

PERISTALTIC TUBING

Tubing materials: typical values



Marprene



Bioprene



Pumpsil and Pumpsil-D



Fluorel



Neoprene



STA-PURE



CHEM-SURE



PVC

Watson-Marlow tubing is available in nine materials and over 40 standard sizes plus custom sizes, giving pump users extraordinary chemical and application capability

Value for life

Tubing materials: typical values

	ASTM method	Marprene / Bioprene 66	Marprene / Bioprene 74	Marprene / Bioprene 88	Pumpsil	Pumpsil-D
Material		thermoplastic elastomer	thermoplastic elastomer	thermoplastic elastomer	platinum-cured silicone	platinum-cured silicone
Colour / transparency		beige opaque	beige opaque	beige opaque	translucent	translucent
Spallation		fair	fair	fair	good	good
Life		313/314 pumphead: 10,000hr 520R pumphead: 10,000hr 620R pumphead: 6,000hr	refer to Watson-Marlow for details	refer to Watson-Marlow for details	313/314 pumphead: 230hr 520R pumphead: 200hr 620R pumphead: 230hr	313/314 pumphead: 230hr 520R pumphead: 200hr 620R pumphead: 230hr
Certification		FDA regulations 21 CFR 177.2600 for contact with aqueous food	FDA regulations 21 CFR 177.2600 for contact with aqueous food	FDA regulations 21 CFR 177.2600 for contact with aqueous food	FDA regulation 21 CFR 177.2600 for food contact. USP Class VI. ISO10993-1. USDA and 3A approved	FDA regulation 21 CFR 177.2600 for food contact. USP Class VI. ISO10993-1. USDA and 3A approved
Sterilisation methods		Gamma, autoclave, EtO CIP, SIP: refer to Watson-Marlow for details	Gamma, autoclave, EtO CIP, SIP: refer to Watson-Marlow for details	Gamma, autoclave, EtO CIP, SIP: refer to Watson-Marlow for details	Gamma, autoclave, EtO	Gamma, autoclave, EtO
Operating temperature		5C-80C	5C-80C	5C-80C	-20C-80C	-20C-80C
Hardness, shore A (5sec)	ASTM D 2240	66	74	88	60	60
Specific Gravity	ASTM D 792	0.97	0.96	0.95	1.16	1.16
Tear B, ppi	ASTM D 412	-	-	-	279	279
Ultimate Tensile strength, psi	ASTM D 412	1007	1410	2263	1306	1306
Elongation at break, %	ASTM D 412	473	510	547	861	861
Tensile stress at 100% elongation	ASTM D 412	367	525	987	118	118
Compression set		-	-	-	18	18
Weather resistance		excellent	excellent	excellent	excellent	excellent
Sunlight resistance		excellent	excellent	excellent	excellent	excellent
Gas permeability O ₂ cc.cm x 10 ⁻⁸ / cm ² .sec.atm		5.8	5.8	5.8	400	400
Gas permeability rating		fair	fair	fair	poor	poor
Water absorption		good	good	good	good	good
Odour		excellent	excellent	excellent	excellent	excellent

	ASTM method	Fluorel	Neoprene	STA-PURE	CHEM-SURE	PVC
Material		fluorinated hydrocarbon	chloroprene	ePTFE and platinum-cured silicone composite	ePTFE and fluoroelastomer composite	plasticised vinyl
Colour / transparency		black	black	white opaque	off-white opaque	glass clear
Spallation		fair	fair	excellent	excellent	good
Life		313/314 pumphead: 40hr 520R pumphead: 50hr 620R pumphead: 35hr	313/314 pumphead: 150hr 520R pumphead: 180hr 620R pumphead: 160hr	313/314 pumphead: 10,000hr 520R pumphead: 10,000hr 620R pumphead: 6,000hr	313/314 pumphead: 1,000hr 520R pumphead: 1,000hr 620R pumphead: 1,000hr	313/314 pumphead: 60hr 520R pumphead: 80hr 620R pumphead: 70hr
Certification		not applicable	not applicable	FDA regulation 21 CFR 177.2600 for food contact. USP Class VI. ISO10993-1. USDA and 3A approved	FDA regulation 21 CFR 177.2600 for aqueous food contact. USP Class VI. ISO10993-1. USDA and 3A approved	FDA regulation 21 CFR part 175.300
Sterilisation methods		not applicable	not applicable	autoclave, CIP, SIP: refer to Watson-Marlow for details	autoclave, CIP, SIP: refer to Watson-Marlow for details	autoclave, EtO
Operating temperature		-5C-80C	0C-80C	-20C-80C	-20C-80C	10C-70C
Hardness, shore A (5sec)	ASTM D 2240	-	-	80±10	60	55
Specific Gravity	ASTM D 792	1.58	1.24	-	-	1.18
Tear B, ppi	ASTM D 412	-	-	-	-	125
Ultimate Tensile strength, psi	ASTM D 412	-	-	-	-	1650
Elongation at break, %	ASTM D 412	100-500	100-800	-	-	450
Tensile stress at 100% elongation	ASTM D 412	750	-	-	-	-
Compression set		9	16	-	-	-
Weather resistance		excellent	good	excellent	excellent	good
Sunlight resistance		good	good	excellent	excellent	fair
Gas permeability O ₂ cc.cm x 10 ⁻⁸ / cm ² .sec.atm		1.1	3	350	-	0.6
Gas permeability rating		good	fair	poor	-	excellent
Water absorption		very good	poor	good	good	excellent
Odour		poor	poor	excellent	excellent	excellent