

## SERVA Dialysis Tubing

The reliable material for separation technology

### Basic Information

Dialysis is a process where substances in solution are separated by their difference in molecular weight. The dialysis tubings are semipermeable membranes made of regenerated cellulose or cellulose ester having a gel-like structure.

The driving force is the concentration difference between 2 solutions on opposite sides of the membrane.

### Applications

For many years, dialysis has been successfully used as a routine method for desalting and concentration of complex biomolecules in solution. In addition, macromolecules, differing substantially in molecular weight can be separated.

The most important applications are as follows:

- **Dialysis of protein solutions** with a high salt content, e.g. as a purification and desalting step before ion exchange chromatography
- **Concentration of protein solutions** by dialysis with polyethyleneglycol 20 000 (cat.no. 33138), e.g. before performing gel-chromatography.
- **Separation of complex biomolecules** from low molecular weight contaminants, e.g. in physiological solutions.
- **Buffer exchange** of proteins, peptides and other macromolecules, e.g. in enzymology and molecular biology.
- **Desalting of metal colloids**

### Chemical Resistance

Dialysis tubing made of **regenerated cellulose** (SERVAPOR<sup>®</sup>, VISKING<sup>®</sup>, MEMBRA-CEL<sup>®</sup>, SPECTRA/POR<sup>®</sup> 1, 3 and 6) are showing good chemical resistance against:

- Hydrocarbons
- Halogenated Hydrocarbons
- Alcohols
- Ketones
- Esters
- Amines
- Acids: only Formic acid, Acetic acid and diluted strong acids (e.g. 5 % HCl)
- Phenol (10 %)
- Hydrogen Peroxide (30 %)

The long-term pH stability ranges from 5 - 9. For short-term treatment even from pH 2 - 12. Protein adsorption is less than 1 ng/gram of dry membrane.

### Physical Resistance

Tubing made of regenerated cellulose can be boiled or sterilized by autoclave. Once moistened, they should not be allowed to dry out unless reglycerinated. Tubing containing aqueous solutions can be frozen.

### Biological Resistance

Dialysis tubing are sensitive to cellulase activity, particularly, when they are humidified. Growth of cellulolytic microorganisms can be prevented by keeping the membranes at 4 °C in water containing 0.05 % sodium azide. They can also be stored in a 50 % glycerol solution.

## Properties

SPECTRA/POR® 1 and 3, VISKING®, SERVAPOR® and MEMBRA-CEL® are supplied dry and contain glycerol as a humectant to prevent them from drying and becoming brittle. They also contain small amounts of heavy metals (less than 50 ppm) and sulfur compounds (less than 0.3 %). These contaminations can be removed by boiling the membranes in 10 - 50 mM EDTA (cat.no. 11280) and water. After this treatment, the membranes must not be allowed to dry out. If not used immediately, they should be reglycerinated or stored in water containing 0.05 % sodium azide.

SPECTRA/POR® 6 membranes are supplied wet in a 0.05 % azide preservative solution. They contain traces of sulfur compounds and heavy metals, which can be removed in the same way as described above.

*SPECTRA/POR = trademark of Spectrum Medical Industries.  
MEMBRA-CEL = trademark of Viscase Corp. USA.*

## SERVA Dialysis Tubing: Product Parameters

### VISKING® Dialysis Tubing (MWCO 12000 - 14000; pore diameter ca. 25 Å)

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44104	10	6	0.3	51
44110	25	16	2.0	20
44114	34	21	3.4	23
44120	44	28	6.4	20
44126	77	49	18	41
44130	117	75	45.8	74

### SERVAPOR® Dialysis Tubing (MWCO 12000 - 14000; pore diameter ca. 25 Å)

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44139	10	6	0.3	50
44145	25	16	2.0	20
44144	34	21	3.4	25
44146	45	29	6.5	20
44148	80	50	18.5	40

**MEMBRA-CEL<sup>®</sup> Dialysis Tubing (MWCO 3500 and 7000)**

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
<b>MWCO 3500</b>				
44310	25	16	2.0	25
44311	34	22	3.4	25
<b>MWCO 7000</b>				
44313	25	16	2.0	28
44314	34	22	3.4	30

**SPECTRA/POR<sup>®</sup> 1 Dialysis Tubing (MWCO 6000 - 8000)**

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44170	10	6.4	0.32	30 - 50
44171	23	14.6	1.7	30 - 50
44174	50	32	8.0	30 - 50

**SPECTRA/POR<sup>®</sup> 3 Dialysis Tubing (MWCO 3500)**

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44183	18	11.5	1.0	25 - 30
44184	45	29	6.4	25 - 30
44185	54	34.0	9.3	25 - 30

**SPECTRA/POR<sup>®</sup> 6 Dialysis Tubing (MWCO 1000, 2000, 3500)**

Product (Cat.No.)	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
<b>MWCO 1000</b>				
44192	18	11.5	1.0	60 - 65
44193	38	24	4.6	60 - 65
44194	45	29	6.4	60 - 65
<b>MWCO 2000</b>				
44196	18	11.5	1.0	60 - 65
44197	38	24	4.6	60 - 65
44198	45	29	6.4	60 - 65