

Tubing

Exclusive OEM Tubing for Microflex™ Pump Systems

Ideal for a wide variety of life science, medical, and industrial applications:

- Chromatography,
- Spectroscopy,
- Lab analyzers,
- Fermenter recirculation
- Reagent metering applications,
- Bio-reactor feed and chemistry control
- pH control

Instrument quality design in a small, compact package



Platinum-Cured Silicone Tubing

- Slightly greater clarity
- Smooth surface; lower protein binding levels
- Fewer potential leachables
- Ideal for pharmaceutical and bio-technology use

Peroxide-Cured Silicone Tubing

- Greater physical compression capability
- Economical, longer tubing life
- Potential out gassing of peroxide products

C-FLEX® Tubing

- Combines the biocompatibility of silicone with chemical resistance similar to Tygon®
- Very low protein binding
- Heat sealable and weldable
- Economical

PharMed® BPT Tubing

- Over 10,000 hours of tubing life
- Resists ozone and UV radiation
- Noncytotoxic and nonhemolytic
- Ideal for tissue and cell culture work
- Heat sealable and bondable

Tygon® Lab Tubing

- Ideal for general transfer applications
- Economical
- Nontoxic, non aging, and non oxidizing

Tygon® LFL Tubing

- Longest tubing life of all Tygon® tubing formulations
- Broad chemical compatibility
- Low gas permeability

Tygon® Fuel & Lubricant Tubing

- Ideal for transferring hydrocarbons, gasoline, kerosene, heating oils, cutting compounds, and glycol-based coolants
- Not for use with concentrated strong acids or alkalis

Viton® Tubing

- Excellent chemical resistance
- Resists corrosive, solvents, and oils at elevated temperatures

RPM	Microbore tubing size (ID) - ml/min							
	0.19mm	0.25mm	0.51mm	0.89mm	1.14mm	1.42mm	2.06mm	2.79mm
1.7 to 10	0.002 – 0.013	0.004 – 0.022	0.015 – 0.087	0.041 – 0.25	0.064 – 0.39	0.09 – 0.57	0.18 – 1.05	0.28 – 1.65
13 to 80	0.017 – 0.10	0.03 – 0.18	0.12 – 0.70	0.33 – 2.0	0.52 – 3.1	0.75 – 4.5	1.4 – 8.5	1.8 – 11.0
50 to 300	0.06 – 0.38	0.11 – 0.67	0.43 – 2.6	1.2 – 7.4	1.9 – 11.5	2.8 – 17.0	5.3 – 32	7.2 – 43.0

Pump tubing formulation	Silicone (platinumcured)	Silicone (peroxidecured)	C-FLEX® (50 A)	PharMed® BPT	Tygon® Lab (R-3603)	Tygon® LFL	Fuel & Lubricant	Viton®
Series number	95590	96400	06424	06508	06409	06429	06401	06412
Advantages	Excellent biocompatibility. No leachable additives, DOP, or plasticizers; phthalate and latex-free; odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Extremely good at low temperatures. Weather, ozone, corona, and radiation resistant. Minimal tendency to take a set.	Excellent biocompatibility. No additives, plasticizers or DOP; odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Extremely good at low temperatures. Weather, ozone, corona, and radiation resistant. Minimal tendency to take a set.	Physical properties similar to silicone with chemical compatibility of Tygon®. Very low protein binding. Inexpensive. Biocompatible. Heat sealable and weldable.	Great for tissue and cell work—nontoxic and non-hemolytic. Long service life minimizes risk of fluid exposure; reduces tubing costs and pump downtime. Opaque to UV and visible light to protect light-sensitive fluids. Low gas permeability. High-pressure (100 psi) version available.	Inexpensive tubing for general laboratory applications. Clear for easy flow monitoring. Handles virtually all inorganic chemicals. Non-aging, non-oxidizing. Low gas permeability. Good for viscous fluids. High dielectric constant.	Longest life of all Tygon® peristaltic tubing (up to 1000 hrs). Clear for easy flow monitoring. Broad chemical resistance. Non-aging, non-oxidizing. Low gas permeability. Smooth bore. Good for viscous fluids. High dielectric constant.	Specially formulated to transport hydrocarbons, petroleum products, and distillates. Suitable for gasoline, kerosene, heating oils, cutting fluids, and glycol-based coolants. Minimum extractability. Low gas permeability. High dielectric constant. Don't use with strong acids and alkalies.	Excellent chemical resistance. Resistant to corrosives, solvents, and oils at elevated temperatures. Low gas permeability.
Limitations	Do not use with concentrated acids and bases, organic solvents, or oils. Relatively high gas permeability.	Do not use with concentrated solvents, oils, acids. Relatively high gas permeability.	Not recommended for use with oils. Moderate pumping life.	Potential leaching of USP mineral oil or blend material.	Limited pumping life. Potential leaching of plasticizer.	Potential leaching of plasticizer.	Don't use with strong acids and alkalies.	Limited pumping life.
Application suitability								
Acids	Not recommended	Not recommended	Good	Good	Good	Good	Good	Excellent
Alkalies	Not recommended	Not recommended	Good	Good	Good	Good	Good	Excellent
Organic solvents	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Variable – test before using
Pressure	Fair	Fair	Fair	Good	Good	Good	Good	Good
Vacuum	Good	Good	Good	Good	Good	Good	Good	Good
Viscous fluids	Fair	Fair	Fair	Excellent	Excellent	Excellent	Excellent	Good
Sterile fluids	Excellent	Excellent	Excellent	Excellent	Poor	Good	Excellent	Fair
Physical characteristics and composition	Thermal set rubber. Siloxane polymers and amorphous silica. Excellent compression strength. Soft material; flexible. Translucent, clear to light amber.	Thermal set rubber. Siloxane polymers and amorphous silica. Excellent compression strength. Soft material. Translucent, clear to light amber.	Thermoplastic elastomer. Styrene-ethylene-butylene modified block copolymer with silicone oil. Excellent tensile and tear strength. Soft material. Opaque, white.	Thermoplastic elastomer. Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm (stiff) material. Opaque, beige.	Thermoplastic. PVC-based material with plasticizer. Firm (stiff) material. Transparent, clear.	Thermoplastic. PVC-based material with plasticizer. Firm (stiff) material. Transparent, clear.	Thermoplastic. PVC-based material with plasticizer. Firm (stiff) material. Transparent, yellow.	Thermal set rubber. Viton B (67% fluorine). Firm (stiff) material. Opaque, black.
Temperature Range	-50 to 230°C (-58 to 446°F)	-50 to 230°C (-58 to 446°F)	-73 to 135°C (-100 to 275°F)	-51 to 132°C (-60 to 270°F)	-50 to 74°C (-58 to 165°F)	-50 to 74°C (-58 to 165°F)	-37 to 74°C (-35 to 165°F)	-32 to 205°C (-25 to 400°F)
Meets classifications	USP Class V Extractables; exceeds Class VI Implant; FDA 21 CFR 177.2600; Exceeds 3A Sanitary cGMPs (FDA 21 CFR 210 and 211). European Pharmacopoeia (EP)	USP Class VI FDA 21 CFR 177.2600 criteria European Pharmacopoeia (EP)	USP Class VI FDA 21 CFR 177.1810	USP Class VI FDA 21 CFR 177.2600 NSF-listed (Standard 51). European Pharmacopoeia (EP)	FDA 21 CFR 175.300	USP Class VI FDA 21 CFR 175.300	None	None