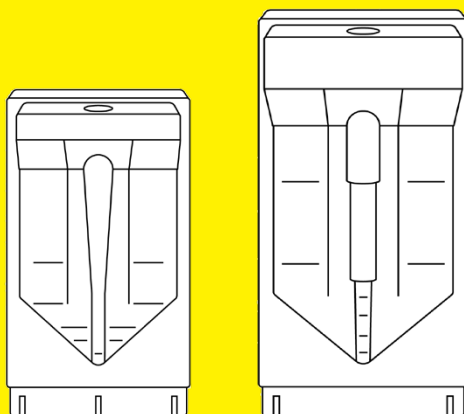


Instructions for Use

Vivapore[®] 5 | 10

Solvent Absorption Ultrafiltration Units for General Laboratory Use



3163992-001-00



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1 About these Instructions

1.1 Scope

These instructions are part of the product. These instructions apply to the following versions of the product:

	Quantity	Prod. no.
Vivapore® 5		
7.5 kDa PES	30	VP-S005P0008--3
Vivapore® 10		
7.5 kDa PES	30	VP-S010P0008--3

1.2 Target Groups

The instructions are designed for the following target groups. The target groups must possess the knowledge listed below.

Target Group	Knowledge and Qualifications
Operator	The operator is familiar with the device and the associated work processes. The operator understands the hazards which may arise when working with the device, and knows how to prevent them.

1.3 Symbols Used

1.3.1 Warnings in Operation Descriptions

NOTICE

Denotes a hazard that may result in property damage if it is **not** avoided.

1.3.2 Other Symbols

- ▶ Required action: Describes actions that must be carried out.
The actions in the sequence must be carried out in succession.
- ▷ Result: Describes the result of the actions carried out.

2 Safety Instructions

2.1 General functions

The product is intended for the concentration and | or desalting of proteins and macromolecules from dilute solutions. The sample solutions and volumes used must be suitable for the product.

The filtration process uses an absorbent cellulose pad mounted behind the ultrafiltration membrane to draw solvents and micromolecules through the membrane. Macromolecules that are sufficiently larger than the nominal MWCO are retained by the membrane and progressively concentrated. The built-in dead stop impedes concentration to dryness and loss of sample. This method is particularly appropriate for the concentration of macromolecules and proteins with MW in the range of 25 to 150 kDa.

The product is supplied non-sterile. It is intended for single use and must be disposed of after one use.

The product is intended exclusively for use in accordance with these instructions. Any further use beyond this is considered improper.

Operating Conditions for the Product

The product is intended for general laboratory use.

The product may only be used with the equipment and under the operating conditions described in the Technical Data section of these instructions.

2.2 Personnel Qualification

Persons without sufficient knowledge in the safe use of the device can injure themselves and others.

If a specific qualification is required for an activity: The target group is indicated. If no qualification is specified: The activity can be carried out by the target group "Operator".

2.3 Significance of these Instructions

Failure to follow the instructions might have serious consequences, e.g. danger to individuals.

- ▶ Read the instructions carefully and completely. The instructions for action build on each other.
- ▶ Ensure that the information contained in these instructions is available to all individuals working with the product.

2.4 Functionality of the Product

A damaged product or worn parts can lead to malfunctions or cause hazards which are difficult to identify.

- ▶ Only operate the product when it is safe and in perfect working order.

3 Product Description

3.1 Vivapore® 5

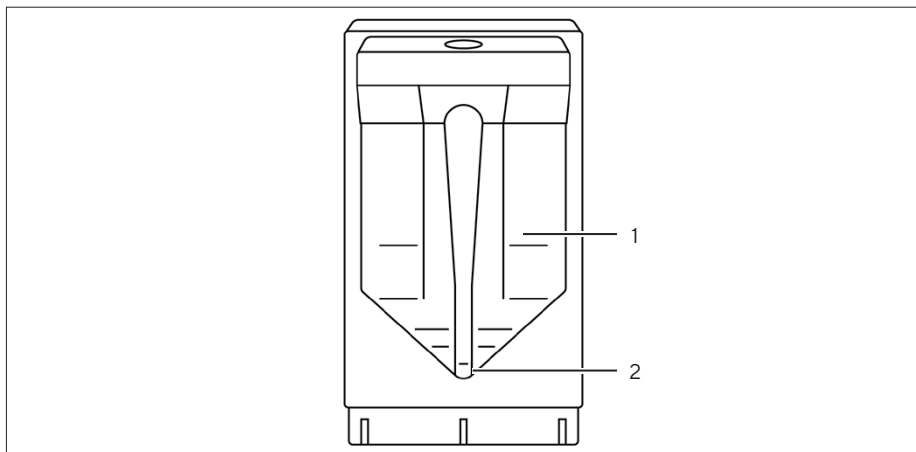


Fig. 1: Product overview (example)

Pos.	Description
1	Membrane
2	Dead stop pocket

3.2 Vivapore® 10

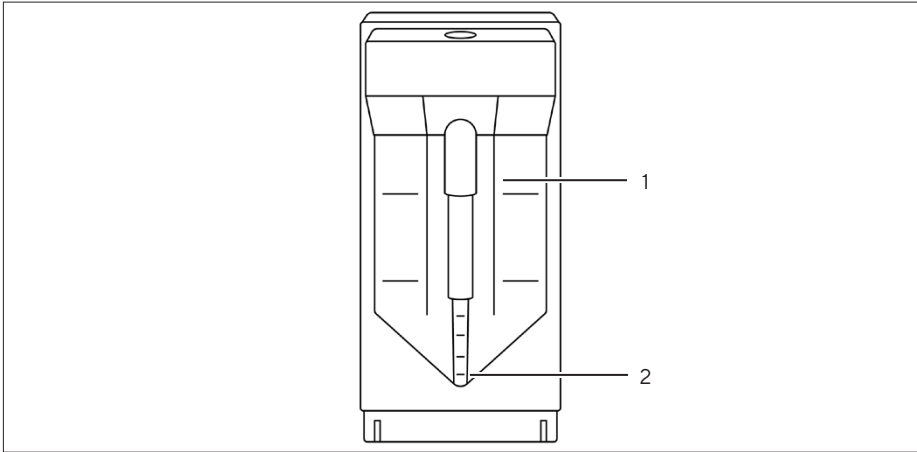










Fig.2: Product overview (example)

Pos.	Description
1	Membrane
2	Dead stop pocket

3.3 Product Symbols

Symbol	Definition
	Catalogue number
	Do not reuse
	Use by
	Batch code
	Manufacturer
	Temperature limitation
	Consult instructions for use
	Non-sterile product

4 Process Preparation

4.1 Scope of Delivery

Article	Qty
Product packed in a cardboard box	
Vivapore® 5 10	30 30
disposable stand	1
Instructions for Use	1

4.2 Unpacking

Procedure

- ▶ **NOTICE** Risk of product malfunctions due to exceeding the usability!
Check the usability of the product (see specification on packaging).
Dispose of products for which the usability has been exceeded.
- ▶ Unpack the product.

5 Operation

5.1 Concentrating Macromolecules

It is recommended that a pipette is used to apply the sample into the product. The pipette must be compatible with the product (see Chapter “8.5.1 Pipettes”, page 18).

Please ensure that the molecular weight cut-off (MWCO) of the product is suitable for the size of the target molecule to be concentrated. In order to ensure maximum recovery of the target molecule, it is recommended to select a MWCO that is at least 50% below the size of the target molecule.

NOTICE

Risk of product malfunctions due to using unsuitable samples!

- ▶ Only pour suitable samples into the product (see Chapter “8.6 Chemical Compatibility”, page 19).

NOTICE

Risk of product malfunctions due to exceeding the maximum filling volume!

- ▶ Do **not** exceed the maximum filling volume (see Chapter “8.4 Operating Conditions”, page 18).

5.1.1 Vivapore® 5

Procedure

- ▶ Check whether the MWCO of the product is suitable for the application.
- ▶ Insert the product into a disposable stand.
- ▶ Pipette the sample through the aperture at the top of the product.
- ▶ The product may be left unattended on a level surface until desired concentration is achieved.
- ▶ Recover the sample from dead stop pocket of the concentrator using a pipette.

5.1.2 Vivapore® 10

Procedure

- ▶ Check whether the MWCO of the product is suitable for the application.
- ▶ Insert the product into a disposable stand.
- ▶ If the volume to be concentrated is larger than 10 mL, insert an expansion reservoir into the aperture at the top of the product.
- ▶ Pipette the sample through the aperture at the top of the product.
- ▶ If an expansion reservoir is used, cover it with the included dust cover.
- ▶ The product may be left unattended on a level surface until desired concentration is achieved.
- ▶ Recover the sample from dead stop pocket of the concentrator using a pipette.

5.2 Desalting (Vivapore® 10 only)

Procedure

- ▶ Pipette up to 2 mL of the sample to be desalted through the aperture at the top of the product.
- ▶ Insert an expansion reservoir into the aperture at the top of the product.
- ▶ Fill the expansion reservoir with up to 5 times the sample volume in the concentrator using deionized water or buffer solution.
- ▶ The sample continues to concentrate to the desired level. The product may be left unattended on a level surface.
- ▶ If the desalting is complete, recover the sample with a pipette.

6 Storage

6.1 Storing the Product

NOTICE

Risk of damage to the product due to improper storage!

- ▶ Comply with the storage specifications.
-

Procedure

- ▶ If the product is packaged: Store the product in the original packaging.
- ▶ Store the product according to the ambient conditions (see Chapter “8.3 Ambient Conditions”, page 17).

7 Disposal

7.1 Decontaminating the Product

If the product has come into contact with hazardous substances: Steps must be taken to ensure proper decontamination and declaration. The operator of the product is responsible for adhering to local government regulations on the proper decontamination and declaration for transport and disposal.

Procedure

- ▶ If the product has come into contact with hazardous substances: Decontaminate the product.

7.2 Disposing of the Product

The product must be disposed of properly. The packaging is made of environmentally friendly materials that can be used as secondary raw materials.

Requirements

The product must be decontaminated.

Procedure

- ▶ Dispose of the product in accordance with local government regulations.
- ▶ Dispose of the packaging in accordance with local government regulations.
- ▶ Used units may be incinerated or autoclaved.

8 Technical Specifications

8.1 Dimensions

	Vivapore® 5		Vivapore® 10	
	Unit	Value	Unit	Value
Length x Width	mm	82 x 42	mm	100 x 46
Active membrane surface	cm ²	19	cm ²	25

8.2 Materials

	Vivapore® 5	Vivapore® 10
Concentrator	Styrene acrylonitrile resin	Styrene acrylonitrile resin
Absorbent	Cellulose	Cellulose
Membrane	Polyethersulfone	Polyethersulfone

8.3 Ambient Conditions

	Unit	Value
Storage temperature		
When packed	°C	+4 - +30

8.4 Operating Conditions

		Vivapore® 5	Vivapore® 10
	Unit	Value	Value
Filling volume, maximum	mL	5	10
Filling volume with expansion reservoir, maximum	mL	-	20
Dead stop volume ¹	µL	50	50

¹The dead stop volume may vary depending on the type and concentration of the sample, operating temperature and pH

8.5 Equipment Required

8.5.1 Pipettes

Pasteur pipette, variable volume or fixed volume pipette for sample application and concentrate or filtrate retrieval.

8.6 Chemical Compatibility

Chemical, biological and aqueous solutions with appropriate compatibility for the materials of the product (2 hr contact time)

Examples of compatible chemical solutions

Acetic Acid (25%)	Phosphate Buffer pH 7 - 8 (1 M)
Ammonium Sulphate (saturated)	Polyethylene Glycol (10%)
Butanol (70%)	Sodium Carbonate (20%)
Dimethyl Sulfoxide (5%)	Sodium deoxycholate (5%)
Ethanol (70%)	Sodium dodecylsulfate (0.1 M)
Formic acid (5%)	Sodium Hydroxide (2 M)
Glycerine (70%)	Sodium Hypochlorite (200 ppm)
Guanidine HCl (6 M)	Sodium Nitrate (1%)
Human Urine pH 4.5 - 8.0	Sulfamic Acid (5%)
Hydrochloric Acid (1 M)	Triton ^{®*} X-100 (0.1%)
Isopropanol (70%)	Tween ^{®**} 20 (0.1%)
Lactic Acid (5%)	Urea (8 M)
Nitric Acid (10%)	

* Triton[®] is a registered trademark of Union Carbide Corp.

** Tween[®] is a registered trademark of ICI Americas Inc.

8.7 Typical Performance Characteristics

Time to concentrate at 20.5°C				
Product		Vivapore® 5	Vivapore® 10	
	Unit			
Start volume	mL	5	10	20*
α-chymotrypsin ** (25 kDa)				
Concentrator factor		94x	138x	34x
Time	min	204	424	407
IgG** (150 kDa)				
Concentrator factor		92x	179x	34x
Time	min	155	319	371
*With Vivapore® 10 Expansion Reservoir				
** Proteins were concentrated from human urine specimens (pH 4.5), averaged results from devices tested; n=81				

Solute recovery at 20.5°C			
Product	Vivapore® 5	Vivapore® 10	
Start volume	5 mL	10 mL	20 mL*
α-chymotrypsin** (25 kDa)	78%	90%	74%
IgG** (150 kDa)	60%	65%	82%
* With Vivapore® 10 Expansion Reservoir			
** Proteins were concentrated from human urine specimens (pH 4.5), averaged results from devices tested; n=81			

9 Accessories

Accessories	Quantity	Prod. no.
Vivapore® Stand for 4 units	6	VP-AST0001-C
Vivapore® 10 Expansion Reservoir	10	VP-ARV0010-D

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