

Compression Molded Products

**WESTLAKE
PLASTICS COMPANY**

Material Descriptions

ABSYLUX®



ABS (Acrylonitrile-Butadiene-Styrene)

Absylux ABS is a low cost engineering plastic ideal for prototyping. It has excellent dimensional stability and lends itself to all forms of fabrication. It can be painted or glazed and in some cases chrome plated.

HIPS



(High Impact Polystyrene)

HIPS is a low cost plastic material that is easily machined and fabricated. It is frequently used for preproduction prototyping. HIPS is FDA compliant for use in food processing applications.

KYNAR®



PVDF (polyvinylidene fluoride)

Manufactured from Kynar® polyvinylidene fluoride resin. This material offers excellent corrosion and chemical resistance at both ambient and elevated temperatures. PVDF is also inherently UV stable, mechanically tough, abrasion and flame resistant. Kynar 1000HD is a whiter grade of PVDF than Kynar 740.

LENNITE®



UHMW-PE (Ultra High Molecular Weight Polyethylene)

Lennite UHMW-PE is a low friction engineering plastic with good chemical and wear resistance. It is widely used in slide bearing applications. It can be machined into complex parts with minimal deformation due to the processing capabilities Westlake Plastics.

NORYLUX®



(Modified Polyphenylene Oxide)

Norylux modified PPO is a strong, engineering plastic with excellent mechanical, thermal, and electrical properties. Along with its low moisture absorption, Norylux is one of the most dimensionally stable engineering materials available. Common uses include electrical housings, scientific instruments, and fluid handling components.

POMALUX®



(Acetal Copolymer)

Pomalux is a high performance acetal copolymer with excellent mechanical, electrical, and wear properties. Pomalux has excellent dimensional stability even with complex geometries. As a bearing surface, it works well in dry and wet applications. Pomalux is FDA compliant.

DIELUX®



(PTFE filled Acetal Copolymer)

Dielux PTFE filled acetal copolymer is an outstanding bearing and wear material. The PTFE filler allows Dielux to be used without additional lubricants in applications where grease and oil are undesirable in both wet and dry environments. Westlake also has an FDA compliant grade of Dielux.

PROPYLUX®



(polypropylene)

Propylux is made from polypropylene resin. Among its most notable characteristics are its mechanical toughness, chemical resistance, and resistance to abrasion. These properties make it suitable for various applications. Propylux Natural, Void Free, and 944 are FDA compliant.

ZELUX®



(Polycarbonate)

Zelux polycarbonate has excellent dimension, mechanical, and electrical properties. It can be polished to a high clarity for sight glasses and lenses. Zelux W or window grade comes in thicknesses up to 2".

Westlake Compression Molded Sheet Products—Properties

	Units	ASTM Test	Absylux	HIPS	Kynar 740/1000HD	Kynar 2850	Lennite	Norylux	Pomalux	Dielux	Propylux	Zelux M	Zelux W
			Acrylonitrile-Butadiene-Styrene	High Impact Polystyrene	PVDF Homopolymer	PVDF Copolymer	Ultra High Molecular Weight Polyethylene	Modified Polyethylene Oxide	Acetal Copolymer	PTFE Filled Acetal Copolymer	Polypropylene	Polycarbonate Machine Grade	Polycarbonate Window Grade
MECHANICAL													
Tensile Strength @yield	psi	D638	6,100	2,800	7,000	5,000	2,800	9,200	—	6,500	5,200	9,500	9,500
Tensile Strength @break	psi	D638	—	3,500	—	—	6,000	—	—	—	—	9,000	9,000
Tensile Modulus	psi	D638	310,000	239,000	250,000	125,000	—	—	380,000	—	240,000	—	—
Tensile Elongation @yield	%	D638	—	—	7.0-13.0	10.0-20.0	—	—	—	—	—	7.0	7.0
Tensile Elongation @break	%	D638	—	52.0	100	350	>350.0	25.0	—	12.0-15.0	600	110.0	110.0
Flexural Strength @yield	psi	D790	10,500	6,200	8,000	3,500	—	14,400	—	9,500	7,000	13,500	13,500
Flexural Modulus	psi	D790	340,000	277,000	290,000	170,000	—	370,000	370,000	320,000	120,000	340,000	340,000
Compressive Strength	psi	D695	—	—	—	—	—	—	—	—	6,000	12,500	12,500
Compressive Modulus	psi	D695	—	—	—	—	—	—	—	—	—	345,000	345,000
Izod Impact Strength													
Un-Notched	ft•lbs/in	D256	—	—	20.0-80.0	No break	—	—	—	—	—	No break	No break
Notched @73°F	ft•lbs/in	D256	7.7	2.1	3.0	8.0	18.0 ⁽²⁾	3.5	1.5	0.9	0.7	17.0	17.0
Hardness (R, M, L or D)	—	D7852 D2240	R105	R95 L60	D77	D70	D61	R119	M80	—	R95	M70 R118	M70 R118
THERMAL													
Heat Deflection Temperature													
@66 psi	°F	D648	214	189	257-284	237	203	—	315	—	210	280	280
@264 psi	°F	D648	203	165	230	125	—	254	219	210	130	270	270
Coefficient of Thermal Expansion	in/in/°F	D696	4.1x10 ⁻⁵⁽³⁾	5.0x10 ⁻⁵	6.6x10 ⁻⁵	7.8x10 ⁻⁵	11.0x10 ⁻⁵	3.3x10 ⁻⁵	—	—	8.1x10 ⁻⁵	3.8x10 ⁻⁵	3.8x10 ⁻⁵
Flammability Rating-UL94	—	—	@.058* HB	@.058* HB	V-0	V-0	— —	@.058* V-1	@.060* HB	— —	— HB	@.375* V-0	@.375* V-0
Thermal Conductivity	(BTU•in)/(hr•ft ² •°F)	C177	—	—	—	—	—	—	—	—	2.80	1.32	1.32
ELECTRICAL													
Dielectric Strength	Kv/cm	D149	—	—	1,600	—	900	500	—	450	600	380	380
Dielectric Constant	—	D150	—	—	@1kHz 8.5	@1kHz 7.5	@60Hz 2.30	@60Hz 2.69	@1MHz 3.80	—	@1kHz 2.30	@60Hz 3.17	@60Hz 3.17
Dissipation Factor	—	D150	—	—	—	—	@50Hz 0.00019	@60Hz 0.0007	—	—	—	@60Hz 0.0009	@60Hz 0.0009
Volume Resistivity	ohm•cm	D257	—	—	2.0x10 ¹⁴	2.0x10 ¹⁴	>10 ¹⁶	—	—	—	—	>1.0x10 ¹⁷	>1.0x10 ¹⁷
TRIBOLOGICAL													
Coefficient of Friction (Dry vs. Steel)													
Static	—	—	—	—	—	—	—	—	—	0.07	—	—	—
Dynamic	—	—	—	—	—	—	—	—	—	0.15	—	—	—
Limiting PV Against Steel @100fpm	—	—	—	—	—	—	—	—	—	12,500	—	—	—
OPTICAL													
Haze	%	D1746	—	—	—	—	—	—	—	—	—	1.0	1.0
Transparency	%	D1746	—	—	—	—	—	—	—	—	—	—	—
OTHER													
Specific Gravity	—	D792	1.04	1.04	1.78	1.78	0.93	1.08	1.40	1.50	0.91	1.20	1.20
Water Absorption													
@24 hours	%	D570	—	—	0.03	0.04	Nil	0.07	0.20	0.15	<0.10	0.15	0.15
@Equilibrium	%	D570	—	—	—	—	—	—	—	—	—	0.35	0.35

Compression Molded Sheet

When deciding on a compression molded sheet versus an extruded sheet you will want to evaluate some distinct differences. Material stability, sheet size and yield versus cost, and surface finish are all factors worth considering.

Westlake compression molded sheets are formed under heat and pressure, and are slowly cooled to produce a very dimensionally stable, virtually stress-free sheet ideal for machining and fabrication. When machining close tolerance parts, a fabricator will experience very little material movement. Our proprietary process provides sheets with inherent stress levels that are extremely low or nonexistent in some cases than those typically found in the same materials that have been extruded and secondarily annealed.

Additionally, the cost of individual machined components can be significantly reduced by achieving maximum sheet yields when utilizing a compression molded sheet. Westlake offers a wide range of sheet sizes in addition to the industry standard 24"x48" to help maximize yields and reduce waste. Westlake can manufacture most materials in 30"x60", 36"x72", 48"x96", 48"x120", 60"x120", and 72"x144" sheet sizes. Westlake compression molding can often benefit your custom sheet needs as well. Our molding process typically requires fewer sheets for minimum runs and shorter lead times than extruded/annealed sheets.

Westlake's compression molded sheet also offers you a wide variety of surface finishes. While extruded/annealed sheet often comes with a rough planed surface, compression molded sheet is typically produced with a smooth surface. A variety of other surface finishes can also be applied during the manufacturing process including press polished, haircell and other custom surface textures.

The Company

Westlake Plastics Company is a world leader in extrusion and compression molding technologies of high performance thermoplastics. Our advanced technologies allow us to convert the full range of thermoplastic resins into stock shapes and film.

Our field and in-house technical experts provide you with excellent resources for product application and recommendations. Our industry focused expertise includes:

- Analytical Instrumentation
- Automotive
- Aviation and Aerospace
- Chemical Processing
- Computer
- Electrical/Electronics
- Food Handling
- Medical
- Nuclear Energy
- Pharmaceutical
- Semiconductor
- Telecommunications

In addition to our knowledge on specific industries, Westlake also offers over 50 years of manufacturing experience. With both compression molding and extrusion technologies, we are able to offer small runs of customized products with short turn around times as well as generous samples.

If it's product or application knowledge you seek, Westlake is ready to respond to your challenges.

Other Westlake Products

Many of our standard products are also available in different grades including: FDA compliant, fire retardant and glass fiber reinforced.

Made from:

- Engineering and Mechanical Resins**
 - Acetal Copolymer (ULTRAFORM®, CELCON®)
 - Acrylonitrile-Butadiene-Styrene (CYCOLAC®)
 - Modified Polyphenylene Oxide (NORYL®)
 - Polycarbonate (LEXAN®, MAKROLON®)
 - Low-Density Polyethylene
 - High-Density Polyethylene
 - Ultra-High Molecular Weight Polyethylene
 - Polymethylpentene
 - Polypropylene
 - Crystal Polystyrene (STYRON®)
 - High Impact Polystyrene (STYRON®)
- Fluoropolymer Resins**
 - Ethylene-Chlorotrifluoroethylene (HALAR®)
 - Ethylene-Tetrafluoroethylene (TEFZEL®)
 - Polyvinylidene Fluoride (KYNAR®)
 - TFE/PVDF/HFP Terpolymer
- High Performance Resins**
 - Polyetheretherketone (VICTREX®)
 - Polyethersulfone (RADEL®A, ULTRASON® E)
 - Polyetherimide (Ultem®)
 - Polysulfone (UDEL®)
 - Polyphenylsulfone (RADEL® R)

Westlake Product

Pomalux®
Absylux®
Norylux®
Zelux®
Ethylux®
Ultra Ethylux®
Lennite®
TPX®
Propylux®
Styraclear®
HIPS

ECTFE
ETFE
PVDF
Clariflex™

PEEK
PES
Tempalux®
Thermalux®
PPSU

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Trade Names:

ABSYLUX® – Westlake Plastics Co.
CELCON® – Ticona
CYCOLAC® – GE Plastics
CLARIFLEX™ – Westlake Plastics Co.
ETHYLUX® – Westlake Plastics Co.
HALAR® – Ausimont USA, Inc.
KYNAR® – Elf Atochem North America, Inc.
LENNITE® – Westlake Plastics Co.
LEXAN® – GE Plastics
MAKROLON® – Mobay

NORYL® – GE Plastics
NORYLUX™ – Westlake Plastics Co.
POMALUX® – Westlake Plastics Co.
PROPYLUX® – Westlake Plastics Co.
RADEL® – Amoco Performance Products, Inc.
STANYL® – DSM Engineering Plastics
STYRACLEAR® – Westlake Plastics Co.
STYRON® – Dow U.S.A.
TEFZEL® – Du Pont Co.
TEMPALUX® – Westlake Plastics Co.

THERMALUX® – Westlake Plastics Co.
TPX® – Mitsui Plastics, Inc.
UDEL® – Amoco Performance Products, Inc.
ULTEM® – GE Plastics
ULTRAFORM® – BASF Corp.
ULTRA ETHYLUX® – Westlake Plastics Co.
ULTRASON® – BASF Corp.
VICTREX® – Victrex, Inc.
WESTLAKE® – Westlake Plastics Co.
ZELUX® – Westlake Plastics Co.

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