Heat Block Dimensions (width x depth)	8,9 x 13 cm	8,9 x 13 cm
Test Tube Outer Diameter Range	10-22 mm	10-22 mm
Gas Flow Control	Single Toggle Valve	Single Toggle Valve
Gas Flow Meter Range	0-10 L/min	0-10 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga
Hoist Assembly	Manual	Manual
Standard Gas Input Range	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig
Heating Device Specifications		
Model Number	18103	N/A
Heater Type	Aluminum Heat Plate	None
Outside Dimensions (width x depth x height)	25,4 x 21,3 x 7,6 cm	N/A
Total Watts	180 W	N/A
Temperature Range	40-130°C	Ambient temperature
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C	N/A

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

MICROVAP 24 Position Nitrogen Evaporator

The 24 position MICROVAP evaporator is intended for concentrating small volume, small batch samples, such as concentrations of groups of samples in microcentrifuge tubes and GC vials. It offers an effective and compact solution to evaporation of samples for life sciences and pharmaceutical laboratories.

Each MICROVAP uses minimal hood space while providing optimal temperature control for high and low boiling point solvents. The 24 position MICROVAP comes standard with stainless steel luer lock hubs and 4 inch x 19 gauge stainless steel needles for easy removal.

Up to 24 samples can be accommodated at once, and the instrument comes customized for one sample size with an outside diameter of 10-17 mm. If multiple sample sizes will be used with the instrument, additional sample blocks can be purchased for each additional sample size.

Each of the sample blocks are customized to your samples for a precise fit and optimum heat transfer. Since these heat blocks are made-to-order, we will request that you deliver us three sample vials for each unique vial size upon placing an order for a 24 Position MICROVAP. In situations where shipping sample vials to Organomation is not possible, we need precise measurements of your sample vials.
The digital temperature controls and solid aluminum heating unit provide uniform heat up to 130°C with temperature accuracy of +/- 0.5°C. A version without heat is available for evaporations that will be performed at ambient temperatures.

Advantages:

- **Compact design:** The MICROVAP product line has the smallest footprint of all of Organomation's nitrogen evaporators
- **Ease of use:** Temperature and gas levels are easily set using the digital temperature controller and gas flow meter
- **Versatility:** Quickly converts to a 15 position MICROVAP or single position MICROVAP microplate evaporator using dry block and gas manifold conversion kits

Standard Features:

- Adjustable flow meter
- Digital temperature control
- High temperature limit switch
- High pressure tubing
- 102 mm x 19 gauge needles
- Nitrogen filter
- Anodized aluminum dry block

Optional Features:

- Z-Purge/intrinsically safe purge case (Option Code -Z)
- Manifold and stand only; no heating platform (Option Code -O)

Highlighted Application:

EPA Method 537 Rev 1.1: *Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)*

This method is used to determine perflourinated alkyl acid (PFAA) content in drinking water by liquid chromatography/tandem mass spectrometry (LC/MS/MS). In this method procedure, a 250 ml sample of water is extracted through a solid phase extraction (SPE) cartridge. After the compounds of interest are eluted from the cartridge with methanol, the sample is concentrated using a nitrogen evaporator. The nitrogen evaporator bath is set to a temperature no higher than 65ºC, and the samples are concentrated to dryness under a stream of nitrogen. The 24 position MICROVAP dry block is capable of applying steady even heat to each sample, while the manifold provides even nitrogen flow at each position. These features allow for fast and gentle removal of solvents, including the water/methanol extraction solvent from the SPE cartridge elution.

Other Applications:

- EPA Methods 1662, 3542A
- USDA SOP No: CLG-PST5.01

SPECIFICATIONS

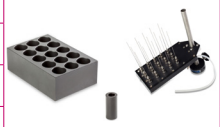
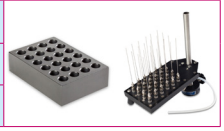
The following Product Specifications table contains detailed technical information for the different models of MICROVAP 24 Position Nitrogen Evaporators.

Instrument Catalog Number	11824	11824-O
Number of Sample Positions	24	24
Overall Dimensions (width x depth x height)	25,4 x 27,9 x 35,6 cm	21,6 x 33,0 x 35,6 cm
Sample Holder and Gas Manifold Layout	Rectangular, 4 x 6 Array	Rectangular, 4 x 6 Array
Center to Center Spacing Between Positions	1,98 cm	1,98 cm
Aluminum Heat Block Dimensions (width x depth)	8,9 x 13 cm	8,9 x 13 cm
Test Tube Outer Diameter Range	10-17 mm	10-17 mm
Gas Flow Control	Single Toggle Valve	Single Toggle Valve
Gas Flow Meter Range	0-10 L/min	0-10 L/min
Stainless Steel Needles (Length & Gauge)	102 mm x 19 ga	102 mm x 19 ga
Hoist Assembly	Manual	Manual
Standard Gas Input Range	20-30 psig	20-30 psig
Gas Input Range with Optional Pressure Reducing Regulator	30-160 psig	30-160 psig
Heating Device Specifications		
Model Number	18103	N/A
Heater Type	Aluminum Heat Plate	None
Outside Dimensions (width x depth x height)	25,4 x 21,3 x 7,6 cm	N/A
Total Watts	180 W	N/A
Temperature Range	40-130°C	Ambient temperature
Temperature Controller Type and Accuracy	Digital Electronic with LED Display +/- 2°C	N/A

** All "-O" models come with a base and stand assembly instead of a heated bath. These instruments are designed for evaporation procedures performed at ambient temperature.*

Accessories and Replacement Parts for MICROVAP Series

Item Description		Picture
Stainless steel needles, 102 mm x 19 gauge, 304 grade shaft, brass plated hub		
Set of one dozen	NA0603	
Set of 50	NA1303	
FEP coated needles, 102 mm x 19 gauge, for corrosive solvents		
Set of one dozen	NA0603-T	
Set of 50	NA1303-T	
Pasteur pipette adapter and flow controller, male luer to 1/8 hose barb		
Set of one dozen	NA0637	
Set of 50	NA1329	
Plastic luer plug		
for unused luer fittings	NA1307	
Pasteur pipette adapter and flow controller, male luer to fluted nut		
Set of one dozen	NA0636	
Set of 50	NA1325	
Nitrogen Gas Generator		
Single Cartridge, 40 lpm	NA1950	
Double Cartridge, 80 lpm	NA1970	
Pressure reducing regulator for gas		
30-160 psig in, 0-30 psig out	NA0630	
1,83 meter gas connector tube connects the gas source to the flow meter		
Coiled polyurethane plastic	NA1101	

Item Description		Picture
Custom sized inserts for 11815 15 Position Microvap		
set of 15	NA1802	
24 Position Block Heating Aluminium		
for MICROVAP 11824	NA1824	
15 Position Manifold		
for 15 well plates	NA1805	
24 Position Manifold		
for 24 well plates	NA1806	
15 Position Conversion Kit:		
15 Position Heat Block	NA1815	
Set of 15 customized inserts	NA1802	
15 Position Manifold	NA1805	
24 Position Conversion Kit:		
24 Position Heat Block	NA1824	
24 Position Manifold	NA1806	

Nitrogen Evaporator Instruments

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