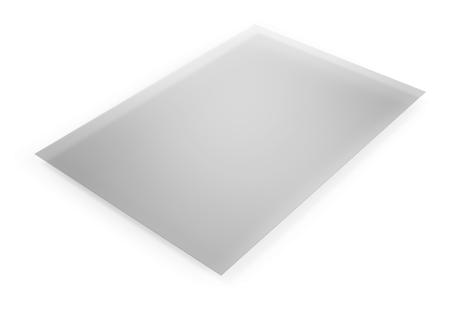
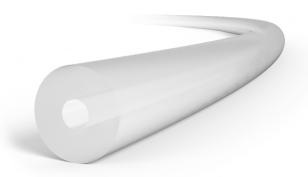
# VICI TEFLON™ AF DEGASSERS, FILMS & COATINGS











# **FEATURES**

Chemical resistance | High compressibility and gas permeability | High thermal resistance | Low dielectric constant (1.89 to 1.93), even at gigahertz frequencies | Low dissipation factor and moisture sensitivity/moisture absorption



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# **DEGASSERS**

# **DESCRIPTION**

Degasssers from VICI Metronics remove up to 50% of gas present, improving purity, quality, and the accuracy of analysis. Formerly from Random Technologies, Inc., VICI's planar and tubular vacuum degassers benefit from years of development, production experience, and field use to offer customers reliable performance for even the most sensitive applications. What makes our degassers exceptionally



effective is Teflon™ AF (amorphous fluoropolymer) film, which is 2 orders of magnitude higher than PTFE or other materials, enabling users to remove more gas than with any other degassing product.



#### **BENEFITS**

Superior bubble removal | Faster pull-down time | Seal that is unaffected by hexane and other normal phase solvents | Only two liquid contact materials: PEEK and Teflon™ AF

# **ABOUT TEFLON AF**

Teflon™ AF (amorphous fluoropolymer) resins have more excellent optical clarity and mechanical properties of amorphous polymers. These resins also perform well over a wide range of temperatures and maintain outstanding electrical properties and chemical resistance. A unique chemical structure enhances their versatility and distinguishes this class from other fluoropolymers.

SPECIFICATIONS	TUBULAR DEGASSERS	PLANAR DEGASSERS	
Membrane	Teflon™ 2400	Teflon™ 2400	
Wetted Materials	AF 2400, ETFE, PEEK	PEEK®, Teflon™ 2400	
Maximum Working Pressure	3200 psi	50 PSI	
Liquid Connections	1/4-28 Flat Bottom	1/4-28 Flat Bottom	
Vacuum Connections	n/a	Hose Barb for 1/8"	
Dead Volume	100 to 925 μL (0.9 mL) – 480 μL most common	530 μL or 320 μL	
Size	4" diameter x 1" high	72 mm x 40 mm x 11 mm	
Vacuum Seal	n/a	>34 mbar (3.3 kpa) leak in 10 min	
Pressure Test	3200 psi, 24 hour test	415 kPa pressure test, 50 torr vacuum	
Actual Pressure Drop (average) at 1 mL/min water	<500 psi @ 2 mL/min	>300 Pa	

#### **TUBULAR DEGASSERS**

VICI Metronics Tubular Degassers are made from extremely high-purity Teflon™ AF polymer and feature a tube-in-tube design that offers a reduced size and reduced dead volume compared to PTFE.

#### PLANAR DEGASSERS

VICI Metronics Planar Degassers have a unique internal architecture that enables efficient degassing in a small size. They operate at a maximum working pressure of 50 psi.



# **BENEFITS OVER PTFE**

Reduction in size | Reduction in dead volume – 12 mL to 100 to 925  $\mu$ L (0.9 mL) – 480 $\mu$ L most common | Extremely high purity polymer | No ghost peaks

# FILMS AND COATINGS

### **DESCRIPTION**

Formerly from Random Technologies, Inc., VICI's Teflon™ AF films and coatings benefit from years of development, production experience, and field use to offer customers reliable performance for even the most sensitive applications.

Versatile Teflon™ AF protective and anti-reflective films and coatings have high optical clarity and strength and are effective at a wide range of temperatures. With broad spectrum transmission, Teflon™ AF can be tuned to different wavelengths from the UV to NIR range.



#### **BENEFITS**

Greater optical clarity | Highest gas permeability | Faster 3D printing speeds

#### WINDOWS/FILMS

#### **TEFLON AF IN 3D PRINTING**

- Monolithic AF windows (films)
- Composite AF windows (films)
  - Currently offering 75 μm and 150 μm
  - Working on 5 mil and 10 mil thicknesses
  - Less expensive

#### **COATINGS**

- Laminated steel screen
- Laminated frits
- Coating substrates



# **TUBING**

# **TUBING APPLICATIONS**

- Degassing applications
- Long path length optical systems
- Research applications
- Oral CO<sub>2</sub> monitor for ambulances and hosital emergency departments
- Bioreactors
- Photoreactors

# **MEMBRANES**

# **MONOLITHIC MEMBRANES**

Pure Teflon™ AF membranes

#### **COMPOSITE MEMBRANES**

- Membranes with porous substrates
- Membranes with non-porous substrates
- Applications
- Patent filed for two-layer film
- Provisional patent filed for film with three or more layers

PROPERTIES COMPARISON	PTFE	FEP	PFA	AF 1600	AF 2400
Appearance	White	Translucent	Translucent	Clear	Clear
Refractive Index	1.35 - 1.38	1.34 - 1.35	1.35	1.31	1.29
Hardness (Shore D)	55	56	60	77	75
Dielectric Constant (k)	2.1	2.1	2.1	1.93	1.9
Melting Point	327°C	260°C	305°C	260°C	360°C
Glass Transition Temperature	110 - 130°C	253°C	90°C	160°C	240°C
Oxygen Permeability	420 cB	1cB	3.33 cB	34,000 cB	99,000 cB



**WINDOWS** 



**MEMBRANES** 



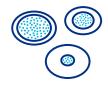
COATINGS: STEEL SCREENS



**FILMS** 



**TUBING** 



**COATINGS: FRITS** 

# **ADDITIONAL INFORMATION**

Products are available in two grades: Teflon™ AF 1600 and Teflon™ AF 2400. Typical molding temperatures for Teflon™ AF 1600 range from 240-275°C (464-527°F) and for Teflon™ AF 2400 from 340-360°C (644-680°F). We also fabricate custom Teflon AF Products. **Contact sales@vicimetronics.com to request products and components made from Teflon AF.**