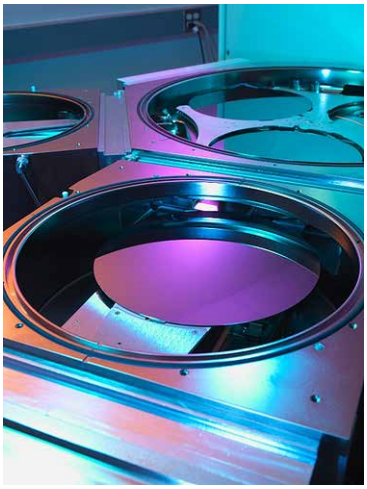
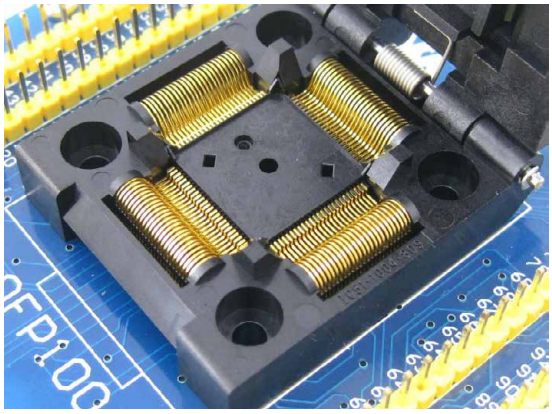
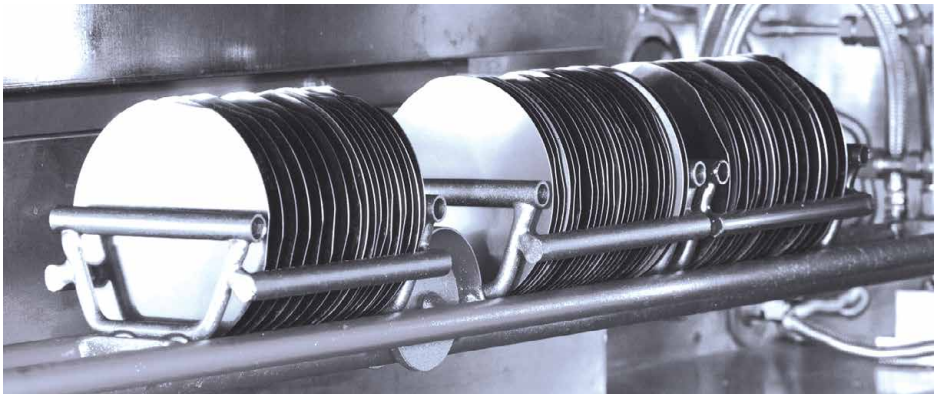
High-Performance Plastics for the Semiconductor Industry



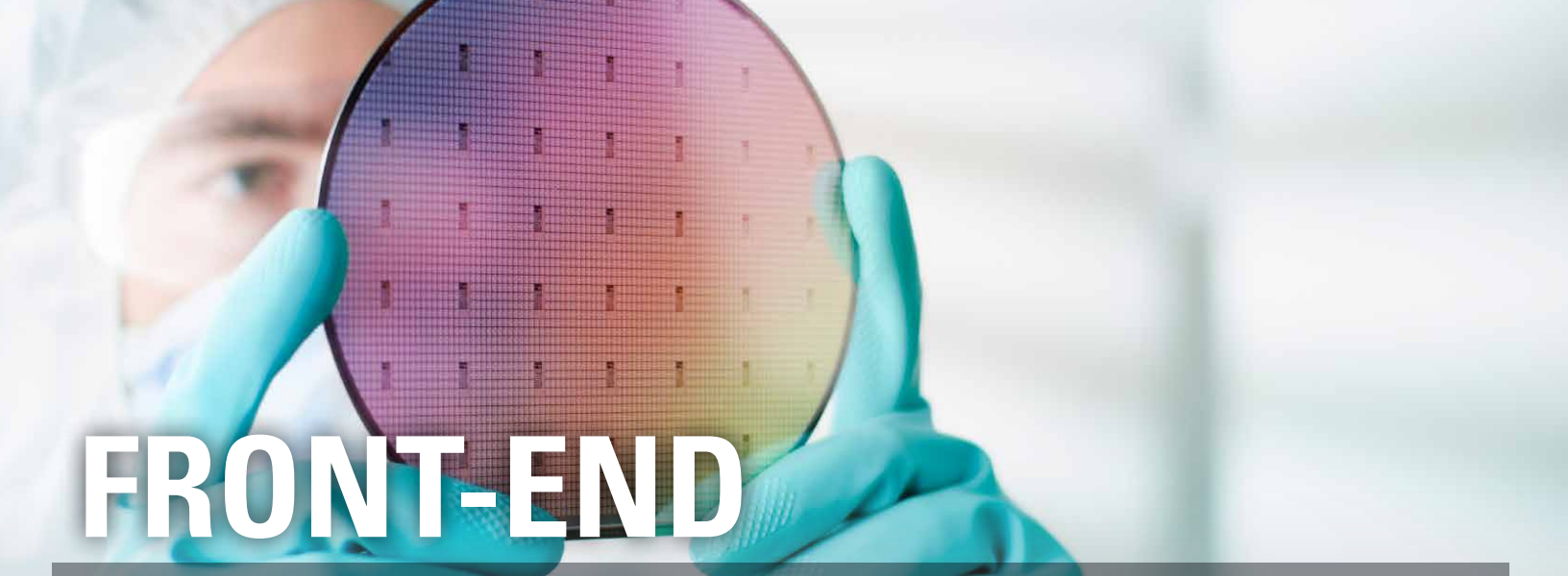




The Global Leader in High-Performance Plastics

PROFESSIONAL PLASTICS

Product Range Booklet



FRONT-END

In semiconductor device fabrication, the various processing steps fall into four general categories: Deposition, Removal, Patterning, and Modification of Electrical Properties.

Deposition is any process that grows, coats, or otherwise transfers a material onto the wafer. Available technologies consist of physical vapor deposition (PVD), chemical vapor deposition (CVD), electrochemical deposition (ECD), molecular beam epitaxy (MBE) and more recently, atomic layer deposition (ALD) among others.

Removal processes are any that remove material from the wafer either in bulk or selectively and consist primarily of etch processes, either wet etching or dry etching. Chemical-mechanical planarization (CMP) is also a removal process used between levels.

Patterning covers the series of processes that shape or alter the existing shape of the deposited materials and is generally referred to as lithography. For example, in conventional lithography, the wafer is coated with a chemical called a photoresist. The photoresist is exposed by a stepper, a machine that focuses, aligns, and moves the mask, exposing select portions of the wafer to short wavelength light. The exposed regions are washed away by a developer solution. After etching or other processing, the remaining photoresist is removed by plasma ashing.

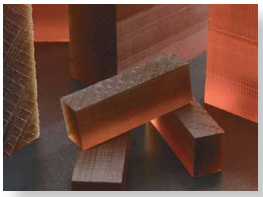
Modification of Electrical Properties has historically consisted of doping transistor sources and drains originally by diffusion furnaces and later by ion implantation. These doping processes are followed by furnace anneal or in advanced devices, by rapid thermal anneal (RTA) which serve to activate the implanted dopants. Modification of electrical properties now also extends to reduction of dielectric constant in low-k insulating materials via exposure to ultraviolet light in UV processing (UVP).

Wafer Process & Handling

Vespel® Polyimide SP-1
Offers a broad combination of temperature resistance, chemical resistance, mechanical toughness, natural lubricity, wear-resistance and insulation properties. Parts provide great plasma resistance, plus a UL rating for minimal electrical and thermal conductivity.

Meldin® Polyimide 7001
This polyimide offers superior mechanical properties, high chemical resistance, is ideal for electrical and thermal insulating applications, and is lighter weight than metals. In I.C. Testing applications, Meldin 7001 is an excellent replacement for Vespel SP-1.

Celazole® PBI
Celazole is the highest performance engineering thermoplastic available today. It has better wear resistance and load carrying capabilities at extreme temperatures than any other reinforced or unreinforced engineering plastic.

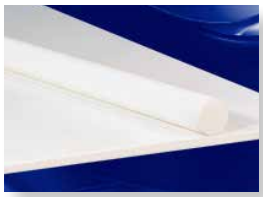


Ultem® 1000
Offers excellent chemical resistance, high dielectric strength, natural flame resistance, and extremely low smoke generation. Ultem 1000 also provides exceptionally high mechanical properties and ease of fabrication. Used in wafer handling and wafer transfer systems.

Call for Your Quote Today!

Virgin Teflon® PTFE

Teflon provides the ultimate in lubricity, high temperature use, chemical resistance, biocompatibility and precision extruded tolerances. Working temperature range of 500°F to -454°F.

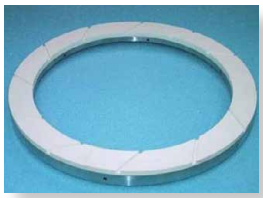


Ertalyte® PET-P

Unreinforced, semi-crystalline thermoplastic polyester characterized as having the best dimensional stability. This is paired with excellent wear resistance, low coefficient of friction, and high strength. It is capable of sustaining high loads and enduring wear conditions.

Symalit® PFA, ECTFE, ETFE, PVDF

These materials allow the use of FM 4910 listed materials in the construction of semiconductor equipment, where protections against property damage and production interruption is critical.



Techtron® PPS

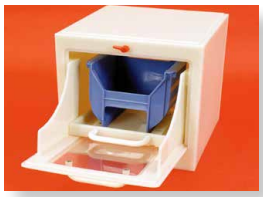
Offers the broadest resistance to chemicals of any advanced engineering plastic. It is ideal for structural applications in corrosive environments or as a replacement to PEEK at operating temperatures below 425°F. It is also suited for precise tolerance machined components.

PEEK - Virgin Grade

Offers chemical and water resistance similar to PPS, but can operate at higher temperatures continuously to 480°F (250°C). PEEK carries a V-0 flammability rating and exhibits very low smoke and toxic gas emission when exposed to flame.

Kel-F® PCTFE

Offers the unique combination of physical and mechanical properties, nonflammability, chemical resistance, near zero moisture absorption and excellent electrical properties. These characteristics cannot be found in any other thermoplastic fluoropolymer with a useful temperature range of -400°F to +400°F.



Halar® ECTFE

A partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of process ability. It is a very versatile polymer, available in all forms to meet processing needs.

Polysulfone® PSU 1000

An amorphous high performance polymer characterized by excellent thermal properties, good resistance to inorganic acids and bases, and outstanding hydrolytic stability against hot water and steam sterilization. Polysulfone's resistance to detergents and hydrocarbon oils is very good, even at elevated temperatures under moderate stress levels.

G-10/FR4

This 30% glass reinforced polyetherimide is commonly machined into parts for electrical/electronic insulators. This material provides greater rigidity and improved dimensional stability while maintaining many of the useful characteristics of unfilled Ultem®.

Acetal

Acetal copolymer provides high strength and stiffness coupled with enhanced dimensional stability and ease of machining. As a semi-crystalline material, acetal is also characterized by a low coefficient of friction and good wear properties especially in wet environments.

Semitron® ESd 225

This ESd acetal is ideal for fixturing used in the manufacturing of hard disk drives or for handling in-process silicon wafers.

Surface Resistivity
10^{9} to 10^{10} ohm/sq

WinPro™ PC

An amorphorus thermoplastic which features excellent clarity, dimensional stability and good dielectric properties. It offers excellent thermal performance and is fabrication friendly. Also demonstrates low levels of black specks or other impurities and is UV stable.

*Not all sizes shown. For the most up to date information please inquire by phone.

Fluid Handling Products

Teflon® PTFE Tubing
Teflon tubing provides the ultimate in lubricity, high temperature use, chemical resistance, biocompatibility and precision extruded tolerances. Working temperature range of 500°F to -454°F.

FEP Tubing
One of the clearest plastics available on the market and can be supplied in long, continuous coils. Also, it can be welded and tubes can be sealed by melting. FEP tubing has a continuous working temperature of 400°F.

PFA Tubing
Offers similar properties to FEP but is considered more of a premium resin. PFA is preferred when extended service is required in hostile environments involving chemical, thermal, and mechanical stress.

Clear PVC Pipe
The most widely used member of the vinyl family. It offers excellent corrosion and weather resistance. It has a high strength-to-weight ratio and is a good electrical and thermal insulator.

PVDF Tubing
Offers the stable characteristics of a fluoropolymer, as well as mechanical strength, abrasion resistance and high purity. PVDF also offers excellent chemical resistance, UV radiation resistance and low permeability.

Tefzel® Tubing
Provides both corrosion resistance and mechanical strength over a wide temperature range. The fluoroplastic family offers plastics with high chemical resistance, low and high temperature capability, resistance to weathering, low friction, electrical and thermal insulation.

Kynar® Superflex
Provides a larger processing window compared to most fluoropolymers due to its relatively low melting point. Kynar Superflex copolymer has excellent chemical resistance to acids, bases and ozone due to its high fluorine content.

Chemflour® 367 Tubing
Chemflour is a unique fluoropolymer which maintains fluid integrity, and in many ways outperforms other tubing. The surface is up to six times smoother than tubing made of standard and high-purity resin. This results in less cross-contamination, greater productivity yields and easier-to-clean systems.

Call for Your Quote Today!

(Photos provided by Vycom, cleanroom shown using Flametec Material)

VYCOM
OLEFIN AND PVC SOLUTIONS

Fire-Safe Materials for Clean Room Environments (FM 4910)

Cleanroom Materials Flammability Test Protocol (Class 4910) As computer chips get smaller and faster, the manufacturing process required to create them gets more and more complex — even the slightest delay in production can mean millions of dollars in lost revenue. One of the major causes of delay in the chip manufacturing process is contamination. Contamination from a fire, no matter how small, could potentially put a chip maker out of business for weeks, if not permanently.

In the past, cleanrooms and wet benches needed to be protected by sprinklers or more expensive special fire-protection systems. But by the time a cleanroom fire propagated and triggered a sprinkler or special fire protection system, damage could already have occurred in the rest of the cleanroom.

Driven by rising insurance costs and potential lost earnings, chip makers are requiring suppliers to use materials in wet-bench fabrication that are less flammable and therefore don't need additional, and costly, fire protection systems installed so they will be inherently safe when they arrive in the cleanroom.

The Cleanroom Materials Flammability Test Protocol (Class 4910) contains the method for conducting tests. Now wet-bench manufacturers and users can apply the cleanroom protocol to develop plastic materials and equipment capable of resisting fire, emitting little, if any smoke, and producing little, if any, corrosive by-products.

Materials passing the cleanroom protocol, subsequently, can be listed in the Approval Guide, a publication of FM Approvals.

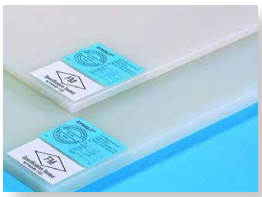
Wet Bench & Clean Room

Since 1984, Professional Plastics has been supplying the widest variety of premium, corrosion-resistant plastic materials to the semiconductor industry. "Wet Benches" are stations for wet etching and cleaning of wafers and devices. The various wet benches differ in the specific process modules available and the materials allowed at each station. The general use wet bench is for acid or base processing of non-standard materials. Semi-automated wet etch bench, primarily for stripping photoresist, removing scribe dust and wet oxide etching. Semiconductor processing and cleanroom equipment include; automated wet benches, semi-automated wet benches, wet process systems, cleanroom equipment and furniture, fume hoods, quick rinse stations, spin rinser dryers, wet etch processing equipment, chemical distribution cabinets, wet process systems, chemical handling equipment, laminar flow work systems & hoods, chemical delivery carts, acid processing stations, chemical fluid lines and quick dump rinsers.

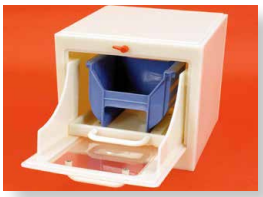
Polypropylene
Noted for its excellent chemical resistance in corrosive environments. This polymer is easily welded and machined and used in various applications throughout the chemical and semiconductor industries.

FR Polypropylene
Meets UL 94 V-0 fire classification and is extruded for gauge and dimensional consistency. CP5 has an excellent balance of physical properties, chemical resistance and fire safety.

Kynar® PVDF
Offers the stable characteristics of a fluoropolymer, as well as mechanical strength, abrasion resistance and high purity. It also offers excellent chemical resistance, UV radiation resistance and low permeability.



Symalit® PFA, ECTFE, ETFE, PVDF
These materials allow the use of FM 4910 listed materials in the construction of semiconductor equipment, where protections against property damage and production interruption is critical.



Halar® ECTFE
A partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of processibility. It is a very versatile polymer, available in all forms to meet processing needs.

FM 4910 Materials
This title is given to materials that pass the Factory Mutual test for fire propogation. Now, wet-bench manufacturers and users can apply the cleanroom protocol to develop equipment capable of resisting fire and emitting little, if any smoke.

PC-300 ESd Polycarbonate
Controls static electricity for many applications, including windows, doors, mini-environment glazing panels, machine guards, covers and enclosures. PC-300 is a premium quality polycarbonate sheet.

PC-350 ESd Polycarbonate
This bending grade polycarbonate fabricates simply, is light in weight and is available in large sheet sizes. It has excellent clarity and chemical resistance, plus superior impact resistance, flame-spread properties and bending characteristics.

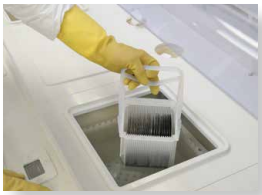
Call for Your Quote Today!

CPVC-300 & CPVC-350 ESd

This product controls static electricity in clean room applications requiring flame retardant clear plastic. The product is a FM 4910 compliant sheet coated with static dissipative coating to prevent charge generation on the sheet surfaces.

Corzan® PVC-C

Designed to be the most economical choice in FM 4910 materials. Vycom's Cleanroom PVC-C has been audited and tested in accordance with the FM 4910 protocol.



Flametec® PVC-C

Specially formulated to exceed the fire compliances for polymers in semiconductor and clean room applications. It offers superior chemical resistance while providing optimal physical properties for fabrication, forming, and workability.

Flametec® CP5

Formulated to meet the SEMI S93 specification for fire safety in clean room applications. CP5 meets UL 94 V-0 fire classification and is extruded for gauge and dimensional consistency. It exhibits an excellent balance of physical properties, chemical resistance and fire safety.

Flametec® CP7D

A proprietary designation for a flame retardant polypropylene formulation. This material has characteristics that meet or exceed the most rigorous FMRC 4910 testing standards for most aspects of flame retardation, self-extinguishing characteristics and burnthrough.

Boltaron® 4225 Bright White CPVC

Bright white CPVC sheet with a smooth polished surface on both sides. It is suitable for thermoforming and meets FM 4910 standards.

Boltaron® 4325 Clear CPVC

A transparent, corrosion resistant CPVC sheet with a smooth polished surface on both sides. This material is suitable for thermoforming and meets FM 4910 standards.

Takiron® Sheets

Meets FM 4910 standards for materials used in clean room applications. The criteria deal with limiting fire propagation and limiting contamination of the clean room environment by smoke.

LAM CRP-1 Clear PVC FM 4910

A proprietary formulation which provides an FM 4910 rated PVC-based sheet with improved surface gloss and easier weldability compared to PVC-C. Its temperature resistance exceeds that of standard PVC compounds and withstands the requirements of typical wet bench cabinetry and enclosures.

Welding Rods

Used primarily for chemical processing equipment. They come in varieties such as PVC, Polypropylene, HDPE, LDPE, PVDF, PFA, Halar, and FM 4910 CPVC.

AC-300 ESd Acrylic

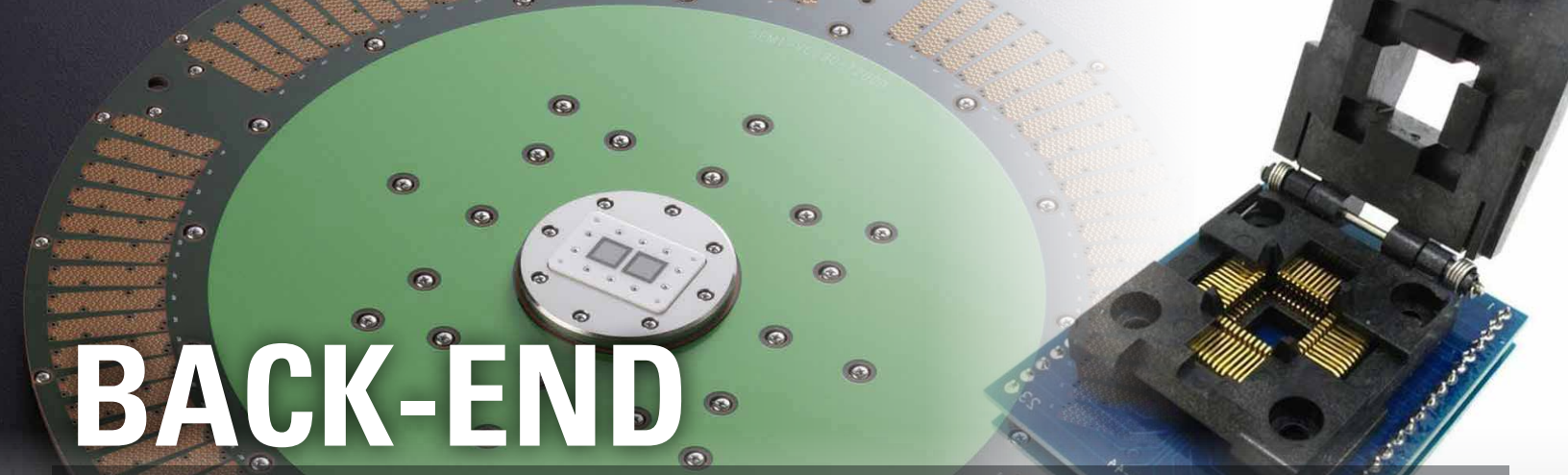
A premium quality acrylic sheet product that controls static electricity in many applications including windows, doors, machine covers, machine enclosures and fabricated desiccators and cabinets.

AC-350 ESd Acrylic

This bending grade ESd acrylic fabricates simply, is light in weight and is available in large sheet sizes. It has excellent optical properties and chemical resistance.

(800) 966-PROS 7767

*Not all sizes shown. For the most up to date information please inquire by phone.



BACK-END

IC Fabrication & Testing is where the individual devices (transistors, capacitors, resistors, etc.) get interconnected with wiring on the wafer. This generally begins when the first layer of metal is deposited on the wafer. BEOL includes contacts, insulating layers, metal levels and bonding sites for chip-to-package connections. Wafer Test metrology equipment is used to verify that the wafers haven't been damaged by previous processing steps up until testing. If the number of dies — the integrated circuits that will eventually become chips — etched on a wafer exceeds a failure threshold (i.e. too many failed dies on one wafer), the wafer is scrapped rather than investing in further processing.

Device Test involves subjecting the semiconductor devices to a variety of electrical tests to determine if they function properly. The proportion of devices on the wafer found to perform properly is referred to as the yield. Manufacturers are typically secretive about their yields, but it can be as low as 30%. Probe Testing involves testing the chips on the wafer with an electronic tester that presses tiny probes against the chip. Chips are also tested again after packaging, as the bond wires may be missing, or analog performance may be altered by the package. This is referred to as "final test".

Wafer Testing is a step performed during semiconductor device fabrication. During this step, performed before a wafer is sent to die preparation, all individual integrated circuits that are present on the wafer are tested for functional defects by applying special test patterns to them. The wafer testing is performed by a piece of test equipment called a wafer prober. The process of wafer testing can be referred to in several ways: Wafer Sort (WS), Wafer Final Test (WFT), Electronic Die Sort (EDS) and Circuit Probe (CP) are likely the most common.

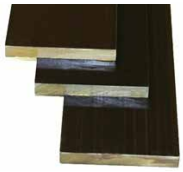
A **Wafer Prober** is a machine used to test integrated circuits. For electrical testing a set of microscopic contacts or probes called a probe card are held in place while the wafer, vacuum-mounted on a wafer chuck, is moved into electrical contact. When a die (or array of dice) have been electrically tested the prober moves the wafer to the next die (or array) and the next test can start. The wafer prober is usually responsible for loading and unloading the wafers from their carrier (or cassette) and is equipped with automatic pattern recognition optics capable of aligning the wafer with sufficient accuracy to ensure accurate registration between the contact pads on the wafer and the tips of the probes.

Burn In Sockets, Handlers & Nests

Torlon® 4203
Offers excellent compressive strength and the highest elongation of the Torlon® grades. It also provides electrical insulation and exceptional impact strength. This grade is commonly used for IC Test Sockets & Handlers as well as electrical connectors and insulators.

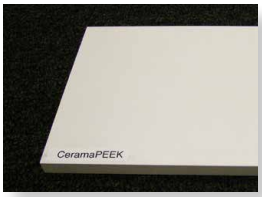
Torlon® 5030
30% glass reinforced, injection molded PAI. It is ideal for higher load structural or electronic applications. It is selected for smaller shapes or when the greatest degree of dimensional control is required.

Torlon® 5530
This 30% glass-filled polyamide-imide allows for tremendous dimensional stability in all directions (as compared to unidirectional glass-fibre flow created through injection- molding and extrusion).

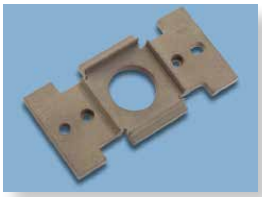


Torlon® 4XG
30% Glass Filled
Offers high rigidity, retention of stiffness, a low expansion rate and improved load carrying capabilities. This grade is well suited for applications in the electrical/electronic, business equipment, aircraft and aerospace industries. This is the extruded version of Torlon 5030, as made by Quadrant EPP.

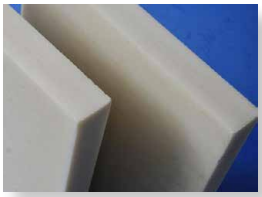
Call for Your Quote Today!



CeramaPEEK® NC30
CeramaPEEK is an extruded test socket material which is an advanced proprietary ceramic-filled PEEK compound created to meet the requirements for tight tolerance, high frequency IC chip socket test fixtures. It is the advanced version of ceramic-filled PEEK.



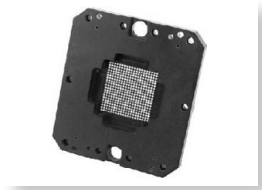
Semitron® ESd 520HR PAI
Ideal for making nests, sockets and contactors for test equipment and other device handling components. The key feature of 520HR is its unique ability to resist dielectric breakdown at high voltages.
Surface Resistivity
10^{10} to 10^{12} ohm/sq



Semitron® ESd 410C Conductive Ultem
Ideal for handling equipment in the semiconductor industry; specifically IC test sockets, nests and handlers. This material provides ESd solutions at higher temperatures.
Surface Resistivity
10^{4} to 10^{6} ohm/sq

Semitron® ESd 420 Ultem
ESd 420 is ideal for making fixtures which handle silicon wafers and devices in equipment for manufacturing semiconductor devices. It reliably meets all physical performance needs for wafer combs and other handling components.
Surface Resistivity
10^{6} to 10^{9} ohm/sq

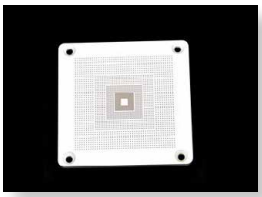
Semitron® ESd 420v PEI (Ultem)
A stiff, high strength material that is not subject to dimensional change as a result of exposure to moisture. It is also a cost effective alternative for applications that do not require the thermal performance of ultra-high performance materials.
Surface Resistivity
10^{6} to 10^{9} ohm/sq



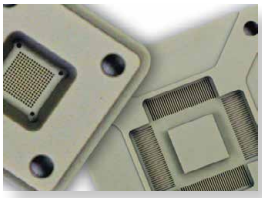
Semitron® ESd 480 PEEK
Used where the properties of PEEK are needed, but protection from static discharge is a requirement. Its chemical resistance makes it suitable for wafer handling and other structural applications in wet process tools.
Surface Resistivity
10^{6} to 10^{9} ohm/sq

Semitron® ESd 490HR PEEK
Non-sloughing to minimize contamination due to wear. It is ideal for making nests, sockets and contactors for test equipment and other electronic device handling components.
Surface Resistivity
10^{9} to 10^{11} ohm/sq

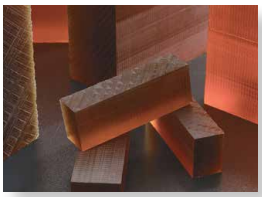
Semitron® ESd 500HR PTFE
Reinforced with synthetic mica and can be used when virgin PTFE causes electrical discharge problems. This material also exhibits low frictional properties, good dimensional stability, and electrostatic dissipation.
Surface Resistivity
$10^{10}$to 10^{12}ohm/sq



Semitron® MP 370
Offers more choices in the design and manufacture of precision test sockets. While maintaining the same excellent moisture absorption and high thermal resistance of PEEK, it provides greater strength and dimensional stability. It allows finer and cleaner detail due to its excellent machinability.
Surface Resistivity
$>10^{13}$ ohm/sq



Semitron® MDS 100
Has a remarkable combination of strength, stiffness and stability. This material was developed to be used in uncontrolled application environments or where a high level of precision is required. It is an ideal choice for semiconductor test sockets and fixtures in test and packaging equipment.
Surface Resistivity
$>10^{13}$ ohm/sq



Ultem® 1000
Offers excellent chemical resistance, high dielectric strength, natural flame resistance, and extremely low smoke generation. Ultem 1000 also provides exceptionally high mechanical properties and ease of fabrication.

Ultem ® 2300
This 30% glass reinforced polyetherimide is commonly machined into parts for electrical/electronic insulators. This material provides greater rigidity and improved dimensional stability while maintaining many of the useful characteristics of unfilled Ultem®.

*Not all sizes shown. For the most up to date information please inquire by phone.

Probe Test

A wafer probe card is an essential piece of hardware used in wafer testing by semiconductor manufacturing companies. Wafer testing is the process of electrically testing individual chips on a wafer to determine if that chip is functionally good or bad. It is one of the most important processes in semiconductor manufacturing. The automatic test equipment (ATE) which does the test is comprised of the IC tester, the test head and the test head manipulator. The probe card is usually mounted on the test head and is electrically connected to the IC tester via cables. The probe card provides the means to conduct electrical signals from the tester to the IC chip, similar to how a cable TV box would deliver signals from the cable company to your television at home.

The wafer probe card is typically comprised of a printed circuit board with a set of precision-assembled probe needles. The probe needles are the tiny pins with sharp tips that contact the bond pads, or the signal terminals, on the IC chip during the testing. The probe needles are usually made of high-performance metals like tungsten with very good electrical conductivity and strong mechanical properties. The spacing between adjacent probe needles can be as tight as 20-30 microns, less than half the width of a human hair which is around 80 microns. There can be as many as a few thousand probe needles in the space of a few square centimeters on a probe card. Hence, the manufacturing of probe cards is one that requires tremendous technical expertise, R&D and intellectual property (IP), not to mention good eyesight!

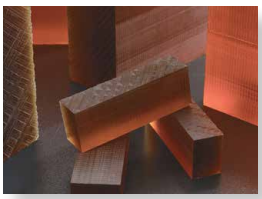
Probe cards are considered 'consumables' as they have to be replaced or refurbished after a finite period. The usable life of a probe is determined by the number of 'touch downs' which is the number of times the needles of the probe card comes into contact with the chips on the wafer. Typically probe cards last between a few hundred thousand to as many as a million touch downs.

Vespel® SP-1
Offers a broad combination of temperature resistance, chemical resistance, mechanical toughness, natural lubricity, wear-resistance and insulation properties. Parts provide great plasma resistance, plus a UL rating for minimal electrical and thermal conductivity.

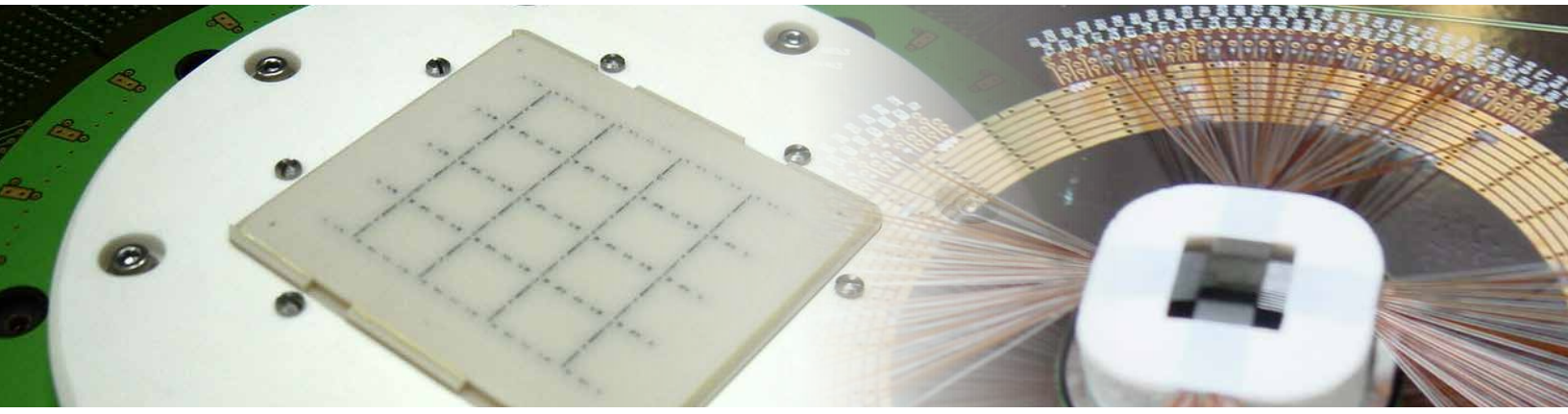
Meldin® 7001
This polyimide offers superior mechanical properties, high chemical resistance, is ideal for electrical and thermal insulating applications, and is lighter weight than metals. In I.C. testing applications Meldin 7001 is an excellent replacement for Vespel® SP-1.

Macor®
Machinable glass ceramic that combines the performance of a technical ceramic with the versatility of a high performance plastic. Macor has no porosity and when properly baked out, will not outgas. Unlike high temperature plastics, it will not creep or deform.

Polyimide Tubing
Features include superior pushability and tractability, flexibility, ink resistance and column strength. Polyimide tubing is ultra-smooth and chemically inert.



Ultem® 1000
Offers excellent chemical resistance, high dielectric strength, natural flame resistance and extremely low smoke generation. Ultem 1000 also provides exceptionally high mechanical properties and ease of fabrication.



Call for Your Quote Today!

Wafer Processing and Handling

Typical Applications	Suggested Material
Wafer Clamping Rings	Vespel SP-1, Meldin 7001
Mounting Screws	Vespel SP-1, Meldin 7001
Wafer Combs	Ultem, Vespel SP-1, Pomalloy SD
Vacuum Wand Handles	PEEK
Vacuum Pickup Tips	Vespel SP-1, Meldin 7001
Wafer Knives & Rakes	PEEK
Focus Rings	Vespel SP-1, Meldin 7001
Holding Rings	Techtron PPS, PEEK
Flat Finders	Pomalloy SD, PEEK, Techtron PPS
Wafer Spin Chucks	Vespel SP-1, Meldin 7001, Teflon
Retainers, Valve Caps, Locators	Vespel SP-1, Meldin 7001
View Ports	Makrolon WG, Polycarbonate, WinPro PC
Wafer Guides	Vespel SP-1, Meldin 7001, Ultem
Wafer Tracks	Ertalyte, PET-P
Screws & Posts	Vespel SP-1, Meldin 7001, PCTFE

Chip Testing and Handling

Typical Applications	Suggested Material
I.C. Testing Sites	Vespel SP-1, Ultem, Torlon 4203
Test Site Holders	Vespel SP-1, Ultem, Meldin 7001
Quad Mount Frames	Vespel SP-1, Ultem, Meldin 7001
Insulators	Teflon
Die Pick-Up Collets	Vespel SP-1, Meldin 7001, PEEK
Seal Adaptors	Teflon, Torlon 4203
Articulating Plungers	Torlon 4301
I.C. Handling Trays	Vespel SP-1, Meldin 7001, Ultem, Torlon 4203
Wear Guides	Vespel SP-1, Torlon 4301
Boat Inserts	Ultem, Teflon, Rulon
Thermal Isolataors	Teflon
Contactors, Nests & Sockets	Semitron, Torlon 5530, Vespel SP-1, Ultem
Chip Carriers	Ultem, Pomalloy SD
Probe Card Test Pads	Macor, Vespel SP-1, Meldin 7001
Probe Card Wire Insulators	Polyimide Tuboing

Wafer Cleansing and Drying

Typical Applications	Suggested Material
Manual Wet Tank	White Polypropylene
Quick Dump Wash Tank	Fire-Retardant White Polypro, CP5, CP7D
Semiconductor Wet Tank	Halar (ECTFE)
Quick Dump Tak in Wet Bench	Kynar (PVDF)
Fitting & Valves	Teflon (PTFE, PFA, FEP)
Fluid Handling Tubing:	PFA, FEP, PTFE, PVDF, Kynar Superflex, Chemflour 367, PEEK Tubing

Clean Room Construction

Typical Applications	Suggested Material
Flame Safe Parts	FM 4910
Countertops & Cabinets	Flametec PVC-C, PVC
Fume Hoods	PVC-C, PP
Static Dissapative Covers	PC-300, Takiron FMHS 6650, Boltaron 4325
Windows	PC-300, Makrolon AR
Enclosures	Acrylite, Clear PVC, Makrolon AR
Tanks	Polypropylene, PVC, Kynar PVDF, Halar
Draft Chambers	PC-300 ESD Polycarb
Faraday Cage	PC-300 ESD Polycarb
Fluid Lines	Teflon PFA, FEP, PTFE
Pipes	Kynar PVDF, Flametec

PROFESSIONAL PLASTICS

Fullerton, California
Corporate Office
1810 E. Valencia Dr.
Fullerton, CA 92831
Tel: 714-446-6500
Fax: 714-447-0114

San Diego, California
Corporate Marketing Office
8322 Clairemont Mesa Blvd.
Suite 210
San Diego, CA 92111
Tel: 858-637-2801
Fax: 858-637-2805

Sacramento, California
2940 Ramco Street #100
West Sacramento, CA 95691
Tel: 916-374-4580
Fax: 916-376-0944

San Jose, California
2175 Kruse Dr.
San Jose, CA 95131
Tel: 408-434-9410
Fax: 408-434-9433

Phoenix, Arizona
4449 S. 38th Pl.
Phoenix, AZ 85040
Tel: 602-437-4555
Fax: 602-437-0399

Denver, Colorado
5885 Stapleton Drive North
Unit C-313
Denver, CO 80216
Tel: 303-355-0138
Fax: 303-331-9816

Smyrna, Georgia
5500 South Cobb Drive
Bldg 400-1
Smyrna, GA 30080
Tel: 888-259-9641
Fax: 800-495-3157

Kalispell, Montana
468 Ash Rd., Unit A
Kalispell, MT 59901
Tel: 406-752-6780
Fax: 406-752-6782

Orchard Park, New York
145 Mid County Drive
Orchard Park, NY 14127
Tel: 716-686-9300
Fax: 716-686-9310

Cleveland, Ohio
800 Resource Drive
Suite 12
Brooklyn Heights, OH 44131
Tel: 888-329-6774
Fax: 216-741-1766

Tualatin, Oregon
19801 SW 95th Ave.
Tualatin, OR 97062
Tel: 503-612-1661
Fax: 503-612-1771

Houston, Texas
10641 S. Sam Houston Pkwy W.
Building 5, Suite 100
Houston, TX 77071
Tel: 281-879-4500
Fax: 281-879-4502

Richardson, Texas
1371 N. Glenville Dr
Richardson, TX 75081
Tel: 214-575-5400
Fax: 214-575-5410

Ogden, Utah
2670 Commerce Way
Ogden, UT 84401
Tel: 801-444-2429
Fax: 801-544-5064

Tukwila, Washington
6233 Segale Park Drive D
Tukwila, WA 98188
Tel: 253-872-7430
Fax: 253-872-7704

Singapore
Asia Headquarters
Professional Plastics Pte Ltd.
2 Woodlands Sector 1 # 01-17
Woodlands Spectrum 1
Singapore 738068
Tel: +65-6266-6193
Fax: +65-6266-6579
asia-sales@proplas.com

Taiwan
Professional Plastics Inc.
No. 10, Sec. 1, Tiedao Rd.,
East Dist., Hsinchu City 300,
Taiwan (R.O.C.)
taiwan-sales@proplas.com
Tel: +886 (3) 535-7850
Fax: +886 (3) 535-7860

sales@proplas.com
www.professionalplastics.com
(800) 966-PROS

QUADRANT

SAINT-GOBAIN
PERFORMANCE PLASTICS

VYCOM
OLEFIN AND PVC SOLUTIONS

130705 Printed in the U.S.A.