AdvantaFlex®
BioPharmaceutical Grade Tubing

TECH SHEET

AdvantaFlex TPE (thermoplastic elastomer) tubing addresses the need for a flexible, translucent, sterilizable, moldable, heat sealable, *and* weldable biopharmaceutical tubing for fluid processing. AdvantaFlex maintains its physical properties following sterilization processes, resists kinking, remains translucent for visible product flow, and does not become gummy.

TPE

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Key Features

CERTIFIED ANIMAL DERIVED INGREDIENT FREE

- Sterile weldable and heat sealable
- Available as leak-proof molded connections *and* tubing
- Made from FDA-approved ingredients
- Certified free of silicone oils and animal-derived ingredients
- Sterilizable by autoclave or gamma radiation
- Available with validated sterility assurance of 10^{-6} via gamma irradiation per ISO 11137 method VDmax 25
- Meets various ISO and USP standards, including Class VI
- Meets European Pharmacopoeia 3.2.2.1 standards
- REACH, RoHS and California Proposition 65 compliant
- Excellent low absorption and adsorption characteristics as compared to silicone
- Low permeability as compared to silicone
- Smooth interior for excellent flow and performance
- Translucent for fluid flow visibility
- Excellent tubing component for Single-Use systems
- Sizes from 1/8" (.125) through 1" (1.000) I.D.
- Custom sizes, lengths and packaging available
- Supplied double bagged
- Sealed in polybags at manufacture for cleanliness
- Documented quality control; lot traceable with identification on polybags
- Single resin validation — no need to graft to other tubing materials like silicone for media filling and sampling that involves peristaltic pumps; helps eliminate operator errors
- "Extractables" test portfolio available upon request
- AdvantaFlex has a Master File with the U.S. Food and Drug Administration (#28810)

Molded Assemblies & Connections Available

AdvantaPure® NewAge Industries

Purity in Fluid Flow Systems®

There is a better alternative

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Specifications

Product Number	I.D. (in.)	I.D. (mm.)	Wall (Ref.) (in.)	Wall (Ref.) (mm.)	O.D. (in.)	O.D. (mm.)	Working Pressure at 70˚F (21.1˚C) (PSI)	Working Pressure at 70˚F (21.1˚C) (Bar)	Standard Lengths Coiled (ft.)	Standard Lengths on Spools (ft.)
APAF-BP-0125-0250	.125	3.18	.062	1.57	.250	6.35	30	2.1	50, 100	500
APAF-BP-0188-0313	.188	4.76	.062	1.57	.313	7.94	23	1.6	50, 100	–
APAF-BP-0188-0375	.188	4.76	.094	2.38	.375	9.52	32	2.2	50, 100	–
APAF-BP-0250-0375	.250	6.35	.063	1.59	.375	9.52	20	1.4	50, 100	–
APAF-BP-0250-0438	.250	6.35	.094	2.38	.438	11.11	23	1.6	50, 100	300
APAF-BP-0250-0500	.250	6.35	.125	3.18	.500	12.70	30	2.1	50	–
APAF-BP-0313-0438	.313	7.94	.062	1.57	.438	11.11	21	1.4	50, 100	300
APAF-BP-0313-0500	.313	7.94	.094	2.38	.500	12.70	24	1.6	50	–
APAF-BP-0375-0500	.375	9.52	.062	1.57	.500	12.70	18	1.3	100	–
APAF-BP-0375-0563	.375	9.52	.094	2.39	.563	14.30	23	1.6	50	–
APAF-BP-0375-0625	.375	9.52	.125	3.18	.625	15.88	24	1.6	50, 100	150
APAF-BP-0500-0750	.500	12.70	.125	3.18	.750	19.05	22	1.5	50, 100	100
APAF-BP-0625-0875	.625	15.88	.125	3.18	.875	22.23	18	1.3	50	–
APAF-BP-0750-1000	.750	19.05	.125	3.18	1.000	25.40	17	1.2	50, 100	75
APAF-BP-0750-1125	.750	19.05	.188	4.76	1.125	28.58	18	1.3	100	–
APAF-BP-1000-1375	1.000	25.40	.188	4.76	1.375	34.93	18	1.3	25	–

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Sold by standard lengths only. Add length suffix code to product number when ordering—see the Coil Length Legend at right for length suffix codes. Example: a 50 foot coil of .125 inch I.D. x .250 inch O.D. tubing is product number APAF-BP-0125-0250L. Add length and "S" to denote "spool" for products with lengths available on spools. Example: a 500 foot spool of .125 inch I.D. x .250 inch O.D. tubing is product number APAF-BP-0125-0250-500S. Working pressures are calculated from burst testing using a 3:1 safety factor. Coils and spools are supplied double bagged in heat-sealed polybags and bulk packed. Contact your AdvantaPure Sales Representative for other packaging options.

Coil Length Legend:

P = 25 feet
L = 50 feet
K = 100 feet

Applications

- Sterile filling
- Vaccine production
- Pharmaceutical sampling and delivery systems
- Single-Use systems
- Bioreactor processes
- Cell media, harvesting, and fermentation
- Pharmaceutical production and processing
- High purity water transfer
- Filtration

Physical Properties

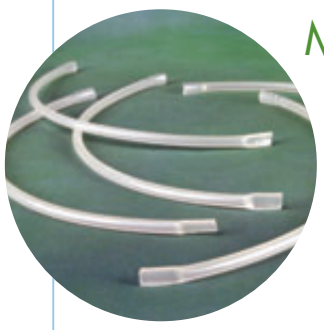
Specific Gravity	.89
Hardness, Shore A ±5	65
Ultimate Tensile Strength, PSI	1000
Ultimate Elongation, %	550
Tensile Modulus @ 100%, PSI	410
Tear Strength, Die B, PPI	240
Compression Set, % per ASTM D-395B	25
Maximum Operating Temperature, °F	275
Brittle Temperature, °F	-88

Values listed are typical for the material used in manufacture, except where noted, and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for your application.

Phone: 215-526-2151 Toll Free Phone: 888-755-4370
www.advantapure.com

Molded Assemblies & Connections

- Build Single-Use tubing assemblies from AdvantaFlex®
- Eliminate the need to splice silicone tubing sections into a process line
- Reduce the number of barbed fittings and cable ties needed *and* their potential for contamination, leaks and a wasted batch of product
- Molded connections provide a smooth inner surface for even, unrestricted flow
- Choose from T's, Y's, crosses, reducers, mini and standard Tri-Clamps®, and BioClosure® container closures and inserts such as GL45's
- Available with validated sterility assurance of 10^{-6} via gamma irradiation per ISO 11137 method VDmax 25



More AdvantaFlex Options

- **Sealed Tubing Ends** for Single-Use applications make it easy to maintain your sterile, closed system
- Weld to bags or container closures for sampling and storage applications
- Ideal for reducing operational costs, improving production efficiencies and decreasing cross contamination risks

- Single-Use **Sterile Bottle Assemblies** provide a ready to use, cost effective solution for aseptic sampling, cell growth and filling applications
- Robust molded closure design features a continuous flow path that reduces the risk of barbed fitting leaks and contamination

TPE

- **Molded Tubing Ends** are ideal for aseptic transfer and processing
- AdvantaFlex tubing is overmolded with a USP Class VI polypropylene mini Tri-Clamp to form a smooth fluid path
- The ends reduce leaks and cross contamination risks
- Available from stock in several tubing sizes and lengths

- **Bioreactor Tubing Kits** are built-to-order and clean room packaged
- Offer faster turnaround time, increasing your processing capacity
- Assembled from various components — tubing, filters, connectors — for convenience and efficiency

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AdvantaFlex®
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Welding & Sealing AdvantaFlex

- Excellent weldability and sealability allows leak-free, sterile connections for filling, sampling and storage applications. AdvantaFlex is compatible with all portable welding and heat-sealing equipment.

TPE

Purity in Fluid Flow Systems®

Made in U.S.A.

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3/9/17