



» INDUSTRY BULLETIN

## Versaflex™ & Versalloy™ Specialty Engineered Materials Thermoplastic Elastomers for Healthcare Applications

Delivering specialized thermoplastic elastomer (TPE) solutions for demanding healthcare applications, Avient has performance-grade materials that are approved for USP VI, ISO 10993-4 and 10993-5. Formulated without phthalate plasticizers, several of our grades offer high clarity, bond to a variety of substrates and can be customized. Additional specialty grades span a wide durometer range and are formulated without animal derivatives for use in a broad range of applications. Common healthcare applications include medical tubing, gaskets and stoppers, bags, bottles and films, grips, handles and medical devices.

### **VERSAFLEX™ HC MEDICAL TUBING GRADES**

- Improve extrusion rates, achieve high service temperature performance or increase clarity in medical tubing
- Traditional and bio-based formulations specifically for biopharmaceutical tubing to meet the needs for weldability and minimize extractables during processing

### **VERSAFLEX™ HC GASKETS & STOPPERS SERIES**

- Achieve no coring, good puncture and resealability in static stoppers
- Meet low COF and low stiction requirements in dynamic seals

### **VERSAFLEX™ CL E SERIES**

- Increase clarity and flexibility in bags, bottles and films
- Mitigate risk with plasticizer-free formulations for film extrusion
- Deliver excellent odor & O<sub>2</sub> barrier performance for film extrusion

### **VERSALLOY™ HC SERIES**

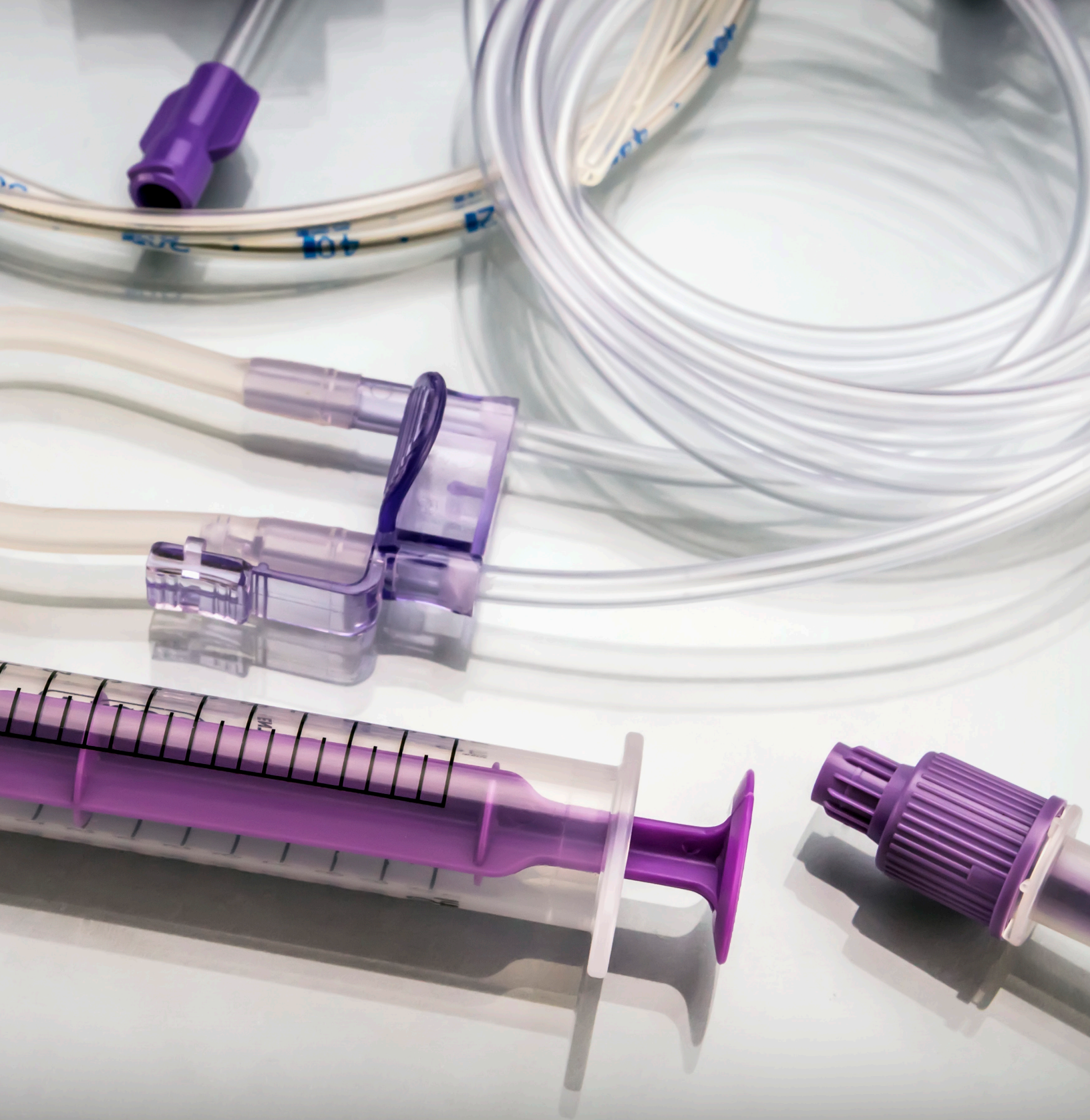
- Obtain better flow in long, thin paths and lower shrink rates versus typical TPVs with our alloys
- Color easily and obtain a smooth tactile feel

## TPE HEALTHCARE PRODUCT SELECTOR GUIDE

GENERAL PROPERTIES						TENSILE PROPERTIES								REGULATORY		OTHER	
Color	Hardness	Specific Gravity	Compression Set @ 23°C	Compression Set @ 100°C	100% Modulus		300% Modulus		Tensile Strength		Elongation	Tear Strength		ISO 10993	USP VI	Special Characteristics	
	ASTM Shore A	ASTM/ISO	ASTM %	ASTM %	ASTM psi	MPa	ASTM psi	MPa	ASTM psi	ISO MPa	ASTM %	ASTM pll	ISO kN/m				
<b>Versaflex™ HC Medical Tubing Grades</b>																	
Versaflex™ HC MT222	Clear	66A	0.88	14	-	334	2.30	629	4.34	898	6.19	430	220	36	✓	✓	High clarity, without plasticizers
Versaflex™ HC MT224	Clear	75A	0.89	19	-	468	3.23	773	5.33	1360	9.40	530	321	56	✓	✓	
Versaflex™ HC MT226	Clear	84A	0.88	20	-	606	4.17	885	6.10	1600	11.00	600	433	76	✓	✓	
Versaflex™ HC MT317	Clear	68A	0.89	17	69	450	3.10	660	4.55	870	6.00	470	221	39	✓	✓	Very high service temperature
Versaflex™ HC BT218	Natural	67A	0.89	19	69	381	2.60	683	4.70	1186	8.20	608	-	-	✓	✓	Weldable, kink resistant
Versaflex™ HC BIO BT218	Natural	70A	0.88	18	58	416	2.87	668	4.60	1190	8.20	630	-	-	✓	✓	Weldable, kink resistant, contains 40% bio-derived content (Gen 1 biomass)
<b>Versaflex™ HC Gaskets &amp; Stoppers Series</b>																	
Versaflex™ HC 2110-35N	Natural	34A	0.90	19	47	145	1.00	261	1.80	400	2.76	620	97	17	✓	✓	Good resealing
Versaflex™ HC 2110-43N	Natural	43A	0.98	12	46	134	0.92	368	2.54	723	4.98	710	-	-	✓	✓	Good compression set
Versaflex™ HC 2110-57B	Black	59A	1.01	20	37	369	2.54	558	3.85	537	3.70	350	147	26	✓	✓	Low stiction
<b>Versaflex™ CL E Series</b>																	
Versaflex™ CL E85	Clear	84A	0.90	20	72	752	5.18	1160	8.00	1550	10.70	450	433	76	✓	✓	High clarity, without plasticizers; E95 also offers excellent odor & O <sub>2</sub> barrier
Versaflex™ CL E90	Clear	90A	0.90	27	73	1000	6.89	1230	8.50	1830	12.60	57	-	-	✓	✓	
Versaflex™ CL E95	Clear	95A	0.90	38	71	1680	11.60	1730	11.90	2500	17.20	580	720	126	✓	✓	
<b>Versaflex™ HC 3810 Series</b>																	
Versaflex™ HC 3810-20N	Natural	20A	0.88	16	54	123	0.80	185	1.30	342	2.40	650	-	-	✓	-	Formulated without animal derivatives, excellent colorability, translucent
Versaflex™ HC 3810-30N	Natural	30A	0.89	18	58	170	1.20	245	1.70	459	3.20	680	-	-	✓	-	
Versaflex™ HC 3810-40N	Natural	40A	0.88	19	59	191	1.30	275	1.90	506	3.50	670	-	-	✓	-	
Versaflex™ HC 3810-50N	Natural	50A	0.89	21	61	264	1.80	366	2.50	699	4.80	690	-	-	✓	-	
Versaflex™ HC 3810-60N	Natural	60A	0.88	24	65	459	3.20	594	4.10	790	5.40	510	-	-	✓	-	
Versaflex™ HC 3810-70N	Natural	70A	0.88	28	67	535	3.70	684	4.70	1000	6.90	570	-	-	✓	-	
Versaflex™ HC 3810-80N	Natural	80A	0.88	30	67	689	4.80	869	6.00	1390	9.60	620	-	-	✓	-	
Versaflex™ HC 3810-90N	Natural	90A	0.88	27	89	1087	7.50	1350	9.30	1890	13.00	570	-	-	✓	-	
<b>Versalloy™ HC 9210 Series</b>																	
Versalloy™ HC 9210-45N	Natural	45A	0.89	19	39	160	1.10	320	2.20	484	3.33	480	100	18	-	✓	Smooth surface aesthetics
Versalloy™ HC 9210-55N	Natural	53A	0.89	20	44	208	1.44	335	2.31	580	4.00	610	120	21	-	✓	
Versalloy™ HC 9210-70N	Natural	70A	0.89	23	53	356	2.45	510	3.52	780	5.38	590	180	32	-	✓	
<b>Versalloy™ HC 9220 Series</b>																	
Versalloy™ HC 9220-70	Natural	70A	0.95	17	51	453	3.12	-	-	643	4.43	265	208	36	✓	✓	Extrudable
Versalloy™ HC 9220-80	Natural	80A	0.94	18	59	553	3.67	777	5.36	945	6.52	415	208	36	✓	✓	
Versalloy™ HC 9220-90	Natural	90A	0.94	25	55	1030	8.13	1350	9.33	1945	13.45	620	400	70	✓	✓	
<b>Standard Healthcare Grades</b>																	
Versaflex™ G2705N	Natural	60A	0.88	-	-	-	-	528	3.64	670	4.62	470	-	-	✓	✓	Natural, high strength
Versaflex™ CL 2242	Clear	43A	0.89	23	-	152	1.05	294	2.02	731	5.00	780	124	22	✓	✓	High clarity, boilable
Versaflex™ CL 2250	Clear	50A	0.89	20	-	220	1.52	337	2.32	827	5.70	770	140	25	✓	✓	
<b>Versaflex™ OM Series</b>																	
Versaflex™ OM 1040X	Natural	42A	0.92	22	-	180	1.24	301	2.08	504	3.47	580	100	18	✓	✓	ABS/PC overmold
Versaflex™ OM 3060	Clear	59A	0.90	33	-	420	2.90	360	2.48	500	3.45	480	180	32	✓	✓	
Versaflex™ OM 8940X-1	Clear	42A	0.91	-	-	233	-	311	-	1573	-	1059	-	-	-	-	PK, COPE overmold
Versaflex™ OM 4052	Natural	56A	1.01	27	-	271	-	557	-	1680	-	670	-	-	✓	-	Excellent chemical resistance; PK, PC, ABS, PC/ABS overmold
Versaflex™ OM 4063	Natural	54A	1.12	30	-	365	-	580	-	1640	-	670	-	-	✓	-	

For further information on specific grades, review technical data sheets.





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