

Plasticizer-free Chemical resistant Pump Tubing



Superior Performance in a Broad Range of Applications

Versilon™ 2001 tubing is uniquely engineered to provide flexibility, chemical resistance and extended pump life in a clear, plasticizer/oil-free tubing product. It is ideal for a broad range of demanding applications including peristaltic pump systems, soap and detergent dispensing, ink transfer, water purification lines, food and beverage, and chemical transfer.

Outperforms PVC in Chemical Resistance

Versilon™ 2001 tubing is resistant to a wide range of fluids that typically destroy PVC products. Its chemical resistance allows it to be used in applications with aggressive chemicals such as polar solvents, benefiting the user with less downtime and tubing changes. Versilon™ 2001 tubing yields a longer service life and does not degrade over time, unlike other flexible tubing products (see "Relative Chemical Resistance Chart" on back).

Additional Product Features

Upon incineration, many tubing products release hazardous by-products such as hydrogen chloride gas, but when properly incinerated, Versilon™ 2001 tubing does not. Since it contains no plasticizers or oils, Versilon™ 2001 tubing will not yield any taste, which makes it an ideal choice for food and beverage applications with strict taste requirements and will help ensure accurate results from analytical instrument tests. Versilon™ 2001 tubing fully complies with FDA 21 CFR, 177.2600 criteria and REACH.

Features and Benefits

- Plasticizer and oil free – does not contaminate fluids
- Superior flex life in peristaltic pumps
- Chemically resistant to a wide range of fluids
- Temperature resistant from -77°C to +57°C
- Clear for easy visual flow monitoring
- Meets FDA criteria for food contact
- REACH

Typical Applications

- Chemical transfer
- Peristaltic pumps
- Soap and detergent dispensing
- Ink transfer
- Water purification lines
- Food and beverage
- Analytical instruments
- Ideal for condensers, incubators, desiccators, gas and drain lines

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OPTUBUS believes that the information in this technical data sheet is an accurate description of the typical uses of the product. OPTUBUS, however, disclaims any liability for incidental or consequential damages, which may result from the use of the product that are beyond its control. Therefore it is the user's responsibility to thoroughly test the product in their particular application to determine its performance, efficiency and safety. Nothing contained herein is to be considered as permission or a recommendation to infringe any patent or any other intellectual property right.

Versilon™ 2001 Tubing Standard Sizes

Part Number	ID	OD	Wall	Min. Bend Radius	Max. Working Pressure* 22°C (73°F)	Vacuum Rating at 22°C (73°F)
VS1,59UP4,76	1,59 mm (1/16")	4,76 mm (3/16")	1,59 mm (1/16")	6,4 mm	3,1 bar (45 psi)	760 mmHg
VS3,18UP6,35	3,18 mm (1/8")	6,35 mm (1/4")	1,59 mm (1/16")	12,7 mm	2,0 bar (30 psi)	760 mmHg
VS4,76UP7,94	4,76 mm (3/16")	7,94 mm (5/16")	1,59 mm (1/16")	12,7 mm	1,5 bar (22 psi)	760 mmHg
VS6,35UP9,53	6,35 mm (1/4")	9,53 mm (3/8")	1,59 mm (1/16")	25,4 mm	1,2 bar (17 psi)	760 mmHg
VS7,94UP11,11	7,94 mm (5/16")	11,11 mm (7/16")	1,59 mm (1/16")	38,1 mm	1,0 bar (14 psi)	635 mmHg
VS9,53UP12,7	9,53 mm (3/8")	12,7 mm (1/2")	1,59 mm (1/16")	50,8 mm	0,8 bar (12 psi)	381 mmHg
VS12,7UP19,05	12,7 mm (1/2")	19,05 mm (3/4")	3,18 mm (1/8")	38,1 mm	1,1 bar (16 psi)	760 mmHg
VS15,88UP22,23	15,88 mm (5/8")	22,23 mm (7/8")	3,18 mm (1/8")	63,5 mm	0,9 bar (13 psi)	635 mmHg
VS19,05UP25,4	19,05 mm (3/4")	25,4 mm (1")	3,18 mm (1/8")	76,2 mm	0,7 bar (11 psi)	381 mmHg
VS25,4UP34,93	25,4 mm (1")	34,93 mm (1-3/8")	4,76 mm (3/16")	95,3 mm	0,9 bar (13 psi)	432 mmHg

*Working pressures are calculated at a 1:5 ratio relative to burst pressure using ASTM D1599

The values listed for working and burst pressures are derived from tests conducted under controlled laboratory conditions. Many factors will reduce the tubing's ability to withstand pressures, including temperature, chemical attack, stress, pulsation and the attachment to fittings. It is imperative that the user conduct tests simulating the conditions of the application prior to specifying the tubing for use.

Typical Physical Properties of Versilon™ 2001 Tubing

Property	ASTM Method	Value of Rating
Durometer Hardness	D2240-03	69° Shore A, 15s
Color	-	Clear
Specific Gravity	D792-00	0.88
Tensile Strength	D412-98	800 psi (5.51 MPa)
Ultimate Elongation	D412-98	500,00%
Tear Resistance	D1004-03	24.5 kN/m (140 lb-f/in)
Compression Set Constant Deflection @ 70°C (158°F) for 22 hrs	D395-03 Method B	40,00%
Dielectric Strength	D149-97	20.9 kV/mm (530 V/mil)
Tensile Set	D412-98	110,00%
Tensile Modulus @100% Elongation	D412-98	240 psi (1.65 MPa)
Maximum Recommended Operating Temperature	-	57° C (135°F)
Brittleness Temperature	D746-98	-78°C (-108°F)
Water Absorption, 24 hrs. @ 23°C	D570-98	0.04 %

Unless otherwise noted, all tests were conducted at room temperature 23°C (73°F). Values shown were determined on 0.075" thick extruded strip or 0.075" thick molded ASTM plaques or molded ASTM durometer buttons.

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Relative Chemical Resistance Properties** of Versilon™ 2001 Tubing

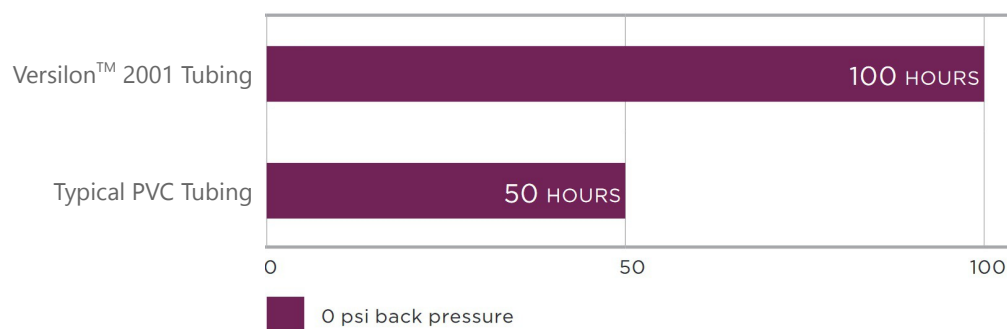
Tubing	Acids			Bases			Salts	Alcohols	Ketones
	Conc.	Med.	Weak	Conc.	Med.	Weak			
Versilon™ 2001	F	E	E	F	E	E	E	E	F
Fluoroelastomers	E	E	E	U	F	F	E	F	U
Urethane	U	U	U	U	F	F	F	U	U
PVC	F	E	E	E	E	E	E	F	U
Thermoplastic rubber	U	F	E	F	E	E	E	F	U
Neoprene	U	F	E	E	E	E	E	E	U
Nitrile Rubber	F	F	E	U	E	E	E	E	U
Silicone	U	U	U	U	F	F	F	F	U
EVA	U	F	E	F	E	E	E	E	U

E = Excellent F = Fair U = Unsatisfactory

**All tests conducted at room temperature

Peristaltic Pump Tubing Life of Versilon™ 2001 Tubing

The table below depicts hours until failure of 1/4" ID x 3/8" OD tubing. In each case, a 3-roller pump head operating at 600 rpm under room temperature 23°C (73°F). Tubing failure is measured in hours of use prior to rupture.



The performance of tubing in peristaltic pumping applications is affected by the conditions of use and equipment utilized, along with the size and wall thickness of the tubing tested. The data above is presented for information only and should not be utilized for specification purposes.