

RapidVap® Evaporators





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Come to the forefront of analysis.

Sample preparation usually fades into the background. But scientific results are only as good as the equipment you use to produce your samples. As the most important step in scientific analysis, why let it hide in the weeds?

With Labconco's RapidVap® line, you can produce a high throughput of samples efficiently. No matter the volume, our evaporators ensure efficient production of multiple samples without compromising integrity. With repeatability you can count on.

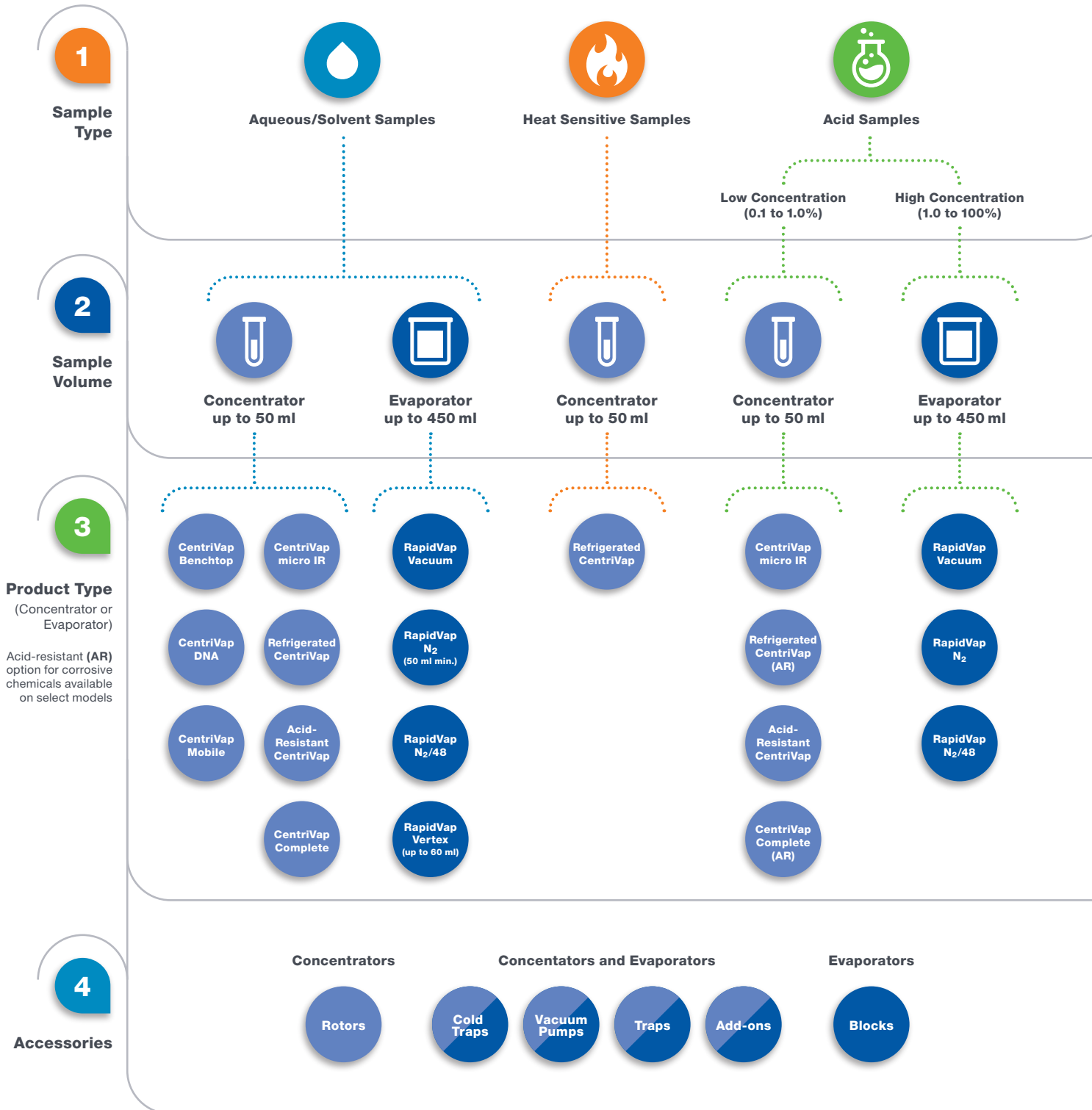
Choose from one of our four different benchtop, user-friendly RapidVap evaporator models using either vacuum or nitrogen blow down of the sample. No messy water baths.

Quality in. Quality out. Labconco has your back.



RapidVap® Evaporators

Steps to Selecting a Vacuum Concentrator or Evaporator



RapidVap® Evaporators

CentriVap® and RapidVap® Product Lines

CentriVap Centrifugal Vacuum Concentrators



micro IR



Benchtop



DNA



Acid-Resistant



Refrigerated



AR



Complete



AR



Mobile



RapidVap Evaporators



Vertex



Vacuum



N₂



N₂/48



Accessories



Rotors



Cold Traps



Vacuum Pumps



Traps



Add-ons



Blocks

RapidVap® Vertex™ Evaporators

Features & Benefits



LCD Display

Has touchscreen programming. Shows parameters for block, sample and time.

Nitrogen Control

Each switch controls nitrogen flow to one of five rows of nozzles, allowing nitrogen to be conserved during partial runs.

Pressure Regulator

Displays pressure from 0 to 45 psi.

Dry heat—no water bath

Dry heat has several advantages: less maintenance, no rust, no condensation and no potential source of cross contamination.

Microprocessor-controlled heater

Supplies heat to the block and is programmable from 30° C up to 100° C in 1 degree increments.

Nitrogen pressure regulator

Controls the pressure of nitrogen delivered to samples.

Temperature sensor

Monitors block or sample temperature.

Fast evaporation

With nitrogen blow down and heat.

Five rows of 10 nozzles

Deliver nitrogen to up to 50 samples at once.

Angled samples

Increases surface area for faster evaporation and optimized recovery.

Compact benchtop design

Small footprint fits in tight spaces.

Full one year warranty








RapidVap® Vertex™ Evaporators

Ordering Information



- Ideal for small sample volumes
- Multiple blocks for a variety of tube sizes
- Portable

Catalog Number	Electrical Requirements	Receptacle & Plug Type	Overall Dimensions (w x d x h)	Shipping Weight
7320020	115V, 60 Hz, 8A	 North America, 115V, NEMA 5-15P	20.4" x 13.0" x 12.5"	45 lbs. (16 kg)
7320030	230V, 50/60 Hz, 4A	 Schuko	20.4" x 13.0" x 12.5"	45 lbs. (16 kg)
7320035	230V, 50/60 Hz, 4A	 British (UK)	20.4" x 13.0" x 12.5"	45 lbs. (16 kg)
7320037	230V, 50/60 Hz, 4A	 China/Australia	20.4" x 13.0" x 12.5"	45 lbs. (16 kg)
7320040	230V, 50/60 Hz, 4A	 North America, 230V	20.4" x 13.0" x 12.5"	45 lbs. (16 kg)

All models require (not included):

- Aluminum Block. See page 9
- Sample tubes. Contact your laboratory supply dealer.
- Nitrogen source with a flow rate of 6.5 CFM/185 LPM minimum. See page 23 for full requirements

RapidVap® Vertex™ Evaporators

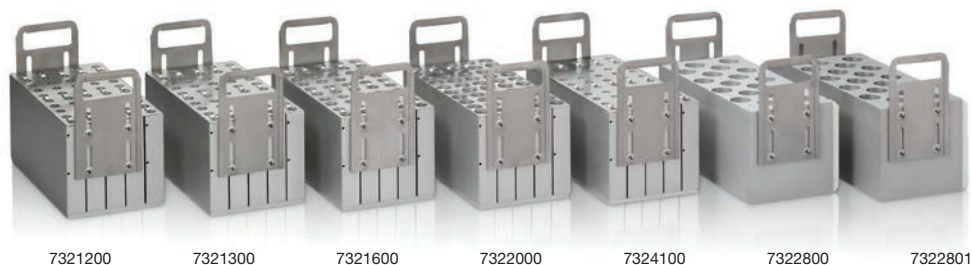
Evaporation Rates



	Tube Size (mm)	Number of Samples	Sample Size (ml)	Temperature (° C)	N ₂ Pressure (psi)	Avg. Time to Dry (min)
Acetonitrile boiling point 82° C	12 x 75	10	2	35	16	<19
	12 x 75	10	2	45	16	<15
	12 x 75	10	2	60	16	<11
	12 x 75	10	2	80	16	<8
Methanol boiling point 65° C	12 x 75	10	2	35	24	<12
	12 x 75	10	2	45	24	<10
	12 x 75	10	2	60	24	<7
	12 x 75	10	2	80	24	<6
	12 x 75	50	2	80	24	<6
	20 x 150	10	10	52	37	<42
Water boiling point 100° C	12 x 75	10	2	45	24	<125
	12 x 75	10	2	60	24	<80
	12 x 75	10	2	80	24	<40
	12 x 75	10	2	100	24	<25
	20 x 150	10	4	100	24	<60
	20 x 150	50	4	100	24	<64
Toluene boiling point 111° C	12 x 75	10	2	35	16	<24
	12 x 75	10	2	45	16	<18
	12 x 75	10	2	60	16	<13
	12 x 75	10	2	80	16	<9
Methylene Chloride boiling point 40° C	12 x 75	10	2	35	20	<8
	12 x 75	10	2	45	22	<7
	12 x 150	10	10	38	37	<22
Hexane	20 x 150	10	10	52	37	<11
Ethyl Acetate	20 x 150	10	10	52	37	<22

RapidVap® Vertex™ Evaporators

Accessories



Aluminum Blocks. All RapidVap Vertex Evaporators require a Block (not included). Blocks of solid aluminum include stainless steel handles to lift the block in and out of the evaporator. A 0.21" (0.5 cm) dia. port in the upper left hand corner of the block is provided for insertion of the temperature probe to monitor upper block temperature. Select a block that closely matches the outside diameter of your sample container. Custom blocks to fit special glassware are available upon request. **Glassware is required (not included).**

Catalog Number	Tube Capacity	Tube Volume	Tube Description	Shipping Weight
7324100	50	3 ml	10 mm x 75 mm, tubes	26 lbs. (12 kg)
7321200	50	5 ml	12 mm x 75 mm, tubes	26 lbs. (12 kg)
7321300	50	8 ml	13 mm x 100 mm, tubes	24 lbs. (11 kg)
7321601	50	12 ml	16 mm x 100 mm, tubes	19 lbs. (9 kg)
7321600	50	16 ml	16 mm x 125 mm, tubes	21 lbs. (10 kg)
7322000	50	30 ml	20 mm x 150 mm, tubes	15 lbs. (7 kg)
7322800	18	40 ml	28 mm x 95 mm, ASE vials	22 lbs. (10 kg)
7322801	18	60 ml	28 mm x 140 mm, ASE vials	19 lbs. (9 kg)
7324600	50	1 ml	1.5 ml microcentrifuge tubes	33 lbs. (15 kg)
7322300	50	12 ml	17 mm x 125 mm, 15 ml conical tubes	33 lbs. (15 kg)

RapidVap® Vacuum Evaporators

Features & Benefits



1000-watt dry block heating system

Speeds evaporation rate by supplying a controlled amount of heat from ambient up to a maximum of 100° C to the sample block. Heater and block move in tandem for more efficient heat transfer. Unlike water baths, the dry heating system adds no potential source of contamination and requires no maintenance.

Faster evaporation rates, greater throughput

Vortex action, heat and vacuum combine to accelerate evaporation.

Phenol-free gasket

Provides complete sealing under vacuum.

Automatic vacuum release

Vacuum is released in the event of power failure.

PTFE*-coated sample block

Provides chemical resistance (sold separately).

PTFE*-coated chamber

Aluminum with PTFE for a broad range of chemical compatibility.

Microprocessor-controlled vortex motion increases surface area for faster evaporation

Vortex action continually mixes sample, helps contain analytes in the solvent, minimizes bumping and maximizes sample recovery. It also performs a time-saving function in resuspension and solvent exchange procedures.

Audible/visual alarms

Signal completion of run allowing samples to be left unattended while evaporating to desired end point.

Dual lid clamps

Two clamps hold the lid securely in place for a vacuum tight seal.

Glass lid with polycarbonate shield

Chemical-resistant and detaches for cleaning.

Microprocessor-controlled vacuum level

Controls vacuum level at a present level to speed evaporation.

Full one year warranty



Program

LCD shows program from 1 to 9, R for run or S for stop.

Speed

LCD shows vortex speed from 0 to 100%.

Heat

LCD shows heat from OFF to 99 (° C) or HI (100° C).

Vacuum

LCD shows vacuum level from 0 to 999 mBar.

Vacuum Release Button

Press to momentarily break the vacuum to control bumping. Vacuum returns to preset level once button is released.

*Polytetrafluoroethylene



RapidVap® Vacuum Evaporators

Ordering Information



- Small to moderate sample volumes
- Moderate to large sample throughput
- Optional lid heater to eliminate solvent condensation

Catalog Number	Built-In Option(s)	Electrical Requirements	Receptacle & Plug Type	Overall Dimensions (w x d x h)	Shipping Weight
7900000		115V, 50/60 Hz, 16A*	North America, 115V, 20A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900002	Lid Heater	115V, 50/60 Hz, 16A*	North America, 115V, 20A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900010	RS-232 Link	115V, 50/60 Hz, 16A*	North America, 115V, 20A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900012	Lid Heater & RS-232 Link	115V, 50/60 Hz, 16A*	North America, 115V, 20A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900001†		230V, 50/60 Hz, 8A**	Schuko, 230V, 15A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900003†	Lid Heater	230V, 50/60 Hz, 8A**	Schuko, 230V, 15A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900011†	RS-232 Link	230V, 50/60 Hz, 8A**	Schuko, 230V, 15A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)
7900013†	Lid Heater & RS-232 Link	230V, 50/60 Hz, 8A**	Schuko, 230V, 15A	20.7" x 18.4" x 13.5"	100 lbs. (45 kg)

All models require (not included):

- Vacuum Pump. See page 19
- Sample Block. See page 18
- Glassware. See page 18 or contact your laboratory supply dealer
- Secondary Trap. See pages 19-20

RapidVap Vacuum Evaporators should be located within a fume hood if hazardous or flammable solvents are used. In all cases, regardless of the solvent used, it is recommended that the vacuum pump be vented in a fume hood.

*System amperage shown includes 8 amp maximum vacuum pump rating. ** System amperage shown includes 4.5 amp maximum vacuum pump rating.
†International electrical configuration.

RapidVap® N₂ and N₂/48 Evaporators

Features & Benefits



1000-watt dry block heating system

Speeds evaporation rate by supplying a controlled amount of heat from ambient up to a maximum of 100° C to the sample block. Heater and block move in tandem for more efficient heat transfer. Unlike water baths, the dry heating system adds no potential source of contamination and requires no maintenance.

Faster evaporation rates, greater throughput

Vortex action, heat and nitrogen blow down combine to accelerate evaporation.

Phenol-free gasket

Provides complete sealing under vacuum.

PTFE*-coated sample block

Provides chemical resistance (included with N₂ models).

Microprocessor-controlled nitrogen blow down manifold

Nitrogen helps facilitate phase change from liquid to gas.

PTFE*-coated chamber

Aluminum with PTFE for a broad range of chemical compatibility.

Microprocessor-controlled vortex motion increases surface area for faster evaporation

Vortex action continually mixes sample, helps contain analytes in the solvent by constantly rinsing tube walls and maximizes sample recovery.

Unique Cool-Zone™ on RapidVap N₂

Insulates sample remaining in glassware stem to permit desired end point.

Audible/visual alarms

Signal completion of run allowing samples to be left unattended while evaporating to desired end point.

Dual lid clamps

Two clamps hold the lid securely in place.

Glass lid

Chemical-resistant and detaches for cleaning.

Microprocessor-controlled motor

Maintenance-free, brushless DC motor ensures safety and reproducibility for protocols.

Full one year warranty



Program

LCD shows program from 1 to 9, R for run or S for stop.

Speed

LCD shows vortex speed from 0 to 100%.

Heat

LCD shows heat from OFF to 99 (° C) or HI (100° C).

Time

LCD shows time selected from 1 to 999 minutes.

Sample

LCD shows number of sample or clusters of samples selected to receive nitrogen blow down; 2, 4, 6 or 8.

*Polytetrafluoroethylene



RapidVap® N₂ and N₂/48 Evaporators

Ordering Information



- Moderate sample throughput
- End-point determination
- Introduce nitrogen to tubes in sets of two
- Eight tube capacity

RapidVap N₂ Evaporator



- Small to moderate sample throughput
- Ideal for volatile samples
- Introduce nitrogen in clusters of six
- 48 tube capacity

RapidVap N₂/48 Evaporator

RapidVap N₂ Evaporators

Catalog Number	Built-In Option	Electrical Requirements	Receptacle & Plug Type	Overall Dimensions (w x d x h)	Shipping Weight
7910000		115V, 50/60 Hz, 9A	North America, 115V, 20A	21.7" x 19.0" x 13.5"	107 lbs. (49 kg)
7910010	RS-232 Link	115V, 50/60 Hz, 9A	North America, 115V, 20A	21.7" x 19.0" x 13.5"	107 lbs. (49 kg)
7910001*		230V, 50/60 Hz, 4.5A	Schuko, 230V, 15A	21.7" x 19.0" x 13.5"	107 lbs. (49 kg)
7910011*	RS-232 Link	230V, 50/60 Hz, 4.5A	Schuko, 230V, 15A	21.7" x 19.0" x 13.5"	107 lbs. (49 kg)

All models require (not included):

- Glassware. See pages 21-22
- Nitrogen source with flow rate of 0.6 CFM/17 LPM minimum. See page 22 for Nitro 2LV Nitrogen Generator or contact your nitrogen gas supplier.
- Gas pressure regulator. Pressure of 5-10 psi is typical. Pressure must not exceed 20 psi. Contact a local supplier.

RapidVap N₂/48 Evaporators

Catalog Number	Built-In Option	Electrical Requirements	Receptacle & Plug Type	Overall Dimensions (w x d x h)	Shipping Weight
7910012		115V, 50/60 Hz, 9A	North America, 115V, 20A	21.7" x 19.0" x 13.5"	108 lbs. (49 kg)
7910014	RS-232 Link	115V, 50/60 Hz, 9A	North America, 115V, 20A	21.7" x 19.0" x 13.5"	108 lbs. (49 kg)
7910013*		230V, 50/60 Hz, 4.5A	Schuko, 230V, 15A	21.7" x 19.0" x 13.5"	108 lbs. (49 kg)
7910015*	RS-232 Link	230V, 50/60 Hz, 4.5A	Schuko, 230V, 15A	21.7" x 19.0" x 13.5"	108 lbs. (49 kg)

All models require (not included):

- Sample Block. See page 21
- Glassware. See pages 18 and 21
- Nitrogen source with flow rate of 3.5 CFM/100 LPM minimum. See page 22 for Nitro 2LV Nitrogen Generator or contact your nitrogen gas supplier.
- Gas pressure regulator. Pressure of 5-10 psi is typical. Pressure must not exceed 20 psi. Contact a local supplier.

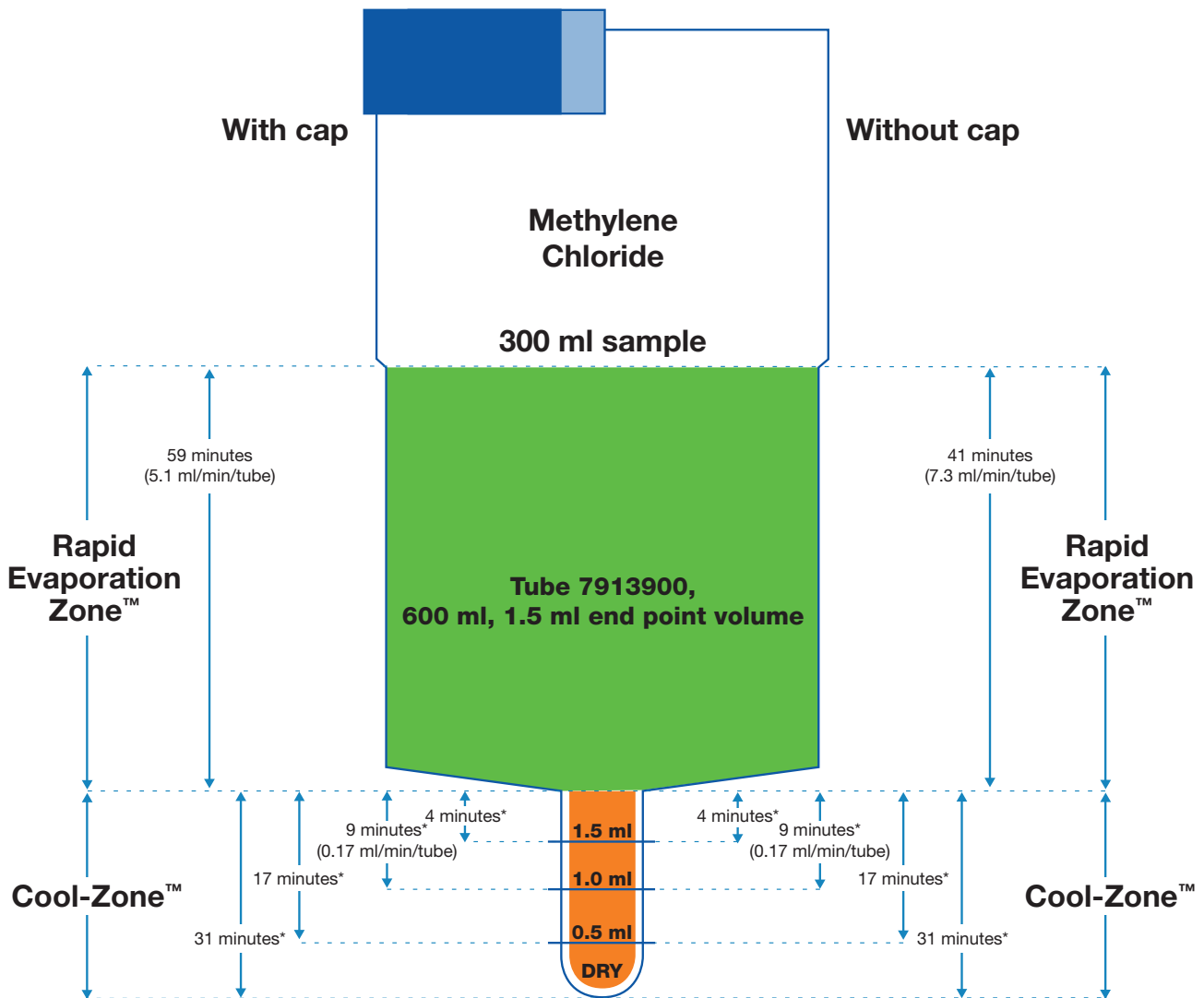
*International electrical configuration.

RapidVap® N₂ Evaporators

Rapid Evaporation Zone™ & Cool-Zone™

This illustration demonstrates the effectiveness of the Rapid Evaporation Zone and Cool-Zone in RapidVap N₂ models. In the Rapid Evaporation Zone, a 300 ml sample of methylene chloride is evaporated in 41 minutes at approximately 7.3 ml/minute/tube (without cap). In the Cool-Zone with vortex motion, heat and nitrogen blow down still applied, methylene chloride is evaporated

to a 1.0 ml end point in 9 minutes at a much slower rate, approximately 0.11 ml/minute/tube. If the RapidVap is programmed for timed end point, all functions automatically turn off when time expires, drastically slowing the evaporation rate. While samples are in the Cool-Zone, the user has ample time to retrieve samples or to perform solvent exchange procedures.



Number of samples: 8
 Nitrogen pressure: 10 psi
 Vortex speed: 70%
 Temperature: 40° C

RapidVap® Vacuum Evaporators

Evaporation Rates

Solvent	Temperature	Vacuum	Overall Evaporation Rate
Methylene Chloride	50° C	200 mBar	0.56 ml/min./tube
Toluene	80° C	200 mBar	0.40 ml/min./tube
Acetonitrile	75° C	330 mBar	0.40 ml/min./tube
Water	80° C	133 mBar	0.08 ml/min./tube

Number of samples: 69

Tube diameter: 16 mm

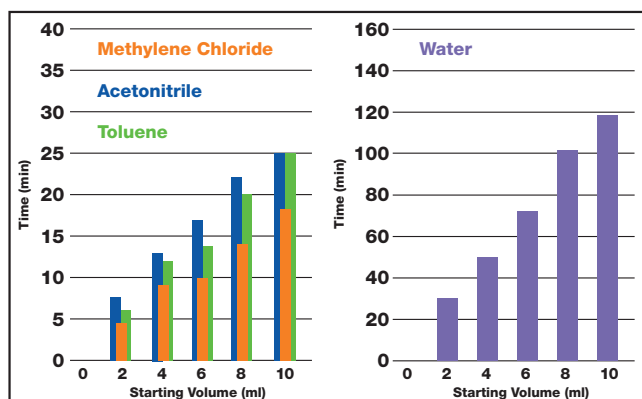
Block used: 7491400, 69 tube capacity

Ending volume: Dryness

Vortex speed: 95%

Vacuum pump displacement capacity: 88 L/min

Maximum attainable vacuum: 31 mBar



Solvent	Temperature	Vacuum	Overall Evaporation Rate
Methylene Chloride	50° C	200 mBar	4.8 ml/min/tube
Toluene	80° C	133 mBar	3.3 ml/min/tube
Acetonitrile	75° C	167 mBar	2.9 ml/min/tube
Water	80° C	133 mBar	0.75 ml/min/tube

Number of samples: 8

Tube used: 7909200, 600 ml tube, flat bottom, 75 mm diameter

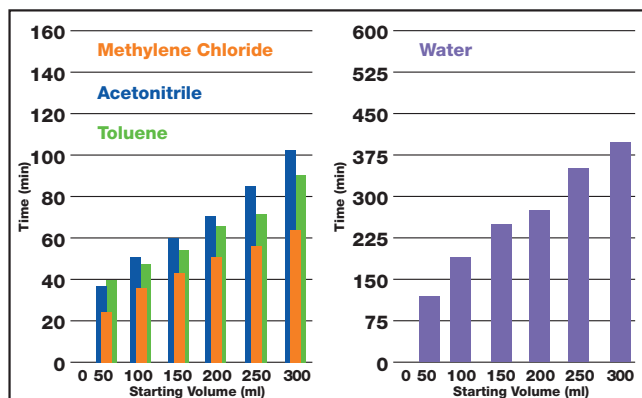
Block used: 7494500, 8 tube capacity

Ending volume: Dryness

Vortex speed: 28%

Vacuum pump displacement capacity: 88 L/min

Maximum attainable vacuum: 31 mBar

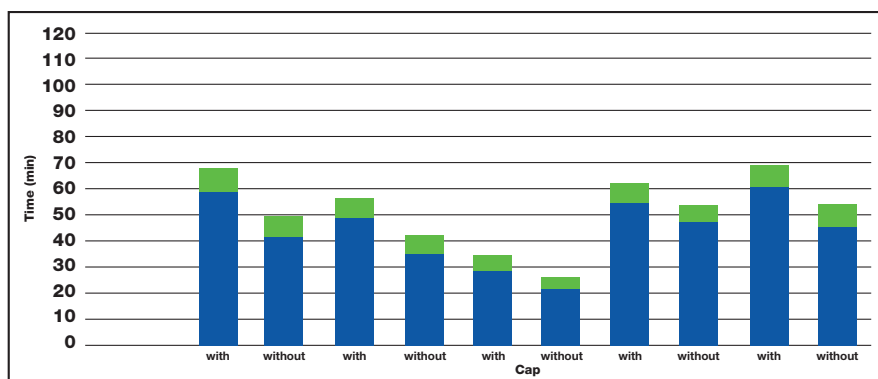
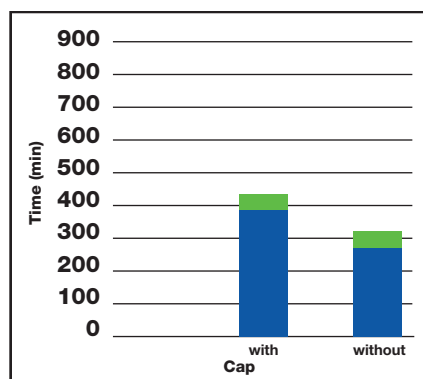


RapidVap® N₂ Evaporators

Evaporation Rates

The charts on this page indicate the evaporation times for the Rapid Evaporation Zone and the Cool-Zone. Times were determined with and without glassware caps over the sample tubes. Placing glassware caps over the sample tubes prevents contamination and prevents moisture from condensing in low boiling point solvents. The use of caps increases overall evaporation time from 10 to 80 percent. See page 22 for Glassware Caps.

Solvent	Evaporation Rate with cap	Evaporation Rate without cap
Water	0.79 ml/min/tube	1.1 ml/min/tube
Methylene Chloride	5.1 ml/min/tube	7.3 ml/min/tube
Ethyl Acetate	6.3 ml/min/tube	8.6 ml/min/tube
Hexanes	10.3 ml/min/tube	14.3 ml/min/tube
Acetone	5.6 ml/min/tube	6.4 ml/min/tube
Toluene	5.0 ml/min/tube	6.7 ml/min/tube



Cap	with	without
Solvent	Water	
Block Set Point Temperature	95° C	
Rapid Evaporation Zone Time (min)	379	266
Cool-Zone Time (min)		
1.5 ml*	23	23
1.0 ml*	43	43
0.5 ml*	75	75
Dry*	120	120

Cap	with	without	with	without	with	without	with	without	with	without
Solvent	Methylene Chloride		Ethyl Acetate		Hexanes		Acetone		Toluene	
Block Set Point Temperature	40° C		75° C		70° C		55° C		100° C	
Rapid Evaporation Zone Time (min)	59	41	48	35	29	21	54	47	60	45
Cool-Zone Time (min)										
1.5 ml*	4	4	4	4	2	2	3	3	5	5
1.0 ml*	9	9	7	7	5	5	7	7	9	9
0.5 ml*	17	17	13	13	8	8	12	12	15	15
Dry*	31	31	24	24	16	16	22	22	26	26

Number of samples: 8

Tube used: 7913900, 600 ml tube with 1.5 ml end point stem, 1.37" (3.5 cm) long

Starting volume: 300 ml

Ending volume: 1.0 ml

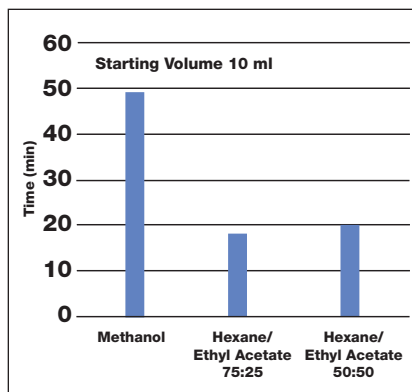
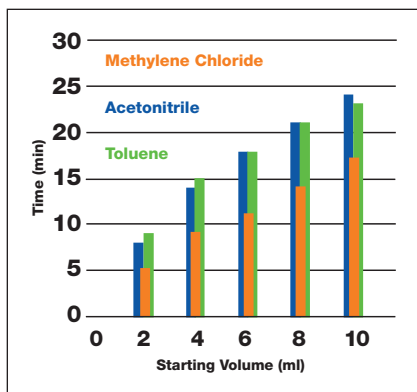
Nitrogen pressure: 10 psi

Vortex speed: 70% of maximum setting

*End point volume

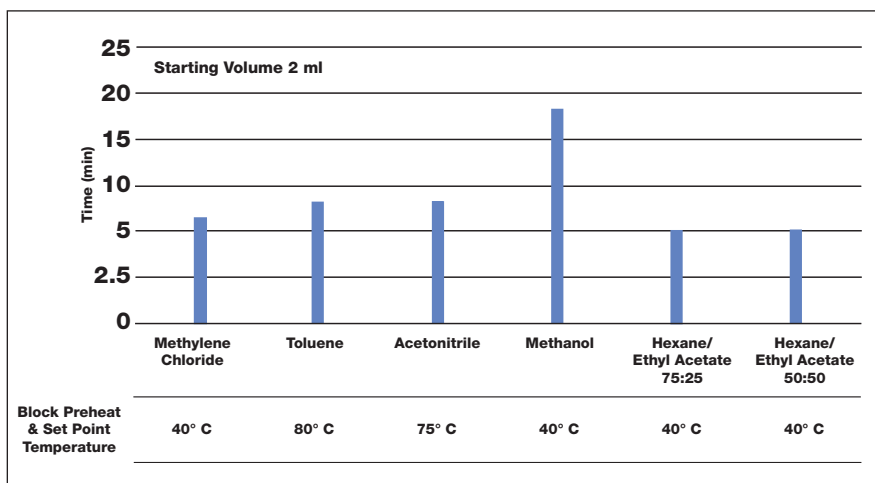
RapidVap® N₂/48 Evaporators

Evaporation Rates



Number of samples: 48
 Tube size: 20 mm
 Block used: 7482400, 48 tube capacity
 Ending volume: Dryness
 Nitrogen pressure: 20 psi
 Vortex speed: 100%

Solvent	Temperature	Overall Evaporation Rate
Methylene Chloride	50° C	0.59 ml/min/tube
Toluene	80° C	0.43 ml/min/tube
Acetonitrile	75° C	0.42 ml/min/tube
Methanol	40° C	0.20 ml/min/tube
Hexane/Ethyl Acetate 75:25	40° C	0.56 ml/min/tube
Hexane/Ethyl Acetate 50:50	40° C	0.50 ml/min/tube



Number of samples: 48
 Tube size: 12 mm
 Block used: 7482100, 48 tube capacity
 Ending volume: Dryness
 Nitrogen pressure: 8 psi
 Vortex speed: 100%

Solvent	Temperature	Overall Evaporation Rate
Methylene Chloride	40° C	0.33 ml/min/tube
Toluene	80° C	0.25 ml/min/tube
Acetonitrile	75° C	0.25 ml/min/tube
Methanol	40° C	0.11 ml/min/tube
Hexane/Ethyl Acetate 75:25	40° C	0.40 ml/min/tube
Hexane/Ethyl Acetate 50:50	40° C	0.40 ml/min/tube

Accessories

RapidVap Vacuum Evaporators



PTFE-Coated Aluminum Blocks. A block is required for all RapidVap Vacuum Evaporators. Blocks are interchangeable. Custom blocks to fit special glassware such as VOA vials are available on request. **Glassware is required (not included).** See below for ordering information on Flat-Bottom Tubes for Blocks 7494500 and 7186100. For glassware for all other Blocks, contact your laboratory supply dealer.

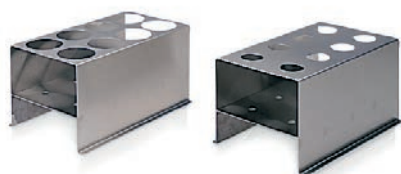
Catalog Number	Block Tube Capacity	Sample Tube Size	Sample Volume**	Shipping Weight
7491300	110	12 mm OD tubes, up to 6 ml*	4.5 ml	8.0 lbs. (3.6 kg)
7485800	110	13 mm OD tubes, up to 10 ml*	7.5 ml	8.0 lbs. (3.6 kg)
7491400	69	16 mm OD tubes, up to 23 ml*	17 ml	7.4 lbs. (3.4 kg)
7496300	69	15 ml conical centrifuge tubes, up to 15 ml*	11 ml	7.8 lbs. (3.5 kg)
7496400	26	28 mm OD scintillation tubes, up to 50 ml*	34 ml	8.3 lbs. (3.8 kg)
7494500	8	600 ml borosilicate glass tubes	450 ml	6.4 lbs. (2.9 kg)
7486400	8	170 ml borosilicate glass tubes	125 ml	8.2 lbs. (3.7 kg)

*Maximum tube height is 150 mm. ** Actual sample volumes depend on tube shape, height and vortex speed.



Flat-Bottom Tubes. Borosilicate glass tubes offer better fit and heat transfer for faster evaporation rates.

Catalog Number	Sample Tube Size	Sample Volume	For Block	Quantity per Package	Shipping Weight
7909200	600 ml	450 ml	7494500	1	1.0 lb. (0.4 kg)
7913408	600 ml	450 ml	7494500	8	4.0 lbs. (1.8 kg)
7927000	170 ml	125 ml	7486400	1	1.0 lb. (0.4 kg)
7927108	170 ml	125 ml	7486400	8	4 lbs. (1.8 kg)



Eight-Place Stainless Steel Racks. Hold tubes when loading and unloading RapidVap Vacuum Evaporator. **Tubes are not included.** Shipping weight 2.0 lbs. (0.9 kg)

Catalog Number	Sample Tube Size
7487600	600 ml
7486300	170 ml

7484300P—Glass Lid with Heater. For applications involving water or other high boiling point solvents, a Lid Heater improves visibility and eliminates solvent condensation. The glass lid, with 40-watt heater bonded to it, plugs into the RapidVap's rear electrical receptacle. For 115V or 230V operation. Shipping weight 0.5 lb. (0.2 kg)

Accessories

RapidVap Vacuum Evaporators



Diaphragm Vacuum Pumps. PTFE-coated wetted parts for corrosion resistance. Vacuum outlet is 1/2" OD. These pumps are not explosion-proof. Vacuum mBar: 1.5. Shipping weight 40 lbs. (18 kg)

Catalog Number	Electrical Specifications	Displacement Capacity
7393000	115V, 60 Hz, 3.5A	63 L/min
7393001*	230V, 50/60 Hz, 2A	57/63** L/min

*International electrical configuration. Power cord has reverse IEC plug. ** Displacement at 50/60 Hz.



7873400—Liquid Trap. Prevents liquid from entering the pump. Made of borosilicate glass. Trapping capacity is 2550 ml. Required accessory for Diaphragm Pump when using high boiling point solvents. Shipping weight 4.0 lbs. (1.8 kg)



Dry Ice Vacuum Traps. When dry ice and solvent are added to the well, these secondary traps cool to approximately -75° C (-103° F). Inlet and outlet vacuum connections are 1/2" OD.

Catalog Number	Dimensions (dia. x h)	Well Volume of Ice and Alcohol	Ice Trapping Capacity	Liquid Trapping Capacity	Shipping Weight
7538200	7 7/8" x 9 3/4" (20 x 24.8 cm)	2.85 L	900 ml	2 L	9.0 lbs. (4.1 kg)
7538400	6 5/8" x 7 7/8" (16.8 x 20 cm)	1.8 L	200 ml	1 L	5.0 lbs. (2.3 kg)



7348000—Trapping Valve. Aids in solvent recovery. Compatible with RapidVap Vacuum Evaporators manufactured after September 2016. Cold Trap is required (not included). See CentriVap Cold Traps on page 20. Shipping weight 8.0 lbs. (3.6 kg)

7814500—Vacuum Tubing Kit. For use when connecting accessory traps to a vacuum system. Includes two each 1/2" ID vacuum tubing, 48" length, and 4 tubing clamps. Shipping weight 6 lbs. (2.7 kg)

⚠ **WARNING:** Cancer — P65Warnings.ca.gov (California only)

Accessories

CentriVap® Cold Traps for Solvent Recovery with RapidVap Vacuum Evaporators



CentriVap -50° C Cold Trap



CentriVap -84° C Cold Trap



CentriVap -105° C Cold Trap

Catalog Number	Temperature	Lid	Electrical Requirements	Receptacle & Plug Type	Overall Dimensions (w x d x h)	Shipping Weight
7811020	-50° C (-58° F)	Acrylic	115V, 60 Hz, 7.0A	North America, 115V, 60 Hz	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811021	-50° C (-58° F)	Stainless Steel	115V, 60 Hz, 7.0A	North America, 115V, 60 Hz	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811040	-50° C (-58° F)	Acrylic	230V, 60 Hz, 3A	North America, 230V	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811041	-50° C (-58° F)	Stainless Steel	230V, 60 Hz, 3A	North America, 230V	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811030	-50° C (-58° F)	Acrylic	230V, 50 Hz, 3A	Schuko	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811031	-50° C (-58° F)	Stainless Steel	230V, 50 Hz, 3A	Schuko	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811035	-50° C (-58° F)	Acrylic	230V, 50 Hz, 3A	British (UK)	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811036	-50° C (-58° F)	Stainless Steel	230V, 50 Hz, 3A	British (UK)	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811037	-50° C (-58° F)	Acrylic	230V, 50 Hz, 3A	China/Australia	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7811038	-50° C (-58° F)	Stainless Steel	230V, 50 Hz, 3A	China/Australia	14.5" x 24.2" x 13.8"	80 lbs. (36 kg)
7460020	-84° C (-119° F)	Stainless Steel	115V, 60 Hz, 12A	North America, 115V, 60 Hz	14.5" x 22" x 20.9"	142 lbs. (64 kg)
7460040	-84° C (-119° F)	Stainless Steel	230V, 60 Hz, 6A	North America, 230V	14.5" x 22" x 20.9"	142 lbs. (64 kg)
7460030	-84° C (-119° F)	Stainless Steel	230V, 50 Hz, 6A	Schuko	14.5" x 22" x 20.9"	142 lbs. (64 kg)
7460035	-84° C (-119° F)	Stainless Steel	230V, 50 Hz, 6A	British (UK)	14.5" x 22" x 20.9"	142 lbs. (64 kg)
7460037	-84° C (-119° F)	Stainless Steel	230V, 50 Hz, 6A	China/Australia	14.5" x 22" x 20.9"	142 lbs. (64 kg)
7385020	-105° C (-157° F)	Stainless Steel	115V, 60 Hz, 13A	North America, 115V, 60 Hz	24.1" x 23.9" x 17.6"	170 lbs. (77 kg)
7385040	-105° C (-157° F)	Stainless Steel	230V, 60 Hz, 7A	North America, 230V	24.1" x 23.9" x 17.6"	170 lbs. (77 kg)
7385030	-105° C (-157° F)	Stainless Steel	230V, 50 Hz, 7A	Schuko	24.1" x 23.9" x 17.6"	170 lbs. (77 kg)
7385035	-105° C (-157° F)	Stainless Steel	230V, 50 Hz, 7A	British (UK)	24.1" x 23.9" x 17.6"	170 lbs. (77 kg)
7385037	-105° C (-157° F)	Stainless Steel	230V, 50 Hz, 7A	China/Australia	24.1" x 23.9" x 17.6"	170 lbs. (77 kg)

⚠ WARNING: Cancer — P65Warnings.ca.gov (California only)

Accessories

RapidVap N₂ and N₂/48 Evaporators



PTFE-Coated Aluminum Blocks. All RapidVap N₂ Evaporators include an 8-place PTFE-Coated Aluminum Block, 7494500. Additional blocks may be purchased for standby use. **All RapidVap N₂/48 Evaporators require a block (not included).** Custom blocks to fit special glassware such as VOA vials are available by request. **Glassware is required (not included).**

Catalog Number	Block Tube Capacity	Sample Tube Size	Sample Volume**	For Use With	Shipping Weight
7494500	8	600 ml borosilicate glass tubes, up to 600 ml	450 ml	N ₂ , N ₂ /48	6.4 lbs. (2.9 kg)
7486400	8	170 ml borosilicate glass tubes, up to 170 ml	125 ml	N ₂	8.2 lbs. (3.7 kg)
7482100	48	12 x 75 mm OD tubes, up to 6 ml	4.5 ml	N ₂ /48	8.0 lbs. (3.6 kg)
7482200	48	13 x 100 mm OD tubes, up to 10 ml	7.5 ml	N ₂ /48	8.0 lbs. (3.6 kg)
7482300	48	16 x 150 mm OD tubes, up to 23 ml	17 ml	N ₂ /48	7.4 lbs. (3.4 kg)
7482400	48	20 x 150 mm OD tubes, up to 35 ml	26 ml	N ₂ /48	7.8 lbs. (3.5 kg)

*Maximum tube height is 150 mm. ** Actual sample volumes depend on tube shape, height and vortex speed.



Borosilicate Glass Tubes. For use with RapidVap N₂ Evaporators only. The ground glass tubes offer better fit and heat transfer for faster evaporation rates. The stems are designed for use with Cool-Zone timed end point determinations. To minimize evaporation time, the tube with the correct end point stem should be used. For example, if an end point of 1.5 ml is desired, selecting Tube 7913500 with a maximum 3.0 ml end point volume would result in an unnecessarily long period required to evaporate the final 1.5 ml in the stem. Flat-bottom tubes are for use in applications when samples are taken to dryness. Use the chart below to select the correct tube for your sample volume size and desired end point volume.

Sample Volume	Desired End Point Volume	Tube Recommendations
up to 125 ml	Dryness	7927000, 7927108
up to 125 ml	≤1.5 ml	7926600, 7926908
up to 450 ml	Dryness	7909200, 7913408
up to 450 ml	≤1.5 ml	7925900, 7926008
up to 450 ml	0.6-1.5 ml	7913900, 7914000
up to 450 ml	1.6-2.0 ml	7913700, 7913808
up to 450 ml	2.1-3.0 ml	7913500, 7913608

600 ml Tubes with Stems. For Block 7494500. Each graduated 600 ml tube has a sample capacity of up to 450 ml when vortexing. **For use with RapidVap N₂ Evaporators only.** Shipping weight 1 lb. (0.4 kg) for quantity one; 4 lbs. (1.8 kg) for quantity eight.

Catalog Number (Quantity One)	Catalog Number (Quantity Eight)	End Point Volume	Calibration Markings
7925900	7926008	0.5 ml	0.5 ml
7913900	7914008	1.5 ml	1.5, 1.0 and 0.5 ml
7913700	7913808	2.0 ml	2.0 and 1.0 ml
7913500	7913608	3.0 ml	3.0, 2.0 and 1.0 ml

Accessories

RapidVap N₂ and N₂/48 Evaporators



170 ml Tubes with Stems. For Block 7486400. Each graduated 170 ml tube has a sample capacity of up to 125 ml when vortexing. **For use with RapidVap N₂ Evaporators only.** Shipping weight 1 lb. (0.4 kg) for quantity one; 4 lbs. (1.8 kg) for quantity eight.

Catalog Number	End Point Volume	Calibration Markings	Quantity Per Package
7926600	0.5 ml	1.5 ml	1
7926908	0.5 ml	1.5 ml	8



7909200



7927000

Flat-Bottom Tubes. Borosilicate glass tubes offer better fit and heat transfer for faster evaporation rates. **170 ml Tubes for use with RapidVap Vacuum and N₂ Evaporators only.**

Catalog Number	Sample Tube Size	Sample Volume	For Block	Quantity per Package	Shipping Weight
7909200	600 ml	450 ml	7494500	1	1.0 lb. (0.4 kg)
7913408	600 ml	450 ml	7494500	8	4.0 lbs. (1.8 kg)
7927000	170 ml	125 ml	7486400	1	1.0 lb. (0.4 kg)
7927108	170 ml	125 ml	7486400	8	4 lbs. (1.8 kg)



Eight-Place Stainless Steel Racks. Hold tubes when loading and unloading RapidVap Evaporators. **Tubes are not included.** Shipping weight 2.0 lbs. (0.9 kg)

Catalog Number	Sample Tube Size
7487600	600 ml
7486300	170 ml



Glassware Caps. Caps fit over Tubes Borosilicate Glass Tubes. Placing Caps on Tubes helps prevent cross contamination and moisture from condensing when using low boiling point solvents. Eight Polyethylene Glassware Caps are included with each RapidVap N₂ Evaporator. **For use with RapidVap N₂ Evaporators only.** Shipping weight 0.5 lb. (0.2 kg)

Catalog Number	Material	Description	Quantity per Package
7925500	Polyethylene	Fits 600 ml Tube	1
7925408	PTFE	Fits 600 ml Tube	8
7926808	PTFE	Fits 170 ml Tube	8



7302000—NitroVap 2LV Nitrogen Gas Generator. For NitroVap 2LV by Parker Hannifin produces up to 350 L/min of pure nitrogen at pressures up to 145 psi. With no electrical requirements, the NitroVap 2LV transforms standard compressed air into nitrogen and is ideal for use with RapidVap Evaporators. A supply of compressed air is required with a minimum flow rate of 335 L/min (11.8 scfm) at 50 psi and maximum flow rate of 660 L/min (23.3 scfm) at 150 psi. **For use with RapidVap N₂, N₂/48 and Vertex Evaporators only.**

RapidVap® Vertex™ Evaporators

Specifications

All models feature:

- Powder-coated steel exterior
- Glass lid
- * 900-watt dry block heating system
- 50 nitrogen-dispensing nozzles in five horizontal rows of 10
- 5 nitrogen control valves with on/off switches
- Front-mounted pressure regulator with analog display of pressure from 0 to 45 psi in 2 psi increments
- LCD with touchscreen programming and display of program number; set point temperature and actual system and sample/block temperatures in ° C or ° F; set point time and time remaining
- Microprocessor-controlled programming includes program number from 1 to 10, temperature of the system from 30° to 100° C (86° to 212° F), and time from 1 to 999 minutes or "ON." Memory stores 1 to 10 programs
- Temperature sensor probe for monitoring of block or sample temperature
- Built-in exhaust fan with blower
- On/off switch
- 6' (183 cm) of 2" (5 cm) ID polyethylene exhaust hose, with clamp
- 6' (183 cm) of flexible polyethylene tubing for nitrogen supply, with push-to-connect fitting
- One year warranty on materials and workmanship
- Overall dimensions with closed lid: 20.4" w x 13.0" d x 12.5" h (51.8 x 33.1 x 31.6 cm)
- Overall dimensions with open lid: 20.4" w x 13.0" d x 22.7" h (51.8 x 33.1 x 57.7 cm)
- Actual weight 35 lbs. (16 kg). Shipping weight 45 lbs. (20 kg)

Standards conformance & regulations:

- UL Standard 61010-1 (115V, 60 Hz and 230V, 50/60 Hz for North America models)
 - CAN/CSA C22.2 No. 61010-1 (115V, 60 Hz and 230V, 50/60 Hz for North America models)
 - CE Conformity marking (230V, 50/60 Hz for international models)
- ⚠ **WARNING:** Cancer—P65Warnings.ca.gov (California only)

Options include:

- Region-specific electrical plug configurations

All models require (not included):

- Aluminum Block. See page 9
- Sample tubes. Contact your laboratory supply dealer
- Nitrogen source with flow rate of 6.5 CFM/185 LPM minimum. Nitrogen pressure not to exceed 50 psi. Gas flow with 10 active nozzles is approximately 0.74 scfm @ 15 psi and 1.0 scfm @ 24 psi. Gas flow with 50 active nozzles is approximately 4.5 scfm @ 20 psi and 5.0 scfm @ 24 psi. A nitrogen generator is recommended. See page 22 for ordering information on the Nitro 2LV Nitrogen Generator or contact your nitrogen gas supplier

* Labconco exclusive feature



RapidVap® Vacuum Evaporators

Specifications

All models feature:

- Powder-coated aluminum base with acrylic/PVC thermoplastic upper housing
- Glass lid with polycarbonate shield
- Dual lid clamps
- Phenol-free gasket
- PTFE-coated aluminum chamber
- Rear-mounted 1/2" OD vacuum port, 30" of 1/2" ID vacuum tubing, two tubing clamps and lid heater receptacle
- 1000-watt dry block heating system
- * Microprocessor-controlled programming for vortex speed from 0 to 100%; heat from OFF to 100° C; time from 1 to 999 minutes; vacuum level from 0 to 999 mBar. Memory stores 1 to 9 programs
- LCD for display of program number and actual and set point vortex speeds, temperatures, time remaining, and point vacuum level
- Control panel with RUN/STOP button, PREHEAT/END ALARM button and indicator light, VACUUM RELEASE button and indicator light, set point selection buttons, and increase/decrease programming buttons
- Belt-driven, non-sparking, brushless DC motor with smooth variable-speed power to drive the vortex motion up to 1000 rpm
- Audible alarm for timed end point
- * Audible/visual alarm for end point detected by temperature sensors at heater and block
- Automatic vacuum release in the event of power failure
- All mechanical components isolated from chemical fumes and vapors
- 115V models include 6.5', three-wire electrical cord with 20A plug. A 20A minimum circuit breaker is required
- 230V models include 6.5', three-wire electrical cord with 15A plug. A 10A minimum circuit breaker is required
- Overall dimensions with closed lid: 20.7" w x 18.4" d x 13.5" h (52.6 x 46.7 x 34.3 cm)
- Overall dimensions with open lid: 20.7" w x 21.3" d x 24.9" h (52.6 x 54.1 x 63.2 cm)
- Actual weight 92 lbs. (42 kg). Shipping weight 100 lbs. (45 kg)

Standards conformance & regulations:

- UL Standard 61010-1 (115V, 60 Hz models)
 - CAN/CSA C22.2 No. 61010-1 (115V, 60 Hz models)
 - CE Conformity marking (230V, 50/60 Hz models)
- ⚠ **WARNING:** Cancer—P65Warnings.ca.gov (California only)

Options include:

- Glass lid with 40-watt heater
- RS-232 Link. RS-232 port, located on the rear of the unit, for two-way communication at 4800 baud, no parity, 8 bit word, 1 stop bit and 3-wire interface

All models require (not included):

- Vacuum Pump. See page 19
- Sample Block. See pages 18
- Glassware. See page 18 or contact your laboratory supply dealer

RapidVap Vacuum Evaporators should be located within a fume hood if hazardous or flammable solvents are used. In all cases, regardless of the solvent used, it is recommended that the vacuum pump be vented in a fume hood.

* Labconco exclusive feature



RapidVap® N₂ Evaporators

Specifications

All models feature:

- Powder-coated aluminum base with acrylic/PVC thermoplastic upper housing
- Glass lid
- Dual lid clamps
- Phenol-free gasket
- PTFE-coated aluminum chamber
- PTFE-coated aluminum sample block capable of holding 8 each 600 ml tubes. Glassware sold separately
- 1000-watt dry block heating system
- * Microprocessor-controlled programming for vortex speed from 0 to 100%; heat from OFF to 100° C; time from 1 to 999 minutes; and number of active nitrogen positions, 2, 4, 6 or 8. Memory stores 1 to 9 programs
- LCD for display of program number, actual and set point vortex speed, actual and set point temperature, time remaining, and number of active nitrogen positions. Memory stores 1 to 9 programs
- Control panel with RUN/STOP button, PREHEAT/END ALARM button and indicator light, set point selection buttons, and increase/decrease programming buttons
- Belt-driven, non-sparking, brushless DC motor with smooth variable-speed power to drive the vortex motion up to 500 rpm
- Audible alarm with automatic shut down for timed end point
- * Audible/visual alarm for end point detected by temperature sensors at heater and block
- Nitrogen inlet port supplied with a 1/4" male NPT thread
- All mechanical components isolated from chemical fumes and vapors
- Includes 8 polyethylene glassware caps, 6' of 2" dia. exhaust tubing, 78" of tubing for nitrogen supply and one tubing clamp
- 115V models include 6.5', three-wire electrical cord with 20A plug. A 15A minimum circuit breaker is required
- 230V models include 6.5', three-wire electrical cord with 15A plug. An 8A minimum circuit breaker is required
- Overall dimensions with closed lid: 21.7" w x 19.0" d x 13.5" h (55.1 x 48.3 x 34.3 cm)
- Overall dimensions with open lid: 21.7" w x 21.3" d x 24.9" h (55.1 x 54.1 x 63.2 cm)
- Actual weight 99 lbs. (45 kg). Shipping weight 107 lbs. (49 kg)

Standards conformance & regulations:

- UL Standard 61010-1 (115V, 60 Hz models)
 - CAN/CSA C22.2 No. 61010-1 (115V, 60 Hz models)
 - CE Conformity marking (230V, 50/60 Hz models)
- ⚠ **WARNING:** Cancer—P65Warnings.ca.gov (California only)

Options include:

- RS-232 Link. RS-232 port, located on the rear of the unit, for two-way communication at 4800 baud, no parity, 8 bit word, 1 stop bit and 3-wire interface

All models require (not included):

- Glassware. See pages 21-22
- Nitrogen source with a flow rate of 0.6 CFM/17 LPM minimum. See page 22 for ordering information on the Nitro 2LV Nitrogen Generator or contact your nitrogen gas supplier
- Gas pressure regulator. Pressure of 5-10 psi is typical. Pressure must not exceed 20 psi. Contact a local supplier

RapidVap N₂ Evaporators should be located within a fume hood if hazardous or flammable solvents are used. In all cases, regardless of the solvent used, it is recommended that the exhaust hose be vented into a fume hood or other laboratory ventilation device.

* Labconco exclusive feature



RapidVap® N₂/48 Evaporators

Specifications

All models feature:

- Powder-coated aluminum base with acrylic/PVC thermoplastic upper housing
- Glass lid
- Dual lid clamps
- Phenol-free gasket
- PTFE-coated aluminum chamber
- 1000-watt dry block heating system
- * Microprocessor-controlled programming for vortex speed from 0 to 100%; heat from OFF to 100° C; time from 1 to 999 minutes; and number of active nitrogen clusters, 2, 4, 6 or 8. Memory stores 1 to 9 programs
- LCD for display of program number, actual and set point vortex speed, actual and set point temperature, time remaining, and number of active nitrogen clusters
- Control panel with RUN/STOP button, PREHEAT/END ALARM button and indicator light, set point selection buttons, and increase/decrease programming buttons
- Belt-driven, non-sparking, brushless DC motor with smooth variable-speed power to drive the vortex motion up to 500 rpm
- Audible alarm with automatic shut down for timed end point
- * Audible/visual alarm for end point detected by temperature sensors at heater and block
- Nitrogen inlet hose, 1/4" ID
- All mechanical components isolated from chemical fumes and vapors
- Includes 6' of 2" dia. exhaust tubing, 78" of tubing for nitrogen supply and one tubing clamp
- 115V models include 6.5', three-wire electrical cord with 20A plug. A 15A minimum circuit breaker is required
- 230V models include 6.5', three-wire electrical cord with 15A plug. An 8A minimum circuit breaker is required
- Overall dimensions with closed lid: 21.7" w x 19.0" d x 13.5" h (55.1 x 48.3 x 34.3 cm)
- Overall dimensions with open lid: 21.7" w x 21.3" d x 24.9" h (55.1 x 54.1 x 63.2 cm)
- Actual weight 92 lbs. (42 kg). Shipping weight 100 lbs. (45 kg)

Standards conformance & regulations:

- UL Standard 61010-1 (115V, 60 Hz models)
 - CAN/CSA C22.2 No. 61010-1 (115V, 60 Hz models)
 - CE Conformity marking (230V, 50/60 Hz models)
- ⚠ **WARNING:** Cancer—P65Warnings.ca.gov (California only)

Options include:

- RS-232 Link. RS-232 port, located on the rear of the unit, for two-way communication at 4800 baud, no parity, 8 bit word, 1 stop bit and 3-wire interface

All models require (not included):

- Sample Block. See page 21
- Glassware. Contact your laboratory supply dealer
- Nitrogen with a flow rate of 3.5 CFM/100 LPM minimum. See page 22 for ordering information on the Nitro 2LV Nitrogen Generator or contact your nitrogen gas supplier
- Gas pressure regulator. Pressure of 5-10 psi is typical. Pressure must not exceed 20 psi. Contact a local supplier

RapidVap N₂/48 Evaporators should be located within a fume hood if hazardous or flammable solvents are used. In all cases, regardless of the solvent used, it is recommended that the exhaust hose be vented into a fume hood or other laboratory ventilation device.

* Labconco exclusive feature



RapidVap® Vertex™ Evaporators

Recovery Data

Test results show that the RapidVap Vertex Evaporator produces excellent recoveries of a wide range of compounds.

Procedure: A 15 ml sample consisting of a combination of several of the compounds listed below was prepared in duplicate along with a method blank of pure solvent and each sample or blank was added to a 20 x 150 mm tube and placed in Block 7322000. BNA mixtures were added to Methylene Chloride and run at 40° C and 12 psi nitrogen for approximately 30 minutes. A second set of samples was run at 40° C and 24 psi nitrogen for approximately 22 minutes. All other compound mixtures were added to Hexane and run at 70° C and 12 psi nitrogen for approximately 15 minutes. A second set of samples was run at 24 psi nitrogen for approximately 12 minutes. Ending volumes for all samples were approximately 1 ml. Recovery rates for the two samples were averaged and are shown below.

	% Recovery			% Recovery			% Recovery	
	@ 12 psi	@ 24 psi		@ 12 psi	@ 24 psi		@ 12 psi	@ 24 psi
BNAs (EPA 8270 method)								
N-Nitrosodimethylamine	111	107	Phenanthrene	100	105	Dimethoate	99	99
Phenol	94	96	Anthracene	92	100	Ronnel	105	106
Aniline	116	118	Di-n-butyl Phthalate	88	103	Chlorpyrifos	107	108
Bis(2-Chloroethyl) Ether	97	97	Fluoranthene	90	99	Methyl Parathion	110	110
2-Chlorophenol	92	93	Pyrene	103	103	Fenthion	106	106
1,3-Dichlorobenzene	85	89	Butyl Benzyl Phthalate	102	97	Malathion	108	108
1,4-Dichlorobenzene	85	88	Benzo[a]anthracene	104	100	Merphos	100	98
Benzyl Alcohol	90	100	Chrysene	104	102	Tokuthion (Prothiofos)	110	110
1,2-Dichlorobenzene	83	87	Bis[2-Ethylhexyl] Phthalate	101	100	Bolstar	107	106
2-Methylphenol	93	99	Di-n-octyl Phthalate	96	102	Fensulfothion	110	107
Bis(2-Chloroisopropyl) Ether	94	99	Indeno[1,2,3-cd]Pyrene	95	99	Methyl Azinphos	108	108
n-Nitroso-di-n-propylamine	90	103	Benzo[b]Fluoranthene	94	100	Coumaphos	97	99
(3 & 4)-Methylphenol	92	94	Benzo[k]Fluoranthene	97	100	EPN	102	99
Hexachloroethane	92	96	Benzo[a]Pyrene	96	99	Ethyl parathion	104	104
Nitrobenzene	96	100	Dibenz[a,h]anthracene	92	93	Sulfotepp	103	108
Isophorone	98	100	Benzo[ghi]perylene	90	93	Tetrachlorvinphos	109	110
2-Nitrophenol	90	96	Organochlorine Insecticides & Metabolites (EPA 8081 method)			Nitrogen/Phosphorous Herbicides & Insecticides (EPA 8141 method)		
2,4-Dimethylphenol	95	94	alpha-Chlordane	104	105	EPTC	103	101
Bis(2-Chloroethoxy)Methane	85	102	gamma-Chlordane	103	102	Butylate	104	104
2,4-Dichlorophenol	94	102	alpha-BHC	103	106	Propachlor	105	104
1,2,4-Trichlorobenzene	90	92	gamma-BHC (Lindane)	103	106	Trifluralin	98	93
Naphthalene	90	99	beta-BHC	105	107	Terbufos	97	97
4-Chloroaniline	109	111	Heptachlor	108	109	Atrazine	103	100
Hexachlorobutadiene	83	90	delta-BHC	107	110	Simazine	106	101
4-Chloro-3-methylphenol	89	90	Aldrin	102	103	Alachlor	105	102
2-Methylnaphthalene	96	107	Heptachlor Epoxide	105	107	Metribuzin	101	100
Hexachlorocyclopentadiene	65	76	Endosulfan I	107	108	Metolachlor	101	104
2,4,6-Trichlorophenol	85	92	4,4'-DDE	104	104	Pendimethalin	103	100
2,4,5-Trichlorophenol	74	79	Dieldrin	107	109	Butachlor	105	100
2-Chloronaphthalene	92	96	Endrin	104	106	Cyanazine	92	90
2-Nitroaniline	92	91	4,4'-DDD	112	115	Acetochlor	96	100
Dimethylphthalate	92	103	Endosulfan II	106	106	Chlorinated Phenoxy Herbicides (EPA 8151 method)		
Acenaphthylene	92	98	4,4'-DDT	112	112	Dalapon	69	70
2,6-Dinitrotoluene	99	106	Endrin Aldehyde	106	108	3,5-Dichlorobenzoic acid	102	103
3-Nitroaniline	96	108	Endosulfan Sulfate	116	114	Dicamba	98	101
Acenaphthene	87	89	Methoxychlor	106	106	Dichlorprop	104	104
2,4-Dinitrophenol	89	89	Endrin ketone	114	127	2,4-D	104	104
Dibenzofuran	88	91	Hexachlorobenzene	103	104	Pentachlorophenol	100	101
2,4-Dinitrotoluene	93	90	Organophosphorus Insecticides (EPA 8141 method)			2,4,5-TP (Silvex)	102	103
4-Nitrophenol	90	89	Naled	93	105	Chloramben	106	109
Diethyl Phthalate	95	93	Dichlorvos	105	100	2,4,5-T	104	104
Fluorene	90	100	Mevinphos	107	107	2,4-DB	105	105
4-Chlorophenyl Phenyl Ether	78	85	Ethoprop	92	104	Bentazon	105	106
4-Nitroaniline	103	110	Phorate	98	104	Picloram	113	114
4,6-Dinitro-2-methylphenol	90	103	Demeton, O & S	96	102	Dinoseb	104	104
N-Nitrosodiphenylamine	92	100	Diazinon	99	103	DCPA	104	104
Azobenzene	89	102	Disulfoton	93	101	Acifluorfen	112	114
4-Bromophenyl Phenyl Ether	97	102						
Hexachlorobenzene	89	94						
Pentachlorophenol	77	89						

RapidVap® Vacuum Evaporators

Recovery Data

Test results show that the RapidVap Vacuum Evaporator produces excellent recoveries of a wide range of compounds.

Procedure: Samples consisting of a combination of several of the compounds listed below were prepared and each of the resulting compound mixtures was added to a separate 600 ml flat-bottom sample tube containing 300 mL methylene chloride and placed in Block 7494500 in the RapidVap Evaporator 7900000. The following parameters were set: heat at 50° C, vortex speed at 28% of maximum, and vacuum of 250 mBar. The RapidVap was allowed to run continuously until the sample volume was reduced to 1 ml. A mass spectrometer was used to compare original compound amounts to the amounts detected in the reduced sample. Duplicates of the compound mixtures were tested and the percentages averaged.

% Recovery		% Recovery		% Recovery	
BNAs		Isophorone	76	Dimethoate	123
Compound		(3 & 4)-Methylphenol	73	Disulfoton	71
Acenaphthene	79	2-Methylnaphthalene	78	EPN	87
Acenaphthylene	80	2-Methylphenol	69	Ethoprosfos	89
Aniline	64	n-Nitroso-di-n-propylamine	90	Ethoprop	81
Anthracene	86	N-Nitrosodimethylamine	63	Ethyl Parathion	91
Azobenzene	84	N-Nitrosodiphenylamine	82	Fensulfothion	94
Benzo(a)anthracene	82	Naphthalene	71	Fenthion	77
Benzo(a)Pyrene	85	2-Nitroaniline	79	Malathion	87
Benzo(b)Fluoranthene	84	3-Nitroaniline	86	Merphos	84
Benzo(g,h,i)perylene	86	4-Nitroaniline	82	Methyl Azinphos	92
Benzo(k)Fluoranthene	87	Nitrobenzene	67	Methyl Parathion	85
Benzoic Acid	70	Nitrobenzene-d5 (SURR)	62	Mevinphos	110
Benzyl Alcohol	73	2-Nitrophenol	69	Monocrotophos	99
Bis(2-Chloroethoxy) Methane	75	4-Nitrophenol	87	Naled	78
Bis(2-Chloroethyl) Ether	67	p-Terphenyl-d14 (SURR)	84	Phorate	75
Bis(2-Chloroisopropyl) Ether	67	Pentachlorophenol	71	Ronnel	79
Bis(2-ethylhexyl)Phthalate	88	Phenanthrene	86	Sulfotepp	82
4-Bromophenyl Phenyl Ether	76	Phenol	69	TEPP	95
Butyl Benzyl Phthalate	85	Phenol-d6 (SURR)	64	Tokuthion*	79
4-Chloro-3-methylphenol	78	Pyrene	81	Trichloronate	80
4-Chloroaniline	90	Pyridine	59		
2-Chloronaphthalene	75	1,2,4-Trichlorobenzene	69	Semivolatile Organic Pesticides	
2-Chlorophenol	64	2,4,5-Trichlorophenol	75	Analyte	
4-Chlorophenyl Phenyl Ether	80	2,4,6-Tribromophenol (SURR)	74	Aldrin	83
Chrysene	86	2,4,6-Trichlorophenol	76	alpha-BHC	88
Dalapon	58			beta-BHC	100
Di-n-butyl Phthalate	86	Chlorinated Herbicides (Phenoxy)s		4,4'-DDD	87
Di-n-octyl Phthalate	89	Analyte		4,4'-DDE	83
Dibenzo(a,h)anthracene	84	Bentazon	95	4,4'-DDT	93
Dibenzofuran	82	Chloramben	116	delta-BHC	96
1,2-Dichlorobenzene	63	2,4-D	94	Dieldrin	83
1,3-Dichlorobenzene	62	2,4-DB	99	Endosulfan I	75
1,4-Dichlorobenzene	62	Dicamba	100	Endosulfan II	84
3,3'-Dichlorobenzidine	86	3,5-Dichlorobenzoic Acid	91	Endosulfan sulfate	93
2,4-Dichlorophenol	72	Dichlorprop	89	Endrin	90
Diethyl Phthalate	82	MCPA	80	Endrin Ketone	96
2,4-Dimethylphenol	68	MCPP	86	gamma-BHC (Lindane)	100
Dimethylphthalate	79	Pentachlorophenol	68	Heptachlor	83
4,6-Dinitro-2-methylphenol	81	Picloram	106	Heptachlor epoxide	79
2,4-Dinitrophenol	70	2,4,5-T	118	Methoxychlor	97
2,4-Dinitrotoluene	80	2,4,5-TP (Silvex)	92		
2,6-Dinitrotoluene	83	Tetrachloroterephthalic Acid	90		
Fluoranthene	85				
Fluorene	83	Organophosphorous Pesticides			
2-Fluorobiphenyl (SURR)	75	Analyte			
2-Fluorophenol (SURR)	46	Bolstar	85		
Hexachlorobenzene	84	Chlorpyrifos	83		
Hexachlorobutadiene	67	Coumaphos	90		
Hexachlorocyclopentadiene	58	Demeton, O & S	107	Testing conducted by	
Hexachloroethane	62	Diazinon	86	Keystone Laboratories, Inc.	
Indeno(1,2,3-cd)Pyrene	84	Dichlorvos	86	Newton, Iowa	

RapidVap® N₂ Evaporators

Recovery Data

Test results show that the RapidVap N₂ Evaporator produces excellent recoveries of a wide range of compounds.

Procedure: Samples consisting of a combination of several of the compounds listed below were prepared and each of the resulting compound mixtures was added to a separate 600 ml sample tube with 1.5 ml stems containing 300 ml methylene chloride and placed in the RapidVap N₂ Evaporator 7910000. Sample tubes were not capped. The following parameters were set: heat at 40° C, vortex speed at 60% of maximum, and nitrogen pressure of 10 psi. The RapidVap was allowed to run continuously until the sample volumes were reduced to 1 ml. A mass spectrometer was used to compare original compound amounts to the amounts detected in the reduced samples. Duplicates of the compound mixtures were tested and the percentages averaged.

% Recovery		% Recovery		% Recovery	
BNAs		2-Methylnaphthalene	83	Ethoprop	88
Analyte		(3 & 4)-Methylphenol	100	Ethyl Parathion	86
Acenaphthene	97	2-Methylphenol	100	Fensulfothion	100
Acenaphthylene	92	n-Nitroso-di-n-propylamine	73	Fenthion	89
Aniline	87	N-Nitrosodimethylamine	83	Malathion	92
Anthracene	91	N-Nitrosodiphenylamine	85	Merphos	93
Azobenzene	83	Naphthalene	94	Methyl Azinphos	99
Benzo(a)anthracene	97	2-Nitroaniline	85	Methyl Parathion	84
Benzo(a)Pyrene	91	3-Nitroaniline	92	Mevinphos	88
Benzo(b)Fluoranthene	96	4-Nitroaniline	95	Monocrotophos	82
Benzo(g,h,i)perylene	82	Nitrobenzene	77	Naled	83
Benzo(k)Fluoranthene	100	Nitrobenzene-d5 (SURR)	77	Phorate	79
Benzoic Acid	100	2-Nitrophenol	98	Ronnel	85
Benzyl Alcohol	80	4-Nitrophenol	100	TEPP	59
Bis(2-Chloroethoxy) Methane	81	p-Terphenyl-d14 (SURR)	87	Tokuthion	88
Bis(2-Chloroethyl) Ether	76	Pentachlorophenol	100	Trichloronate	85
Bis(2-Chloroisopropyl) Ether	67	Phenanthrene	91		
Bis(2-ethylhexyl)Phthalate	93	Phenol	95	Semivolatile Organic Pesticides	
4-Bromophenyl Phenyl Ether	86	Phenol-d6 (SURR)	76	Analyte	
Butyl Benzyl Phthalate	94	Pyrene	96	Aldrin	84
4-Chloro-3-methylphenol	91	Pyridine	6	alpha-BHC	88
4-Chloroaniline	99	2,4,6-Tribromophenol (SURR)	79	beta-BHC	86
2-Chloronaphthalene	76	2,4,5-Trichlorophenol	94	4,4'-DDD	90
2-Chlorophenol	95	2,4,6-Trichlorophenol	96	4,4'-DDE	86
4-Chlorophenyl Phenyl Ether	82			4,4'-DDT	96
Chrysene	96	Chlorinated Herbicides (Phenoxy)s		delta-BHC	92
Di-n-butyl Phthalate	87	Analyte		Dieldrin	87
Di-n-octyl Phthalate	90	Acifluorfen	100	Endosulfan I	92
Dibenzo(a,h)anthracene	92	Bentazon	93	Endosulfan II	93
Dibenzofuran	78	Chloramben	46	Endosulfan sulfate	87
1,2-Dichlorobenzene	78	2,4-D	100	Endrin	92
1,3-Dichlorobenzene	75	2,4-DB	93	gamma-BHC (Lindane)	84
1,4-Dichlorobenzene	75	Dicamba	87	Heptachlor	84
3,3'-Dichlorobenzidine	97	3,5-Dichlorobenzoic Acid	83	Heptachlor epoxide	92
2,4-Dichlorophenol	97	Dichlorprop	82	Methoxychlor	96
Diethyl Phthalate	85	4-Nitrophenol	100		
2,4-Dimethylphenol	100	MCPA	80		
Dimethylphthalate	80	MCPP	78		
4,6-Dinitro-2-methylphenol	100	Pentachlorophenol	82		
2,4-Dinitrophenol	100	2,4,5-T	78		
2,4-Dinitrotoluene	82	2,4,5-TP (Silvex)	85		
2,6-Dinitrotoluene	83				
Fluoranthene	100	Organophosphorous Pesticides			
Fluorene	97	Analyte			
2-Fluorobiphenyl (SURR)	79	Bolstar	89		
2-Fluorophenol (SURR)	77	Chlorpyrifos	86		
Hexachlorobenzene	84	Coumaphos	98		
Hexachlorobutadiene	78	Demeton, O & S	82		
Hexachlorocyclopentadiene	73	Diazinon	89		
Hexachloroethane	71	Dichlorvos	83		
Indeno(1,2,3-cd)Pyrene	86	Disulfoton	72		
Isophorone	77	EPN	88		
				Testing conducted by	
				Keystone Laboratories, Inc.	
				Newton, Iowa	

RapidVap® N₂/48 Evaporators

Recovery Data

Test results show that the RapidVap N₂/48 Evaporator produces excellent recoveries of a wide range of analytes. Carryover from one tube to another was not detectable.

Procedure: Samples consisting of a combination of several of the analytes listed below were prepared and each of the resulting analyte mixtures was added to a separate 20 mm sample tube containing 10 ml methylene chloride and placed in the RapidVap N₂/48 Evaporator 7910012. The following parameters were set: heat at 40° C, vortex speed at 100% of maximum, and nitrogen pressure of 15 psi. The RapidVap was allowed to run continuously until the sample volumes were reduced to 1 ml. A mass spectrometer was used to compare original compound amounts to the amounts detected in the reduced samples. Duplicates of the analyte mixtures were tested and the percentages averaged.

% Recovery		% Recovery		% Recovery	
BNAs		Dibenzo(a,h) Anthracene	88.2	Demeton	90.7
Analyte		Dibenzofuran	95.0	Diazinon	97.4
1,2,4-Trichlorobenzene	86.3	Diethyl Phthalate	96.7	Dichlorvos	94.2
1,2-Dichlorobenzene	78.7	Dimethyl Phthalate	96.5	Disulfoton	99.9
1,3-Dichlorobenzene	78.2	Di-n-butyl Phthalate	98.4	EPN	94.8
1,4-Dichlorobenzene	78.6	Di-n-octyl Phthalate	95.9	Ethoprop	98.8
2,4,5-Trichlorophenol	95.5	Fluoranthene	98.1	Fensulfothion	75.9
2,4,6-Tribromophenol (SURRE)	92.6	Fluorene	96.7	Fenthion	97.8
2,4,6-Trichlorophenol	92.5	Hexachlorobenzene	95.9	Malathion	89.2
2,4-Dichlorophenol	89.1	Hexachlorobutadiene	84.0	Merphos	95.5
2,4-Dimethylphenol	89.6	Hexachlorocyclopentadiene	90.3	Methyl Parathion	100.0
2,4-Dinitrophenol	89.3	Hexachloroethane	80.2	Mevinphos	94.8
2,4-Dinitrotoluene	96.7	Indeno(1,2,3-cd) Pyrene	87.9	Monocrotophos	87.9
2,6-Dinitrotoluene	96.9	Isophorone	94.7	Naled	99.9
2-Chloronaphthalene	94.1	Naphthalene	88.7	Phorate	98.4
2-Chlorophenol	82.2	Nitrobenzene	87.9	Ronnel	98.0
2-Fluorobiphenyl (SURRE)	93.5	Nitrobenzene-d5 (SURRE)	87.8	TEPP	63.4
2-Fluorophenol (SURRE)	78.1	N-Nitrosodimethylamine	75.9	Tokuthion	100.0
2-Methylnaphthalene	92.6	N-Nitroso-Di-n-propylamine	91.7	Trichloronate	98.1
2-Methylphenol	88.9	N-Nitrosodiphenylamine	100.0		
2-Nitroaniline	95.5	Pentachlorophenol	93.7	Semivolatile Organic Pesticides	
2-Nitrophenol	87.9	Phenanthrene	96.9	Analyte	
3 & 4-Methylphenol	88.5	Phenol	84.5	4,4-DDD	95.7
3,3-Dichlorobenzidine	100.0	Phenol-d6 (SURRE)	87.3	4,4-DDE	97.3
3-Nitroaniline	100.0	p-Terphenyl-d14 (SURRE)	98.1	4,4-DDT	99.7
4,6-Dinitro-2-Methylphenol	94.4	Pyrene	96.9	Aldrin	97.9
4-Bromophenyl Phenyl Ether	96.4	Pyridine	74.5	alpha-BHC	97.4
4-Chloro-3-Methylphenol	95.5			beta-BHC	98.1
4-Chloroaniline	98.7	Chlorinated Herbicides (Phenoxy)		delta-BHC	96.8
4-Chlorophenyl-Phenyl Ether	96.3	Analyte		Dieldrin	96.3
4-Nitroaniline	100.0	2,4,5-T	100	Endosulfan I	97.0
4-Nitrophenol	95.5	2,4-D	100	Endosulfan II	98.7
Acenaphthene	95.6	2,4-DB	53	Endosulfan Sulfate	99.6
Acenaphthylene	96.8	3,5-Dichlorobenzoic Acid	100	Endrin	99.0
Aniline	88.8	4-Nitrophenol	70	Endrin Aldehyde	97.0
Anthracene	96.1	Acifluorfen	100	Endrin Ketone	98.0
Azobenzene	94.2	Bentazon	100	gamma-BHC	96.1
Benzidine	96.0	Chloramben	100	Heptachlor	97.5
Benzo(a) Pyrene	95.1	Dalapon	89	Heptachlor Epoxide	99.4
Benzo(a) Anthracene	97.7	Dicamba	100	Methoxychlor	96.6
Benzo(b) Fluoranthene	96.4	Dichloroprop	100		
Benzo(g,h,i) Perylene	88.3	Dinoseb	100		
Benzo(k) Fluoranthene	95.8	MCPA	100		
Benzoic Acid	87.2	MCPP	100		
Benzyl Alcohol	91.5	Pentachlorophenol	100		
Bis-(2-Chloroethoxy) Methane	92.5	Picloram	96		
Bis(2-Chloroethyl) Ether	83.2	Silvex	100		
Bis(2-Chloroisopropyl) Ether	84.6				
Bis(2-Ethylhexyl) Phthalate	97.8	Organophosphorous Pesticides			
Butyl Benzyl Phthalate	97.7	Analyte		Testing conducted by	
Carbazole	100.0	Chlorpyrifos	98.6	Keystone Laboratories, Inc.	
Chrysene	99.0	Coumaphos	99.8	Newton, Iowa	

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