

FM 4910 Products

**WESTLAKE
PLASTICS COMPANY**

Material Descriptions

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 1000 is a whiter grade of PVDF than 740.

HALAR®



ECTFE (ethylene-chlorotrifluoroethylene)

Made from HALAR® ethylene-chlorotrifluoroethylene resin, these products are virtually unaffected by most common corrosive chemicals. ECTFE products have excellent chemical and mechanical properties, impact strength, and a broad service use temperature. This polymer offers extremely low permeability to liquids, gases, and vapors.

CORZAN® 4910



CPVC

Corzan 4910 CPVC is a new material developed for use in the construction of wet benches and other cleanroom equipment for the semiconductor industry. It meets Factory Mutual Standards for flame spread, smoke development, and corrosion resistance.

HTP 800®



CLEAR PVC

HTP 800 is a clear PVC based material for use as windows and doors in cleanroom equipment. Notable properties include light transmission, chemical resistance, and flame resistance.

Westlake FM 4910 Products—Properties

FM 4910 was developed to meet the need in the semiconductor industry for fire-safe materials. Damage to chip fabrication facilities is caused by fires and the smoke created is extremely costly. The movement toward fire-safe materials is an effort to reduce the likelihood of fires and to minimize the damage caused by them.

	Units	ASTM Test	Kynar® 740 PVDF homopolymer	Kynar® 2850 PVDF copolymer	Kynar® HD1000 PVDF	Halar® 901 ECTFE	Corzan® 4910 CPVC	HTP 800® PVC Based
MECHANICAL								
Tensile Strength @yield	psi	D638	7,000	5,000	7,000	4,300	7,900	8,711
Tensile Elongation @break	%	D638	100	350	100	250	–	45
Tensile Modulus	psi	D638	250,000	125,000	250,000	240,000	410,000	–
Flexural Modulus	psi	D790	290,000	170,000	290,000	245,000	457,000	435,550
Flexural Strength	psi	D790	8,000	3,500	8,000	6,800	14,500	14,050
Izod Impact Strength-notched	ft•lbs/in	D256	3.0	8.0	3.0	no break	1.5	1.4
Continuous Use Temperature	°F	–	280	240	280	300	–	–
Heat Deflection Temperature @264 psi	°F	D648	230	125	230	145	212	170
Melt Temperature	°F	D4591	335	315	335	330	–	–
FLAMMABILITY								
Rating - UL94	–	–	V-0	V-0	V-0	V-0	V-0	V-0
Limiting Oxygen Index (LOI)	%	D2863	43	42	43	56	–	–
ELECTRICAL								
Dielectric Strength	V/mil	D149	1,600 @5 mil	–	1,600 @5 mil	2,670 @3 mil	–	279 @1 mil
Dielectric Constant @1KHz	–	D150	8.5	7.5	8.5	2.5	–	–
OTHER								
Specific Gravity	–	D792	1.78	1.78	1.78	1.68	1.56	–
Water Absorption @24 hours	%	D570	0.03	0.04	0.03	<0.10	–	0.016

Kynar® 740

Key Properties

- High purity
- Flame resistant
- Easy to machine
- Excellent weatherability
- FDA, USDA, USPXX Class VI, 3A, UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

Kynar® 2850

Key Properties

- High purity
- Flame resistant
- Stress crack resistant
- Excellent weatherability
- FDA, USDA, USPXX Class VI, UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

Kynar® HD1000

Key Properties

- High purity
- Flame resistant
- Easy to machine
- Excellent weatherability
- FDA, USDA, USPXX Class VI, 3A, UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

Halar® 901

Key Properties

- High purity
- Flame resistant
- Impact resistant
- Excellent weatherability
- Low permeability
- UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

Corzan®

Key Properties

- High purity
- Flame resistant
- Impact resistant
- Excellent weatherability
- Low permeability
- UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

HTP 800®

Key Properties

- 69% light transmission
- Chemical resistance
- Stiffness
- UL V-0, FM 4910

Applications

- Fluid handling
- Semiconductor equipment
- Fire safe componentry

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.

New product development is the hallmark of Westlake Plastics. Our six business groups (Chemical Resistance, Engineering, Film, High Performance, Medical and Static Control) work in close conjunction with resin suppliers and end users to develop new products that meet the critical needs of customer applications as well as industry specific standards.

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

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

Engineered and Other Thermoplastic 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 (UDELE[®])
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

WESTLAKE
PLASTICS COMPANY

World Headquarters

P.O. Box 127 • West Lenni Road
Lenni, PA 19052
(610) 459-1000 • (800) 999-1700
Fax: (610) 459-1084

West Coast Office

377 E. Chapman Ave. • Suite 120
Placentia, CA 92870
(714) 961-1267 • (800) 440-0597
Fax: (714) 961-0978

Trade Names:

ABSYLUX[®] – Westlake Plastics Co.
CELCON[®] – Ticona
CYCOLAC[®] – GE Plastics
CLARIFLEX[™] – Westlake Plastics Co.
CORZAN[®] – Noveon
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.
UDELE[®] – 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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