

# TUBULAR CERAMIC MEMBRANES

**INSIDE CéRAM™**



**INSIDE CéRAM™ tubular ceramic membranes produced by TAMI Industries made entirely from high purity raw materials. Large range of geometries that correspond to user's needs.**

Tubular ceramic membranes operating in the separation ranges of :

- Microfiltration**
- Ultrafiltration**
- Fine Ultrafiltration.**

**CUT-OFF TABLE**

UF Fine	UF	MFT
1 kg/mol	15 kg/mol	0,14 µm
3 kg/mol	50 kg/mol	0,20 µm
5 kg/mol	150 kg/mol	0,30 µm
8 kg/mol	300 kg/mol	0,45 µm
		0,80 µm
		1,40 µm

## Characteristics

Membranes are available in the following lengths:

### Standard :

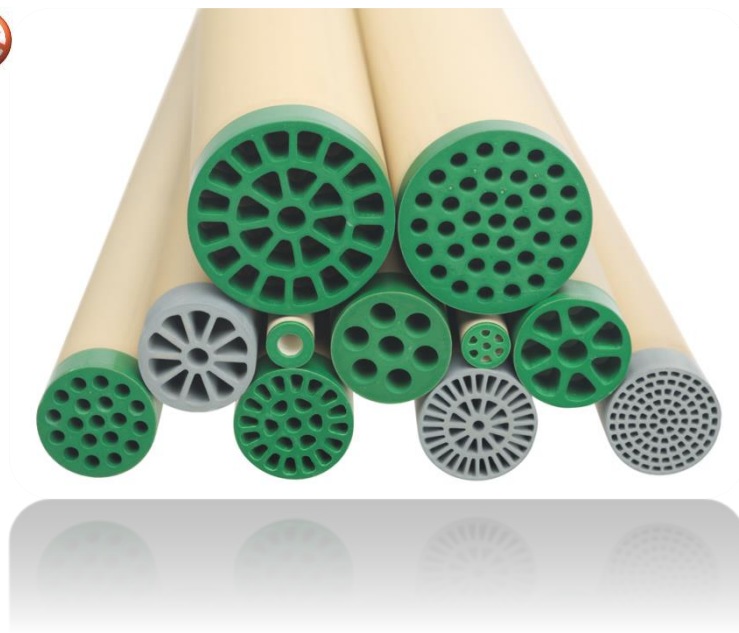
- Ø 10 mm : 250 / 600 / 1201 mm
- Ø 20 mm : 1178 mm
- Ø 25 mm : 580 / 1178 mm
- Ø 41 mm : 1020 mm

### Special :

- Ø 25 : 850 / 1020 mm
- Ø 41 mm : 850 / 1000 mm

## Advantages

- Excellent performances in MF/ UF /UF Fine
- Long working life.
- Chemical stability
- Geometrical configurations compatible with the existing industrial units.
- Regeneration by chemical action.
- Sterilization by vapour and oxidising agents.
- Autoclavable.



## Operation

The solution to be treated is fed into the carter containing the membranes, by a recirculation pump, which ensures that the liquid flows tangentially to the surface of the membranes.

Permeate (or filtrate) flows out of the carter through two permeate outlets.

Retentate is recirculated by a pump to the feed tank containing the solution to be treated.

## Applications



- Food and Beverage
- Milk, Wine, Juice, Sugar...

















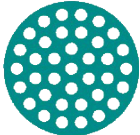
- Bio-Industries
- Fermentation products
- Fermenter coupling



- Environmental treatment
- Effluents
- Water
- Oil/ Water separation



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	Ø Ext (mm)	Nbr (cx)	Ø Int (mm)	m <sup>2</sup>	MWCO
	10	1	6	0,02	MF/UF/UFF
	10	7	2	0,06	MF/UF/UFF
	20	1	15	0,06	MF/UF
	20	5	6	0,13	MF/UF
	20	13	3,5	0,21	MF/UF
	20	32	2	0,33	MF/UF
	25	7	6	0,16	MF/UF/UFF
	25	8	6	0,20	MF/UF/UFF
	25	11	4,6	0,25	MF/UF
	25	19	3,5	0,25	MF/UF/UFF
	25	23	3,5	0,35	MF/UF/UFF
	25	39	2,5	0,5	MF/UF/UFF
	25	93	1,6	0,6	MF/UF
	41	25	5,5	0,47	MF/UF
	41	37	3,6	0,43	MF/UF

Cut off	MF/UF	UF fine
pH	0-14*	2-14*
Solvant	Resistant	Sensitive**

\* : Limited resistance to concentrated hydrofluoric acids .  
 \*\* : Consult us

## Technical Characteristics

### Support

- ⊗ Material : Titanium Oxide TiO<sub>2</sub>
- ⊗ Bursting Pressure : >90 bars
- ⊗ Average pore diameter: 4,5 µm
- ⊗ Max working pressure: 10 bars
- ⊗ pH stable : 0-14
- ⊗ Solvent : stable
- ⊗ Operating temperature: < 250 °C

### Active layer

- ⊗ MFT Active layer : TiO<sub>2</sub> + ZrO<sub>2</sub>
- ⊗ UF Active layer : ZrO<sub>2</sub>
- ⊗ UF fine Active layer : TiO<sub>2</sub>

## Standard Method of Regeneration

	MF/UF/Fine UF*
<b>Base</b>	NaOH - 15 g/l 85°C-30mn
<b>Acid</b>	HNO <sub>3</sub> - 5ml/l 50°C -15mn
<b>Steam sterilisation</b>	121°C - 30mn
<b>Oxidants :</b> - H <sub>2</sub> O <sub>2</sub> en solution at pH <3 - NaOCl	2x10 <sup>-3</sup> V/V  300 ppm Cl <sup>-</sup>

\*: Fine UF membranes must be stored in a humid environment and Acid cleaning with done H<sub>3</sub>PO<sub>4</sub> 1 ml/l



Distributed by:

Head office: ZA Les Laurons - CS 65 - 26111 Nyons cedex - France  
 Tel 04 75 26 47 69/Fax 04 75 26 47 87  
 Email : [tami-info@tami-industries.com](mailto:tami-info@tami-industries.com)  
 Web : [www.tami-industries.com](http://www.tami-industries.com)

February 2015