



# Everything's flowing smoothly

Varispenser®, Varispenser® plus and Top Buret

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**eppendorf**

# Reliable long-lasting precision

## Varispenser® and Varispenser® plus

Our Varispenser and Varispenser plus are ideal for dispensing aliquots of liquid from large supply bottles. Their smart design makes them capable of extracting reproducible dispensing volumes with no reagent waste.

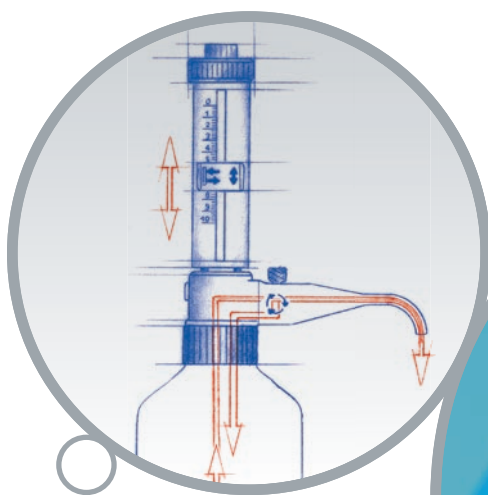
Their tight seal provides the best possible protection against contact with caustic media, such as solvents, and they are chemically resistant and fully autoclavable for the utmost in safety for you and your lab.

### Varispenser/Varispenser plus features

- Extensive volume range (6 sizes)
- Highly resistant to chemicals
- Rapid volume setting using precise graduation scale
- PFA-sealing of the slide piston prevents jamming
- Wiping piston design prevents crystallization of liquid
- Telescopic filling tube for use with most bottles
- Easy disassembling and cleaning
- Completely autoclavable without disassembling

### Varispenser plus features

- Fine adjustment depending on viscosity of liquid
- Recirculation valve reduces waste by channeling reagent back into the bottle during priming



- The Varispenser plus features a patented recirculation valve with valve toggle



## Application area for Varispenser®/Varispenser® plus

For each chemical, 2 numbers are given. The numbers on the left display the stability at a test temperature of +20 °C, the numbers on the right the stability at +50 °C.

Salts were tested as almost saturated solutions.  
All data are recommendations without guarantee.  
**1 = usable, 2 = limited usage, 3 = not usable**

Materials ▾	PP Adapter rings				
	Varispenser can be used				
	borosilicate glass 3.3				
	PTFE				
	PFA				
Chemicals ▾					
<b>A</b>					
Acetaldehyde	1/1	1/1	1/1	1/1	1/3*1
Acetic acid 50%	1/1	1/1	1/1	1/1	1/1
Acetone *4	1/1	1/1	1/1	1/1	1/1
Acetonitrile *4	1/1	1/1	1/1	1/1	2/3*1
Acrylonitrile	1/1	1/1	1/1	1/1	2/3*1
Adipic acid	1/1	1/1	1/1	1/1	1/1
Allyl alcohol	1/1	1/1	1/1	1/1	1/1
Aluminum chloride solution	1/1	1/1	1/1	1/1	1/1
Aluminum hydroxide	1/1	1/1	1/1	1/1	1/1
Amino acids	1/1	1/1	1/1	1/1	1/1
Ammonium chloride solution	1/1	1/1	1/1	1/1	1/1
Ammonium hydroxide 25%	1/1	1/1	1/1	1/1	1/1
n-Amyl acetate	1/1	1/1	1/1	1/1	2/3*1
Amyl alcohol	1/1	1/1	1/1	1/1	1/1
Amyl chloride	1/1	1/1	1/1	1/1	3/3*1
Aniline	1/1	1/1	1/1	1/1	1/1
<b>B</b>					
Barium chloride (BaCl <sub>2</sub> )	1/1	1/1	1/1	1/1	1/1
Benzaldehyde	1/2	1/1	1/1	1/2	1/1
Benzene	1/1	1/1	1/1	1/1	1/2*1
Benzine	1/1	1/1	1/1	1/1	2/2*1
Benzyl alcohol	1/1	1/1	1/1	1/1	3/3*1
Boric acid	1/1	1/1	1/1	1/1	1/1
n-Butanol	1/1	1/1	1/1	1/1	1/1
n-Butyl acetate	1/1	1/1	1/1	1/1	2/2*1
<b>C</b>					
Calcium chloride	1/1	1/1	1/1	1/1	1/1
Chloroacetic acid	1/1	1/1	1/1	1/1	1/1
Chromic acid 10%	1/1	1/1	1/1	1/1	1/1
Chromic acid 50% *2	1/1	1/1	1/1	1/1	2/2*1
Chromic sulfuric acid, conc. *2	1/1	1/1	1/1	1/1	3/3*1
Cresol	1/1	1/1	1/1	1/1	1/2*1
Cupric sulphate	1/1	1/1	1/1	1/1	1/1
<b>D</b>					
Dibutyl phthalate	1/1	1/1	1/1	1/1	1/2*1
Dichlorobenzene	1/1	1/1	1/1	1/1	2/3*1
Dichlorethane (Ethyl dichloride) *4	1/1	1/1	1/1	1/1	2/3*1
Dichlormethane (Methylene chloride) *4	1/1	1/1	1/1	1/1	2/3*1
Diethylene glycol	1/1	1/1	1/1	1/1	1/1
Diethyl ether	1/1	1/1	1/1	1/1	2/3*1
Dimethylformamide	1/1	1/1	1/1	1/1	1/3*1
1,4-Dioxan	1/1	1/1	1/1	1/1	2/2*1

\*1 PTFE adapter available.  
\*2 Pt-Ir can be easily loosened from the spring.  
\*3 Liquid with high viscosity.

Materials ▾	PP Adapter rings				
	Varispenser can be used				
	borosilicate glass 3.3				
	PTFE				
	PFA				
Chemicals ▾					
<b>E F</b>					
Ethanol 100% (Ethyl alcohol)	1/1	1/1	1/1	1/1	1/1
Ethyl acetate	1/1	1/1	1/1	1/1	1/1
Formaldehyde 40%	1/1	1/1	1/1	1/1	1/1
Formic acid 98–100% *5	1/1	1/1	1/1	1/1	1/1
Fuel oil	1/1	1/1	1/1	1/1	1/1
<b>G H</b>					
Glycerol *3	1/1	1/1	1/1	1/1	1/1
Glycol	1/1	1/1	1/1	1/1	1/1
Hexane	1/1	1/1	1/1	1/1	2/3*1
Hydrochloric acid 35% *4	1/1	1/1	1/1	1/1	1/1
Hydrochloric acid 37% *4	1/1	1/1	1/1	1/1	1/3*1
<b>I K</b>					
Iodine-potassium iodide sol.	1/1	1/1	1/1	1/1	1/1
Isobutanol (Isobutyl alcohol)	1/1	1/1	1/1	1/1	1/1
Isopropanol (Isopropyl alcohol)	1/1	1/1	1/1	1/1	1/1
<b>L M</b>					
Lactic acid (Salts: Lactates)	1/1	1/1	1/1	1/1	1/1
Magnesium chloride (MgCl)	1/1	1/1	1/1	1/1	1/1
Mercury (I) chloride	1/1	1/1	1/1	1/1	1/1
Methanol (Methyl alcohol) *4	1/1	1/1	1/1	1/1	1/1
Methyl propyl ketone	1/1	1/1	1/1	1/1	1/2*1
<b>N</b>					
Nitric acid 30%	1/1	1/1	1/1	1/1	1/1
Nitrobenzene	1/1	1/1	1/1	1/1	3/3*1
<b>O P</b>					
Octane/Iso octane	1/1	1/1	1/1	1/1	3/3*1
Oil of turpentine	1/1	1/1	1/1	1/1	3/3*1
Oxalic acid	1/1	1/1	1/1	1/1	1/1
Pentane (n-/Iso-) *4	1/1	1/1	1/1	1/1	3/3*1
Perchloric acid 10%	1/2	1/1	1/1	1/2	1/3*1
Phenol (saturated aqueous solution)	1/1	1/1	1/1	1/1	1/1
Phosphoric acid 85%	1/1	1/1	2/3	2/3	1/1
Potassium chloride	1/1	1/1	1/1	1/1	1/1
Potassium hydroxide 50%	1/1	1/1	1/2	1/2	1/1
Potassium permanganate	1/1	1/1	1/1	1/1	1/1
Propanol	1/1	1/1	1/1	1/1	1/1
Propylene glycol	1/1	1/1	1/1	1/1	1/1
Propylene oxide	1/1	1/1	1/1	1/1	1/1
Pyridine	1/1	1/1	1/1	1/1	2/2*1

\*4 Liquid with high vapor pressure; gases leak (observe safety regulations).  
\*5 Intensive cleaning is necessary after use  
\*6 May lead to foam formation

## Application area for Varispenser®/Varispenser® plus

For each chemical, 2 numbers are given. The numbers on the left display the stability at a test temperature of +20 °C, the numbers on the right the stability at +50 °C.

Materials ▾	PP Adapter rings					
	Varispenser can be used					
Chemicals ▾	borosilicate glass 3.3					
	PTFE					
	PFA					
S						
Salicylaldehyde	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Salicylic acid	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Scintillation cocktail	1/1	1/1	1/1	<b>1/1</b>	2/3 <sup>*1</sup>	1/1
Silver acetate	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Silver nitrate	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Sodium acetate	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Sodium dichromate	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Sodium hydroxide 30%	1/1	1/1	1/2	<b>1/2</b>	1/1	1/1
Sulphuric acid 60%	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Sulphuric acid 98%	1/1	1/1	1/1	<b>1/1</b>	3/3 <sup>*1</sup>	1/1

<sup>\*1</sup> PTFE adapter available.  
<sup>\*2</sup> Pt-Ir can be easily loosened from the spring.  
<sup>\*3</sup> Liquid with high viscosity.

Salts were tested as almost saturated solutions.  
 All data are recommendations without guarantee.

**1 = usable, 2 = limited usage, 3 = not usable**

Materials ▾	PP Adapter rings					
	Varispenser can be used					
Chemicals ▾	borosilicate glass 3.3					
	PTFE					
	PFA					
TU						
Tartaric acid		1/1	1/1	1/1	<b>1/1</b>	1/1
Tenside (Tween®, Triton® X-, Brij®-dilutions) <sup>*6</sup> }	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Toluene	1/1	1/1	1/1	<b>1/1</b>	2/3 <sup>*1</sup>	1/1
Trichloroacetic acid 10%	1/1	1/1	1/1	<b>1/1</b>	1/1 <sup>*1</sup>	1/1
Triethylene glycol	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Tripropylenglycol	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Urea	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
X Z						
Xylene	1/1	1/1	1/1	<b>1/1</b>	3/3 <sup>*1</sup>	1/1
Zinc chloride 10%	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1
Zinc sulphate 10%	1/1	1/1	1/1	<b>1/1</b>	1/1	1/1

<sup>\*4</sup> Liquid with high vapor pressure; gases leak (observe safety regulations).  
<sup>\*5</sup> Intensive cleaning is necessary after use  
<sup>\*6</sup> May lead to foam formation

# Quantity meets quality

## Top Buret

Our innovative Top Buret sets new standards for manual titration. Its pulse-free dispensing technique allows the desired volumes to be dispensed continuously, thus making titration simpler and safer, with precision values well within required limits.

The volume is dispensed by simply rotating the wheels: Model M features a dispensing rate of 2,500  $\mu\text{l}$  per rotation; Model H features a rate of 5,000  $\mu\text{l}$  per rotation. The display readings on both models range from 0.01 ml to 999.9 ml.

This bottle top buret is extremely sturdy, and its user-friendly display and control features provide simple, fatigue-free operation.

### Top Buret features

- Continuous, pulse-free dispensing technique for rapid titration
- Recirculation valve with valve toggle
- Dispensing range from 0.01 ml to 999.9 ml
- Highly resistant to chemicals
- Voltage supply with long-life primary cells and charging display
- Removable electronics unit
- Modular, service-friendly construction
- Simple calibration program
- Discharge tube can be rotated a full 360°
- Adjustable discharge tube  
horizontal: 142–220 mm, vertical: 10–200 mm
- Telescopic filling tube for automatically setting the length from 210 mm to 370 mm



- Thread adapters for all commonly used bottle types provide maximum flexibility for the user

## Recommended application area of the Top Buret

### Recommended application area of the Top Buret

The Top Buret is suitable for dispensing of titration media up to a maximum concentration of 2 mol/l.

Index	Chemicals
<b>A</b>	Acetic acid
	Alcoholic potassium hydroxide solution
	Ammonium iron (II) sulfate solution
	Ammonium thiocyanate solution
<b>B</b>	Barium chloride solution
	Bromide bromate solution
<b>C</b>	Cerium (IV) sulfate solution
<b>E</b>	EDTA solution (ethylenediamine tetraacetic acid)
<b>H</b>	Hydrochloric acid
<b>I</b>	Iodine solution
	Iron (II) sulfate solution
<b>N</b>	Nitric acid
<b>O</b>	Oxalic acid solution
<b>P</b>	Perchloric acid
	Potassium bromate solution
	Potassium bromide bromate solution

These informations are valid for usage, only. Storage might lead to crystal formation. Please rinse device daily when chemical is subject to crystallization. The recommendations

Index	Chemicals
<b>P</b>	Potassium dichromate solution
	Potassium hydroxide solution
	Potassium iodate solution
<b>S</b>	Potassium permanganate solution
	Potassium thiocyanate solution
	Silver nitrate solution
	Sodium arsenite solution
	Sodium carbonate solution
	Sodium chloride solution
	Sodium hydroxide solution
	Sodium nitrite solution
	Sodium thiosulfate solution
	Sulphuric acid
<b>T</b>	Tetra-n-butylammonium hydroxide solution
<b>Z</b>	Zinc sulfate solution

are carefully checked and correspond to the current state of knowledge. If you need statements for chemicals which are not given in the list, please do not hesitate to contact us.

### Materials of Varispenser, Varispenser plus and Top Buret

Part	Varispenser	Varispenser plus	Top Buret
<b>Direct contact to dispensing fluid</b>			
Valve head	PFA	PFA	PFA
Telescopic intake tube	FEP/ETFE/PTFE	FEP/ETFE/PTFE	FEP/ETFE/PTFE
Intake valve/valve ball	ETFE/borosilicate glass 3.3	ETFE/borosilicate glass 3.3	–
Dosing unit (piston-/cylinder-unit with intake valve)	–	–	PFA/Pt-Ir/PTFE/borosilicate glass 3.3
Cylinder	ETFE/borosilicate glass 3.3	ETFE/borosilicate glass 3.3	see dosing unit
Piston head	PFA	PFA	see dosing unit
Discharge valve incl. recirculation valve	–	PFA/PTFE/Pt-Ir/borosilicate glass 3.3	PFA/PTFE/Pt-Ir/borosilicate glass 3.3
Discharge valve	PFA/Pt-Ir/borosilicate glass 3.3	–	–
Discharge tube	FEP	FEP	FEP
<b>Indirect contact to dispensing fluid</b>			
Valve head casing	PP	PP	PP
Piston rod	EFTE	EFTE	see dosing unit
Piston seat	PP	PP	–
Cylinder casing	PP	PP	–
Protective cylinder sleeve	PP	PP	–
Discharge tube support	PP	PP	PP
Discharge tube closure cap	PVDF	PVDF	PVDF
Ventilation cover	PP	PP	PP
Volume adjustment knob	–	PP	–
Hand wheels	–	–	PP
O-ring for valve cock protection	–	FKM	FKM
Volume setting knob	PP	PP	–
Discharge valve toggle	–	PP	PP
Drying tube (optional)	PP	PP	PP
Thread adapter	PP	PP	PP
Casing	–	–	PP
Display	–	–	Polyester

## Technical specifications and Ordering information

### Technical specifications, Varispenser®/Varispenser® plus

Size	Volume range	Dispensing steps	Inaccuracy	Imprecision
1	0.50–2.50 ml	0.05 ml	±0.6%	≤0.1%
2	1.00–5.00 ml	0.10 ml	±0.5%	≤0.1%
3	2.00–10.0 ml	0.20 ml	±0.5%	≤0.1%
4	5.00–25.0 ml	0.50 ml	±0.5%	≤0.1%
5	10.0–50.0 ml	1.00 ml	±0.5%	≤0.1%
6	20.0–100.0 ml	2.00 ml	±0.5%	≤0.1%
Liquid:	Bidistilled water			
Temperature:	20 °C constant to ±0.5 °C			
Number of determinations:	10, in accordance with EN ISO 8655			

### Ordering information

#### Varispenser:

Bottle top dispenser for external bottle threads of 32 mm (sizes 1, 2 and 3) or 45 mm or 45 mm (sizes 4, 5 and 6), complete with telescopic tube, tool and 3 adapters (see below). Quality certificate.

**Varispenser plus:** same as Varispenser, plus recirculation valve, valve toggle and media-specific fine adjustment

Size (mm)	Volume range	With 3 adapters for outer diameters (mm)	Order no. Varispenser plus	Order no. Varispenser
1	0.50–2.50 ml	28, 40, 45	4961 000.012	4960 000.019
2	1.00–5.00 ml	28, 40, 45	4961 000.020	4960 000.027
3	2.00–10.0 ml	28, 40, 45	4961 000.039	4960 000.035
4	5.00–25.0 ml	32, 38, 40	4961 000.047	4960 000.043
5	10.0–50.0 ml	32, 38, 40	4961 000.055	4960 000.051
6	20.0–100.0 ml	32, 38, 40	4961 000.063	4960 000.060
<b>Discharge tube, spiral</b>				
80 cm for Varispenser/Varispenser plus, up to 10 ml				4960 824.003
80 cm for Varispenser/Varispenser plus, for 25–100 ml				4960 825.000

**Top Buret:** Bottle top burette with recirculation valve, valve toggle, telescopic filling tube, adjustable discharge tube, three adapters for 40/38/32 mm bottle threads, 2 x 1.5 V microbatteries. Quality certificate.

Model	Volume	With three adapters for outer diameter (mm)	Order no.
<b>Top Buret M</b>	2.5 ml per rotation	32, 38, 40	4965 000.017
<b>Top Buret H</b>	5.0 ml per rotation	32, 38, 40	4965 000.025
<b>Dry tube</b>			4960 851.000



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