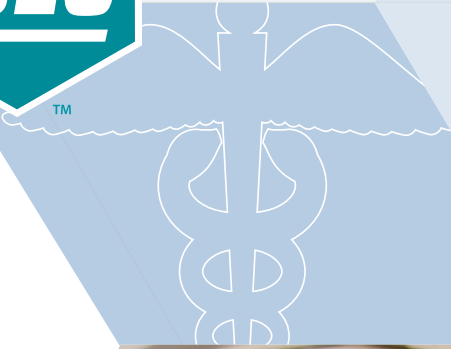




Industry Bulletin

GLS Thermoplastic Elastomers



PolyOne[™]

GLS Thermoplastic Elastomers

Delivering specialized thermoplastic elastomer solutions for demanding healthcare applications

Innovative TPE solutions that provide design freedom, performance enhancement, compliance confidence, and system optimization

Performance-grade Materials

- Meets USP VI and ISO 10993-4 and 10993-5
- Formulated without halogens or phthalates
- Grades formulated without plasticizers
- Multiple sterilization processes
- High clarity grades
- Bondability to a variety of substrates
- Customizable
- Recyclable

Versaflex™ HC Medical Tubing Series

- Specialized thermoplastic elastomers offer unique solutions and offsets to traditional medical tubing materials
- Materials offer exceptional extrusion rates, high clarity grades without plasticizers and grades with high service temperatures



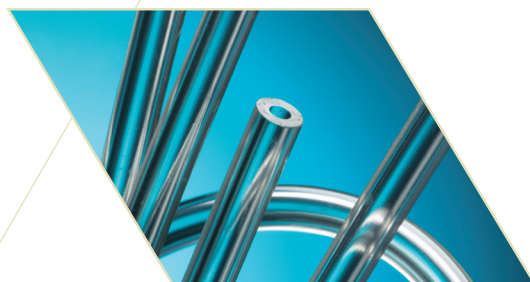
Versaflex™ HC Gaskets & Stoppers Series

- Unique TPEs ideal for dynamic and static seals and stoppers
- No coring, good puncture, and resealability for static stoppers
- Low COF and stiction for dynamic seals



Versaflex™ CL E Series

- Exceptional clarity, high performance and autoclavable solution for bags, bottles and film applications
- High clarity before and after autoclave, high flexibility and low extractables



Versalloy™ HC Series

- These TPV alloys offer exceptional flow, lower shrink rate, and aesthetics over typical TPVs
- Ideal for medical devices that are designed with long, thin flow paths
- Highly colorable and offer a smooth tactile feel

General Purpose Healthcare Grades

In addition to our specialized healthcare products, PolyOne offers several general purpose healthcare grades for injection, extrusion and overmolding applications.



TPE Healthcare Product Selector Guide

GENERAL PROPERTIES				TENSILE PROPERTIES							REGULATORY		BONDING			STERILIZATION			OTHER
Color	Hardness	Specific Gravity	Compression Set @ 23°C	100% Modulus		300% Modulus		Tensile Strength		Elongation	ISO 10993	USP VI	ABS / PC	PE	PP	Autoclave	Radiation	EO	Special Characteristics
	ASTM/ISO Shore A	ASTM/ISO	ASTM/ISO %	ASTM psi	ISO MPa	ASTM psi	ISO MPa	ASTM psi	ISO MPa	ASTM/ISO %									

Versaflex™ HC Medical Tubing Series

HC MT222	Clear	65A	0.88	12	280	1.93	475	3.28	1150	7.9	450	x	x			x	x	x	x	Without Plasticizers
HC MT224	Clear	75A	0.89	15	468	3.23	773	5.33	1364	9.4	527	x	x			x	x	x	x	Without Plasticizers
HC MT226	Clear	84A	0.89	18	606	4.17	885	6.1	1600	11.0	600	x	x			x	x	x	x	Without Plasticizers
HC MT307	Trans.	68A	0.89	17	450	3.1	703	4.8	870	6.0	465	x	x			x	x	x	x	Very High Service Temperature
HC MT555	Trans.	54A	0.89	20	265	1.83	480	3.31	850	5.9	630	x	x			x	x	x	x	High Service Temperature

Versaflex™ HC Gaskets & Stoppers Series

HC 2110-54B	Black	54A	1.02	15	562	3.9	—	—	645	4.5	190	x	x			x		x	x	Low COF, Low Stiction
HC 2110-57B	Black	57A	1.09	10	369	2.5	558	3.85	537	3.7	350	x	x			x	x	x	x	Low Stiction
HC 2110-43N	Natural	43A	0.98	12	135	0.93	293	2.0	725	5.0	710	x	x		x	x	x	x	x	Reseal, Good Compression Set
HC 2132-51N	Natural	52 A	0.91	22	202	1.39	—	—	279	1.9	240	x	x			x	x	x	x	High Barrier to O ₂ & Moisture

Versaflex™ CL E Series

CL E85	Clear	85A	0.90	19	606	4.17	885	6.1	1600	11.0	600	x	x			x	x	x	x	Without Plasticizers
CL E90	Clear	90A	0.90	27	1000	6.89	1234	8.8	1834	12.6	570	x	x			x	x	x	x	Without Plasticizers
CL E95	Clear	95A	0.90	38	1680	11.6	1730	11.9	2485	17.1	575	x	x			x	x	x	x	Barrier to O ₂ & Odor

Versalloy™ HC Series

9210-45N	Natural	45A	0.89	11	160	1.10	315	2.17	460	3.17	450		x			x				High flow, Smooth Surface Aesthetics
9210-55N	Natural	55A	0.89	12	208	1.43	360	2.48	570	3.93	520		x			x				High flow, Smooth Surface Aesthetics
9210-70N	Natural	70A	0.89	19	356	2.45	530	3.65	810	5.58	580		x			x				High flow, Smooth Surface Aesthetics

General Purpose Healthcare Grades

Dynaflex™ G2706	Trans.	28A	0.89	8	90	0.62	340	2.34	1010	7.0	710	x	x			x		x	x	High Strength
Dynaflex™ G2711	Trans.	43A	0.89	14	180	1.24	360	2.48	830	5.7	650	x	x			x		x	x	Excellent Colorability
Versaflex™ CL 2242	Clear	42A	0.89	23	152	1.05	280	1.93	731	5.0	720	x	x			x		x	x	Boilable
Versaflex™ CL 2250	Clear	50A	0.89	20	230	1.59	430	2.96	720	5.0	610	x	x			x		x	x	Boilable

Versaflex™ Overmolding Grades

Versaflex™ OM 1040X	Natural/Black	42A	0.92	22	180	1.24	400	2.76	520	3.6	490	x	x	x				x	x	ETP Overmold
Versaflex™ OM 3060	Clear	60A	0.90	33	420	2.9	530	3.65	660	4.6	460	x	x	x				x	x	ETP Overmold

TESTING METHODS

Hardness Points

ASTM: D2240, 10 Sec. Delay
ISO: 868, 10 Sec. Delay

Specific Gravity

ASTM: D792
ISO: 2781

Compression Set @ 23°C

ASTM: 395B, @22hrs
ISO: 815, @22hrs

Tensile Properties

ASTM: D 412-Die C
ISO: 37

- Properties shown are typical values and are not intended as product specifications. All properties were measured using natural product unless otherwise specified.
- For some products, the black properties will differ slightly from the natural version – refer to product Technical Data Sheet for specific product properties.
- The test methods referenced are modifications of the ASTM/ISO procedures listed. All tests are conducted on injection molded samples.
- ISO 10993 listed products tested for ISO 10993-4 and 10993-5.

No Surprises PledgeSM

At PolyOne, we are committed to helping you grow your business with safe and environmentally sound solutions. This commitment is exemplified by our **No Surprises PledgeSM**, which we make to all customers and markets across the globe.

- ✓ You can be confident that, in formulating and manufacturing our materials, we use sustainable practices to provide long-term product viability and sound environmental stewardship.
- ✓ You can expect that the materials we produce contain only ingredients that conform to accepted legal and regulatory compliance guidelines.
- ✓ You can trust that PolyOne materials meet the rigorous quality and safety management standards required across the globe.
- ✓ You can be certain that PolyOne meets or exceeds the material safety data reporting requirements of your country or region.
- ✓ When you choose PolyOne, you can be confident our products will help you meet or exceed today's stringent compliance standards.

Product choices often vary by region due to differences in regulatory and agency requirements, availability and other key factors. Please contact your nearest sales office for assistance in choosing the right solution for your locale.

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