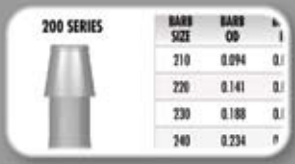
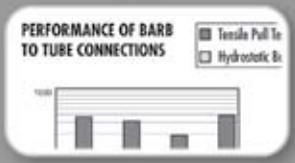
INFO

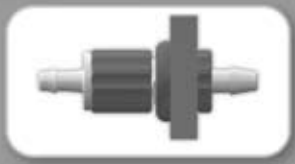
Barb Dimensions
PG-75



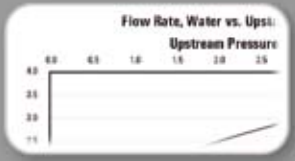
Barb Performance
PG-76



Panel Mount Instructions
PG-77



BPF Series Performance
PG-77



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CLASSIC SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
10	0.105	0.046	0.063	1/16″	1.6 mm
20	0.145	0.060	0.094	3/32″	2.4 mm
30	0.187	0.078	0.125	1/8″	3.2 mm
40	0.234	0.100	0.156	5/32″	4.0 mm
50	0.280	0.130	0.188	3/16″	4.8 mm
60	0.355	0.187	0.250	1/4″	6.4 mm

200 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
210	0.094	0.047	0.063	1/16″	1.6 mm
220	0.141	0.070	0.094	3/32″	2.4 mm
230	0.188	0.094	0.125	1/8″	3.2 mm
240	0.234	0.117	0.156	5/32″	4.0 mm
250	0.282	0.141	0.188	3/16″	4.8 mm
260	0.375	0.188	0.250	1/4″	6.4 mm

300 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
360	0.338	0.192	0.250	1/4″	6.4 mm

400 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
410	0.078	0.046	0.063	1/16″	1.6 mm
420	0.117	0.068	0.094	3/32″	2.4 mm
430	0.156	0.092	0.125	1/8″	3.2 mm
440	0.206	0.125	0.156	5/32″	4.0 mm
445	0.213	0.125	0.170	-	4.3 mm
450	0.234	0.137	0.188	3/16″	4.8 mm
460	0.313	0.184	0.250	1/4″	6.4 mm

900 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
970	0.437	0.269	0.375	3/8″	9.5 mm
975	0.573	0.358	0.500	1/2″	12.7 mm

500 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
004	0.102	0.060	0.063	1/16″	1.6 mm
007	0.129	0.076	0.094	3/32″	2.4 mm
013	0.164	0.096	0.125	1/8″	3.2 mm
025	0.208	0.122	0.156	5/32″	4.0 mm
035	0.264	0.155	0.188	3/16″	4.8 mm
055	0.335	0.197	0.250	1/4″	6.4 mm
065	0.425	0.250	0.312	5/16″	7.9 mm
N070	0.483	0.262	0.375	3/8″	9.5 mm
L070	0.483	0.251	0.375	3/8″	9.5 mm
T070	0.483	0.290	0.375	3/8″	9.5 mm
Y070	0.483	0.290	0.375	3/8″	9.5 mm
N080	0.613	0.333	0.500	1/2″	12.7 mm
L080	0.613	0.319	0.500	1/2″	12.7 mm
T080	0.613	0.356	0.500	1/2″	12.7 mm
Y080	0.613	0.362	0.500	1/2″	12.7 mm
N090	0.718	0.390	0.625	5/8″	16.0 mm
L090	0.718	0.374	0.625	5/8″	16.0 mm
T090	0.718	0.374	0.625	5/8″	16.0 mm
Y090	0.718	0.390	0.625	5/8″	16.0 mm
N100	0.853	0.465	0.750	3/4″	19.0 mm
L100	0.853	0.443	0.750	3/4″	19.0 mm
T100	0.853	0.447	0.750	3/4″	19.0 mm
Y100	0.853	0.492	0.750	3/4″	19.0 mm
N110	1.125	0.623	1.000	1"	25.4 mm
L110	1.125	0.600	1.000	1"	25.4 mm
T110	1.125	0.600	1.000	1"	25.4 mm
Y110	1.125	0.623	1.000	1″	25.4 mm

600 SERIES

BARB SIZE	BARB OD	BARB ID	TUBE INTERNAL DIAMETER		
			DEC.	FRAC.	METRIC
N655	0.335	0.181	0.250	1/4″	6.4 mm
N670	0.490	0.296	0.375	3/8″	9.5 mm
N680	0.625	0.403	0.500	1/2″	12.7 mm
N690	0.762	0.499	0.625	5/8″	16.0 mm
N6100	0.900	0.615	0.750	3/4″	19.0 mm
N6110	1.180	0.804	1.000	1″	25.4 mm
T670	0.490	0.286	0.375	3/8″	9.5 mm
T680	0.625	0.399	0.500	1/2″	12.7 mm
T690	0.762	0.483	0.625	5/8″	16.0 mm
Y670	0.490	0.296	0.375	3/8″	9.5 mm
Y680	0.625	0.401	0.500	1/2″	12.7 mm

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Performance of Barb to Tube Connection

Tensile pull and burst tests were performed by an independent laboratory under controlled conditions to provide comparative performance data for the various barb styles and sizes offered by Value Plastics. Graph numbers 1 through 8 present the data from each of the tests for each barb size and each barb style connected to PVC tube.

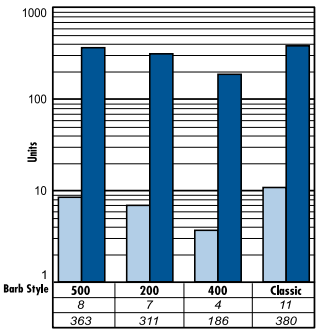
The values shown are the means of a statistically significant sample quantity of each configuration. Value Plastics® barbed fittings specifically designed for use with the tubing size indicated were used in these tests. No oversized barbs, solvents, adhesives, or secondary fasteners of any kind were used.

Tensile Pull Test: Tensile properties were measured to determine the force required to remove the barbed fitting from the tubing. Tensile specimens were mounted axially in a holding fixture and tested at a rate of 20 inches per minute. Failure mode was tubing separating from the barb.

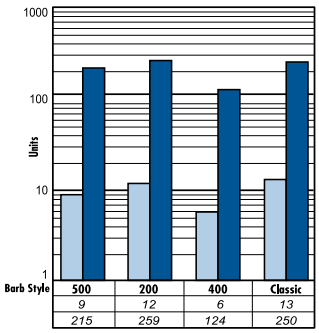
Hydrostatic Burst Test: Hydrostatic burst testing was performed in general accordance with ASTM D1599. Failure mode was either tubing separating from the barb, the tubing bursting, or a combination of the two.

PERFORMANCE OF BARB TO TUBE CONNECTIONS

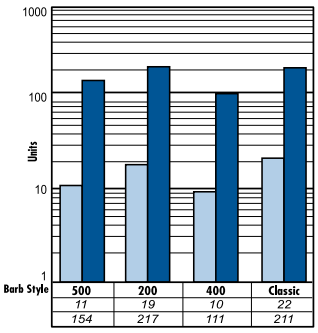
Tensile Pull Test (lbs)
Hydrostatic Burst Test (psi)



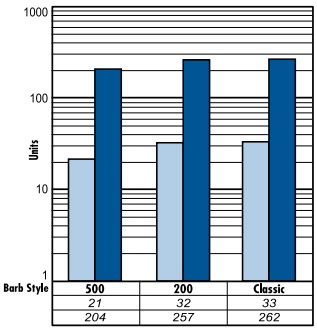
Graph 2: 1/16″ Barb Performance



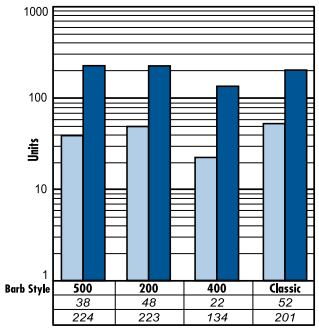
Graph 3: 3/32″ Barb Performance



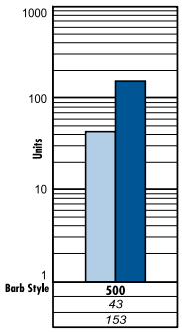
Graph 4: 1/8″ Barb Performance



Graph 5: 5/32″ Barb Performance

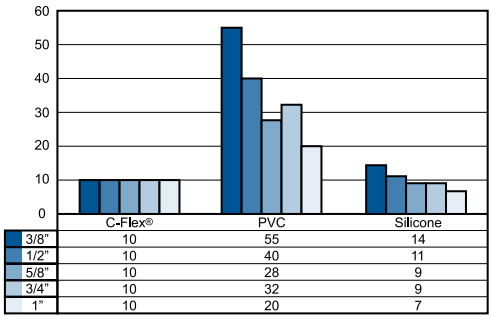


Graph 6: 3/16″ Barb Performance

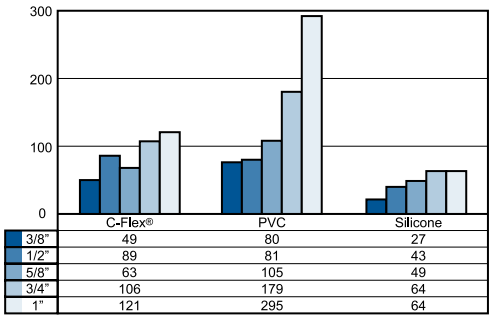


Graph 7: 1/4″ Barb Performance

600 Series Leak Tests



600 Series Tensile Pull Tests



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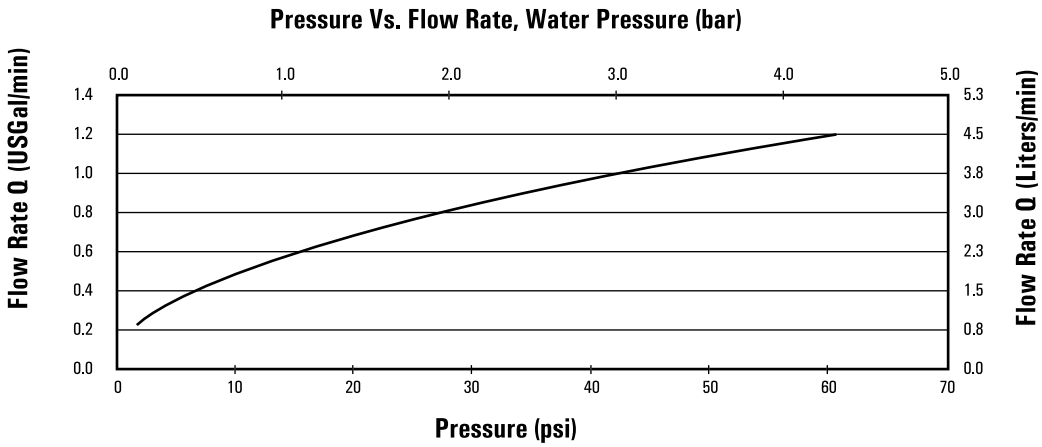
BPF Series Typical Physical Properties

Maximum cycles	50,000 connect-disconnect cycles	Maximum leak resistance	< .007 psi / 0.05 kPa / sec.
Maximum axial tensile resistance	20 lbf.	Minimum Fitting ID	.113" / 2.9 mm
Maximum working pressure	60 psi, 4.14 bar	Minimum Cv	.39



Panel Mount Instructions

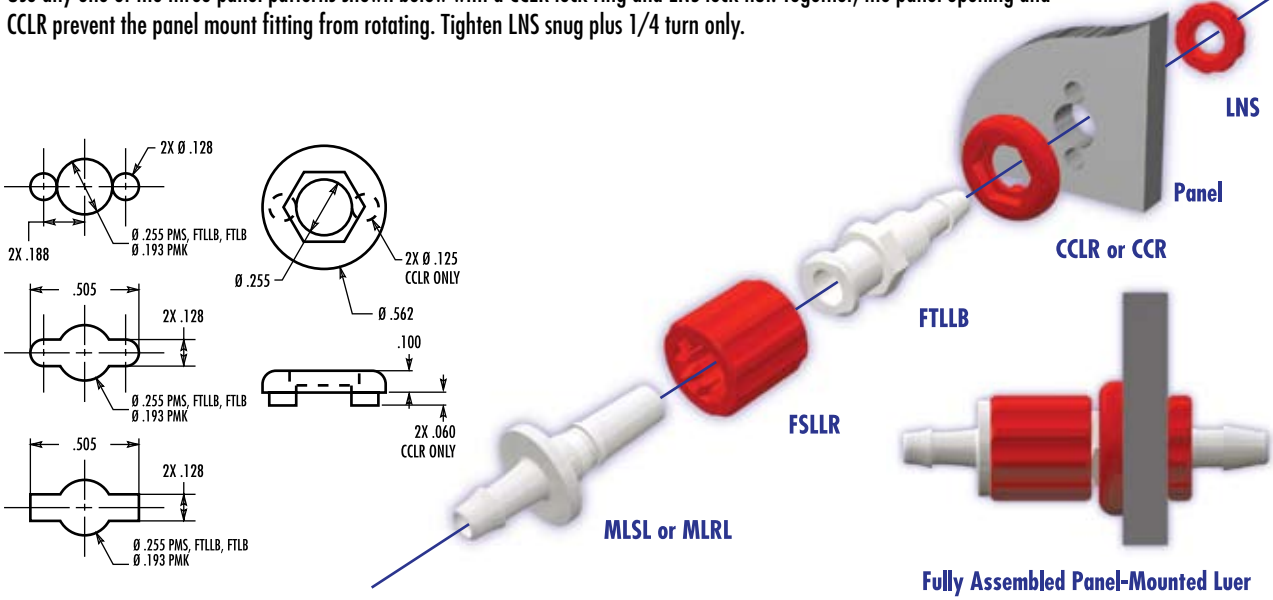
Panel-mounted female luers, in both FTLLB (thread style) and FTLB (lug style) series, are shown beginning on page 19. When used with our CCLR lock rings or CCR color coding rings and LNS lock nuts (see pages 20, 44), color coding of connections is easy.

The information provided here will help you mount the panel mount luers. Please note that they are intended for panel thickness of 1/16" to 1/8" (1.5 to 3 mm).

FTLLB series shown with MLSL luer, FSLLR lock ring, CCLR color coding lock ring, and LNS lock nut.

Threaded Panel Openings:
Tap the panel with threads from tube fittings, panel mounts or BPMBs and use a CCR color coded ring. In this case, the fitting tightened into the panel prevents fitting rotation. Use an LNS lock nut for additional security; tighten snug plus 1/4 turn only.

Non-Threaded Panel Openings:
Use any one of the three panel patterns shown below with a CCLR lock ring and LNS lock nut. Together, the panel opening and CCLR prevent the panel mount fitting from rotating. Tighten LNS snug plus 1/4 turn only.



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CHEMICAL	%	TEMP C	TEMP F	ABS	ACETAL	PVDF	NYLON	MABS	POLYCARBONATE	POLYPROPYLENE	POLYSULFONE
Acetic Acid	5%	23 C	73 F	Excellent	Unsatisfactory	Excellent	Satisfactory	Satisfactory	Satisfactory	Excellent	Excellent
Acetone	100%	50 C	122 F	Satisfactory	Unsatisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Unsatisfactory	Excellent	Unsatisfactory
Acetophenone	100%	24 C	75 F	Satisfactory	—	Unsatisfactory	Excellent	—	—	Satisfactory	—
Acetylene	100%	24 C	75 F	—	—	Excellent	Excellent	—	—	—	—
Air	100%	82 C	180 F	Excellent	Excellent	Excellent	Excellent	—	—	—	Excellent
Ammonia, Liquid	100%	24 C	75 F	Satisfactory	—	Unsatisfactory	Satisfactory	—	Unsatisfactory	Excellent	Excellent
Ammonium Hydroxide	10%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Excellent	Excellent
Ammonium Hydroxide	10%	70 C	158 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Excellent	Excellent
Barium Sulfide	100%	24 C	75 F	Excellent	Excellent	Excellent	Satisfactory	—		Excellent	—
Benzene	100%	23 C	73 F	Satisfactory	Excellent	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Bleach	100%	23 C	73 F	Satisfactory	Unsatisfactory	Excellent	Satisfactory	—	Unsatisfactory	Satisfactory	Excellent
Boric Acid	7%	35 C	95 F	Excellent	Excellent	Excellent	Unsatisfactory	—	Excellent	Excellent	—
Calcium Carbonate	Sat. sol.	24 C	75 F	Excellent	—	Excellent	—	—	—	Excellent	
Carbon Dioxide	100%	50 C	122 F	Satisfactory	Excellent	Excellent	Excellent	—	—	Excellent	—
Carbon Monoxide	100%	50 C	122 F	Satisfactory	—	Excellent	Excellent	—	—	Excellent	—
Carbon Tetrachloride	100%	50 C	122 F	Unsatisfactory	—	Excellent	Excellent	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Chlorine Water	Dilute	23 C	73 F	Unsatisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Satisfactory
Chlorine Water	Concen.	23 C	73 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfatory
Chlorobenzene	100%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Chlorofluorocarbon 11	100%	24 C	75 F	—	—	Excellent	Excellent	—	Satisfactory		Excellent
Chloroform	100%	23 C	73 F	Unsatisfactory	Satisfactory	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Cyclohexanone	100%	24 C	75 F	Satisfactory	—	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Dichlorethylene	100%	23 C	73 F	—	—	Excellent	Satisfactory	—		Excellent	Unsatisfactory
Ethanol	95%	50 C	122 F	Satisfactory	—	Excellent	Excellent	—	Satisfactory	Excellent	Satisfactory
Ethyl Acetate	95%	50 C	122 F	Satisfactory	—	Unsatisfactory	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Ethylene Glycol	100%	23 C	73 F	Excellent	Satisfactory	Excellent	Excellent	Unsatisfactory	Satisfactory	Excellent	Excellent
Ethylene Oxide	100%	24 C	75 F	Unsatisfactory	—	Excellent	Satisfactory	—	Satisfactory	Satisfactory	Excellent
Ethylene Oxide	100%	79 C	175 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Satisfactory	Unsatisfactory	Excellent
Fatty Acids	—	—	—	—	Excellent	Excellent	—	—	—	Excellent	—
Fluorine	100%	23 C	73 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	—	—	—
Formaldehyde	37%	24 C	75 F	Unsatisfactory	Excellent	Excellent	—	—	Unsatisfactory	Excellent	Unsatisfactory
Gasoline	100%	85 C	185 F	Excellent	Satisfactory	Excellent	Excellent	—	Unsatisfactory	Satisfactory	Satisfactory
Glucose	Concen.	24 C	75 F	Excellent	—	Excellent	—	—	—	Excellent	—
Glycerin	100%	24 C	75 F	Excellent	—	Excellent	—	—	Excellent	Excellent	Excellent
Hydrochloric Acid	2%	23 C	73 F	Excellent	Satisfactory	Excellent	Excellent	—	Excellent	Excellent	Excellent
Hydrochloric Acid	10%	25 C	77 F	Excellent	Satisfactory	Excellent	Unsatisfactory	—	Excellent	Excellent	Excellent
Hydrofluoric Acid	10%	23 C	73 F	Satisfactory	—	Excellent	Unsatisfactory	—		Excellent	Excellent
Hydrogen Peroxide	1%	24 C	75 F	Excellent	Unsatisfactory	Excellent	Satisfactory	Satisfactory	Excellent	Excellent	Excellent
Hydrogen Peroxide	5%	43 C	110 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	Satisfactory	Excellent	Satisfactory	Excellent
Isopropanol	100%	23 C	73 F	—	Excellent	Excellent	Excellent	Unsatisfactory	Excellent	Excellent	Satisfactory
Kerosene	100%	85 C	185 F	Satisfactory	—	Excellent	Excellent	—	Satisfactory	Satisfactory	Satisfactory
Methyl Ethyl Ketone	100%	50 C	122 F	Satisfactory	—	Unsatisfactory	Excellent	—	Unsatisfactory	Satisfactory	Unsatisfactory
Methylene Chloride	100%	23 C	73 F	Unsatisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Excellent	Unsatisfactory
Methanol	100%	23 C	73 F	Unsatisfactory	—	Excellent	Excellent	Satisfactory	Satisfactory	Excellent	Satisfactory
Nitric Acid	10%	23 C	73 F	Satisfactory	—	Excellent	Unsatisfactory	Unsatisfactory	Unsatisfactory	Excellent	Satisfactory
Oxygen	100%	24 C	75 F	—	—	Excellent	Satisfactory	—	—	—	—
Ozone	100%	43 C	110 F	Satisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	—	—
Phenol	90%	23 C	73 F	Unsatisfactory	Unsatisfactory	Excellent	Unsatisfactory	—	—	Excellent	—
Phosphoric Acid	5%	98 C	208 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	—	Unsatisfactory	Excellent	Excellent
Propane	100%	23 C	73 F	Satisfactory	—	Excellent	Excellent	—	—	—	—
Sodium Bicarbonate	Concen.	24 C	75 F	Excellent	Excellent	Excellent	Excellent	—	—	Excellent	Excellent
Sodium Chloride	10%	23 C	73 F	Excellent	—	Excellent	Excellent	Satisfactory	—	Excellent	Excellent
Sodium Chloride	Sat. sol.	24 C	75 F	Excellent	—	Excellent	Excellent	—	—	Excellent	Excellent
Sodium Hydroxide	10%	70 C	158 F	Satisfactory	—	Excellent	Satisfactory	Satisfactory	—	Excellent	Excellent
Steam	—	120 C	248 F	Unsatisfactory	—	Excellent	Unsatisfactory	—	Unsatisfactory	Satisfactory	Excellent
Sulfuric Acid	30%	23 C	73 F	Satisfactory	Unsatisfactory	Excellent	Unsatisfactory	Satisfactory	Excellent	Excellent	Excellent
Tetrahydrofuran	100%	23 C	73 F	Satisfactory	—	Unsatisfactory	Excellent	—	—	Unsatisfactory	—
Toluene	100%	50 C	122 F	Satisfactory	Unsatisfactory	Excellent	Excellent	Unsatisfactory	Unsatisfactory	Unsatisfactory	Unsatisfactory
Trichloroethylene	100%	23 C	73 F	Satisfactory	—	Excellent	Satisfactory	—	Unsatisfactory	Unsatisfactory	Unsatisfactory
Water	100%	79 C	175 F	Excellent	—	Excellent	Excellent	Satisfactory	Unsatisfactory	Excellent	Excellent

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Material/ Manufacturer & Grade	**VP Code**	**Regulatory Status of Base Resin***	**Animal Derivative Free***	**Gamma Radiation**** (Sterilization)	**Ethylene Oxide** (Sterilization)	**Autoclave** (Sterilization)
ABS Dow Magnum 9020	-81	21 CFR 181.32 FDA Approved for Food Contact	No	Compatible up to 1 Mrad	Not recommended	Poor. Components may distort due to low heat deflection temperatures
ABS (Methyl Methacrylate) BASF Terlux 2802 TR	-8003	USP Class VI Certified; FDA Approved	Yes	Withstands up to 5 Mrad doses without yellowing	Good	Poor. Components may distort due to low heat deflection temperatures
ABS (Sno White) Lanxess Lustran 348-012002	-8012	USP Class VI Certified; FDA Approved; ISO 10993 Part I Compliant	N/A	Compatible up to 5 Mrads	Good	Not suitable due to low heat deflection temperatures
Acetal Dupont Delrin 500P	-10	-	No	Compatible up to 1 Mrad	Excellent	Very Good
Acrylic Cyrolite Med 2	-50	USP Class VI Certified; 21 CFR 177.1010 FDA Approved	Yes	Very good up to commonly used doses (6 Mrads).	Excellent	Not Recommended
Copolyester Eastman EASTAR MN211 Natural	-CM018	USP Class VI Certified; ISO 10993 Compliant	N/A	Compatible up to 6 Mrads	Highly compatible	-
Nylon BASF Ultramid A3K	-0USP	USP Class VI Certified; 21 CFR 177.1500 FDA Approved	N/A	Very good. May discolor to brownish hue.	Very good. Some suceptibility to oxidizing agents.	Very good. Product may swell slightly due to water absorption.
Nylon Dupont Zytel 101F	-0, -1, -2, -3, -4, -5, -06, -07	21 CFR 177.1500 FDA Approved	No	Very good. May discolor to brownish hue.	Very good. Some suceptibility to oxidizing agents.	Very good. Product may swell slightly due to water absorption.
Nylon (Glass Reinforced) Dupont Zytel 70G33L	-7, -72	-	No	Very good. May discolor to brownish hue.	Very good. Some suceptibility to oxidizing agents.	Excellent
Polycarbonate (Clear) Bayer Makrolon 2558 550115	-9	USP Class VI Certified; 21 CFR 177.1580 FDA Approved; ISO 10993 Compliant	No	Compatible up to 10 Mrads with minor loss of physical properties. Will discolor to yellow-green hue.	Highly compatible	Poor. May craze or stress crack due to molding stresses.
Polycarbonate (Clear) Bayer Makrolon Rx 1805 451118	-9010	USP Class VI Certified; ISO 10993 Compliant	Yes	Compatible up to 10 Mrads with minor loss of physical properties. May discolor slightly dependent upon dose/number of cycles.	Highly compatible	Poor. May craze or stress crack due to molding stresses.
Polycarbonate (Tinted) Dow Calibre Megarad 2081-15	-9002	USP Class VI Certified; ISO 10993 Compliant	Yes	Excellent up to 10 Mrads with minor loss of physical properties. Light violet hue turns clear upon sterilization.	Highly compatible	Not Recommended
Polyethylene Eastman Voridian 1870A	-CM006	USP Class VI Certified; FDA Approved	Yes	Compatible up to 6 Mrads	Highly compatible	Not Recommended
Polypropylene Basell Profax PD626	-6	USP Class VI Certified; 21 CFR 177.1520 FDA Approved	No	Excellent up to commonly used sterilization doses (6 Mrads).	Good. May react poorly to EtO/CFC mix.	Poor. Components may distort due to low heat deflection temperatures
Polypropylene Huntsman P5-080X	-6005	USP Class VI Certified; 21 CFR 177.1520 FDA Approved	Yes	Very good to commonly used sterilization doses (6 Mrads).	HIghly compatible	Not Recommended
Polysulfone Solvay Udel P1700 MG11	-F1A	USP Class VI Certified; 21 CFR 177.1655 FDA Approved	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Excellent
Polysulfone Solvay Udel P1700 CL2611	-40	21 CFR 177.1655 FDA Approved	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Excellent
PVDF Atofina Kynar 1000 HD	-J1A	USP Class VI Certified; 21 CFR 177.1500 FDA Approved	Yes	Highly compatible. Will discolor to brownish hue.	Excellent	Highly Compatible

*as determined by resin manufacturer

**1 Mrad - Megarad = 10 kiloGrays (kGy)

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Typical Resin Properties

Property	ASTM Test Method	PVDF	Polycarb	Radiation Stable PC	Polypro	Nylon[a]	GF Nylon[a]	ABS	MABS	Polysulfone	Acetal
Tensile Strength	D638	5,400	10,000	9,800	—	12,000	27,000	4,800	—	—	—
Elongation at Break, %	D638	100-400	120	150	375	300	3	50	12	50-100	40
Tensile Yield Strength, psi	D638	6,500	9,200	9,800	4,400	12,000	—	5,700	6,960	10,200	9,900
Flexural Modulus, kpsi	D790	360	330	350	170	410	1,300	330	—	390	450
Rockwell Hardness D	D785	—	R118	R118	R80-102	R121	—	R107	—	—	R122
Rockwell Hardness M	—	—	M75	M72	—	M79	M101	—	—	M69	M89
Shore Hardness D	D2240	D76-80	—	—	—	—	—	—	—	—	—
Coef. of Linear 10-5 in/in/°F	D696	7.6	3.9	3.8	—	4	1.3	5.5	—	3.1	—
Deflection Temp°F @264psi	D648	244	266	252	—	194	480	173	194	345	216
Deflection Temp°F @66psi	D648	—	273	—	190	455	—	—	201	358	332
Water Absorption, %, 24 h	D570	0.015	0.15	0.15	0	1.2	0.7	0.25- 0.40	0.7	0.3	0.4
Izod Impact, (Notched) ft-lb/in	D256	3.1	16.0	14.0	0.5	1.0	2.2	6.0	1.31	1.3	—

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5,165,733
5,704,106
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