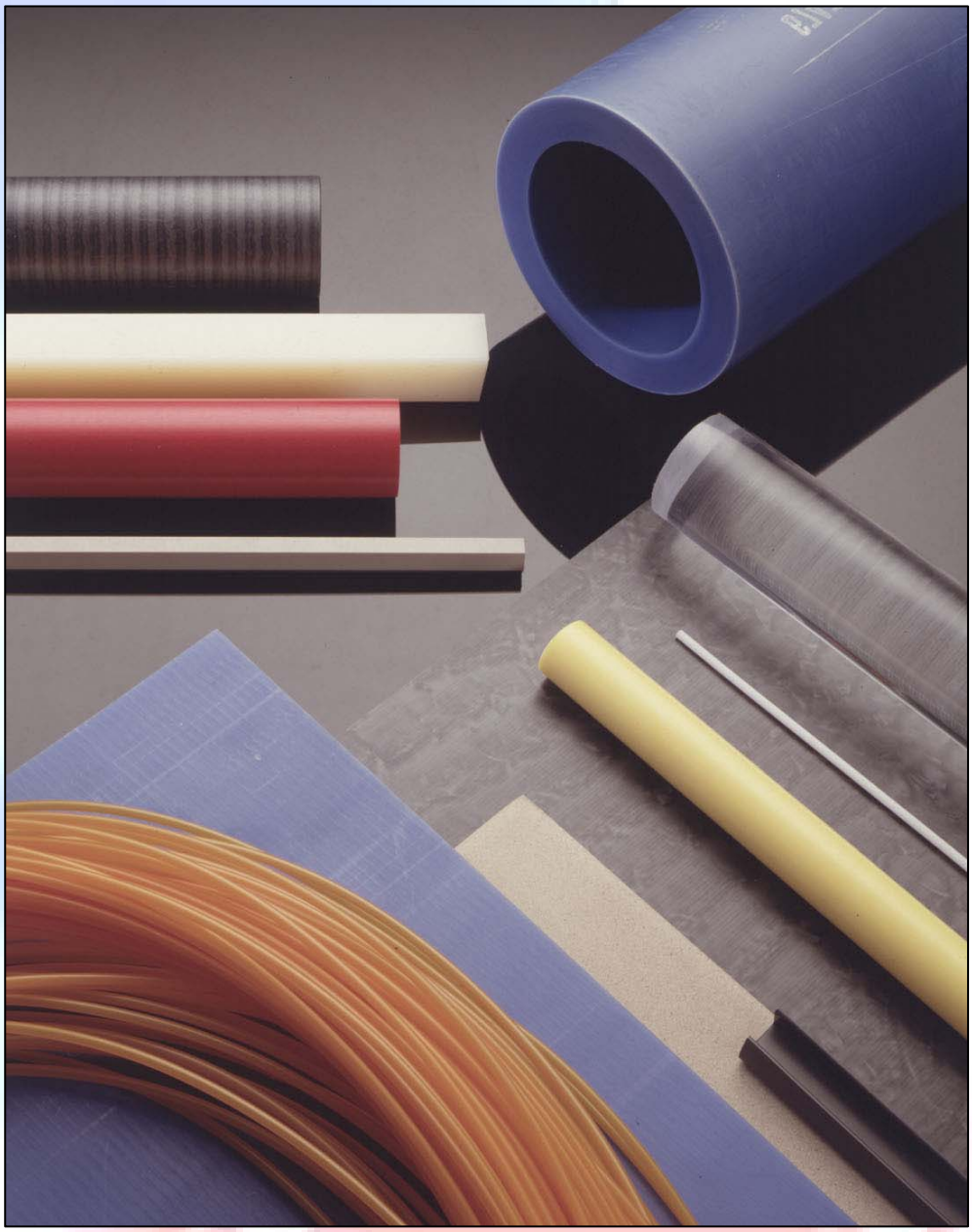


PROFESSIONAL PLASTICS, INC.

The Nation's Largest Supplier of High-Performance Engineering Materials

Engineering Plastics & Ceramics for the Biomedical Industry

Established in 1984, **Professional Plastics** has been a privately-held distributor of high-performance engineering plastic shapes with an annual turnover exceeding $ 100 million dollars. The company operates 15 locations throughout North America and Asia, and employs sales representatives worldwide.

Professional Plastics is focused on providing our customers with the widest variety of products from the most respected manufacturers in the world. We focus on quality, consistency and reliability in order to provide our customers with a steady supply standards. Material traceability is extremely important to the biomedical industry so Professional Plastics works with ISO 9001 suppliers and also meets Mil-I-45208 for their internal quality control procedures.

Today, Professional Plastics is the USA's largest distributor of high-performance engineering plastic shapes and we have built a reputation for customer service, customer value, and superior quality.

Professional Plastics offers a wide variety of medical grade plastic materials that meet FDA and USP Class VI requirements. Our high-purity materials have been used in applications from Medical Wands to Sterilization Trays and Endoscopic Probes & Devices. The majority of these products perform well even after virtually unlimited autoclaving cycles. We can assist you with application profiles, medical certifications, as well as lot & batch traceability.

Professional Plastics works with the largest and most respected manufacturers in the world to provide our customers with quality, consistency and peace of mind.

QUADRANT

SAINT-GOBAIN PERFORMANCE PLASTICS

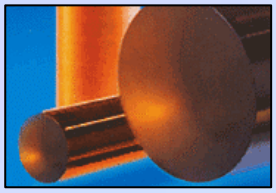
QUADRANT

Quadrant Engineering Plastics Products (Quadrant EPP) is a global leader in high-performance polymer material solutions in the form of semi-finished and finished products. These specialty engineering thermoplastics and composites are superior in performance over metals and other materials, and are used in a growing number of applications developed with leaders in a wide range of industries. To help the designer meet today's challenges, Quadrant Engineering Plastic Products has specifically developed a portfolio of materials including a group of new, Life Science Grades which are pre-qualified biocompatible materials, helping to save precious time and money. The QEPP Life Science materials successfully passed a series of biocompatibility tests, run in order to check their compliance with both United States Pharmacopeias (USP) and ISO 10993-1 guideline requirements for Biocompatibility. Quadrant EPP manufactures a full line of LSG (Life Science Grades) of engineering plastic shapes. Quadrant Life Science Grades (LSG) are designed specifically for the Medical, Pharmaceutical and Biotechnology markets. They save OEMs the time and costs associated with biocompatibility testing and regulatory approvals.

SAINT-GOBAIN PERFORMANCE PLASTICS

Saint-Gobain Performance Plastics is an industry leader in advanced-technology polymer products for the most demanding industrial applications. From advanced bearing & seal materials such as Rulon® & Meldin® to Fluropolymer & Tubing products such as Tygon® Chemfluor®, Versilic®, Pharmed®, Santoprene®, Tygothane®. St Gobain provides engineering solutions to hundreds of industries worldwide. Founded in 1665', Saint Gobain is one of the oldest companies in the world. Today, Saint Gobain is one of the largest companies in the world with an annual turnover exceeding US$ 60 billion dollars. Their commitment to quality has helped Saint Gobain develop a reputation as a trusted supplier for critical applications including medical, semiconductor and aerospace companies worldwide.

Medical Grade Engineering Plastic Shapes

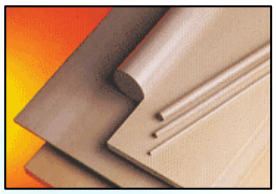


Ultem® PEI LSG - natural color

Ultem PEI LSG stock shapes are produced from selected batches of a specific Ultem polyetherimide resin. This polymer shows a combination of outstanding mechanical, thermal and electrical properties combined with a good hydrolysis and chemical resistance. The composition of the resin used for the production of the Ultem PEI LSG stock shapes complies with the regulations that apply in the Member States of the European Union (Directive 2002/72/EC, as amended) and in the United States of America (FDA) for plastic materials and articles intended to come into contact with foodstuffs. Ultem PEI LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to a very good sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make Ultem PEI LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.

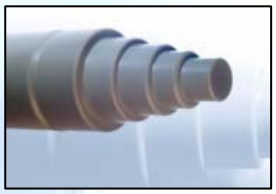
Polysulfone PSU LSG - natural color

PSU LSG stock shapes are produced from selected batches of a specific polysulfone resin. This polymer shows a combination of very good mechanical, thermal and electrical properties combined with a good hydrolysis and chemical resistance. The composition of the resin used for the production of the PSU LSG natural stock shapes complies with the regulations that apply in the Member States of the European Union (Directive 2002/72/EC, as amended) and in the United States of America (FDA) for plastic materials and articles intended to come into contact with foodstuffs. PSU LSG natural stock shapes have also been succes sfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to a good sterilizability by means of steam, dry heat, plasma, ethylene oxide and gamma irradiation, make PSU LSG natural stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.



PEEK – Victrex ® 450G

PEEK is an abbreviation for PolyEtherEther-Ketone, a high performance engineering thermoplastic. PEEK grades offer chemical and water resistance similar to PPS (PolyPhenylene Sulfide), but can operate at higher temperatures. PEEK can be used continuously to 480°F (250°C) and in hot water or steam without permanent loss in physical properties. For hostile environments, PEEK is a high strength alternative to fluoropolymers. PEEK carries a V-0 flammability rating and exhibits very low smoke and toxic gas emission when exposed to flame.



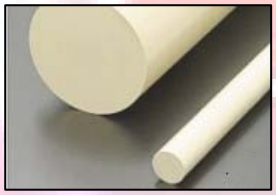
Vestakeep® PEEK

VESTAKEEP® PEEK is a semi-crystalline thermoplastic that can be melt processed by injection molding, compression molding, and extrusion. Professional Plastics offers Vestakeep ® PEEK in Sheets, Rods, & Resins for Injection-Molding & Extrusion. PEEK is best known for the following properties: Chemical & environmental inertness, Heat resistance, High heat deflection temperature, Dimensional stability due to low water absorption, High hardness & abrasion resistance, Good strength at elevated temperatures, Good electrical properties, Good radiation resistance & Inherent flame resistance. Vestakeep® 2000 G - medium-viscosity, easy-flow base grades for products such as gear parts, parts used in medical technology, and films, sheets, and semi-finished products (similar to the Victrex 150G) Vestakeep® 4000 G - high-viscosity, low-flow base grades for products such as gear parts, parts used in medical technology, and films, sheets, and semi-finished products (similar to the Victrex 450G).

- For specialty Medical Implant Grades, please contact Professional Plastics Customer Support.

Ketron ® PEEK LSG – Natural & Black

Ketron ® PEEK LSG stock shapes are produced from selected batches of Victrex ® PEEK PolyEtherEtherKetone resin. This material exhibits a unique combination of mechanical properties, temperature and chemical resistance. The composition of the resin used for production of the KETRON ® PEEK-LSG stock shapes complies with the regulations of EU Directive 2002/72/EC (as amended) & in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. KETRON PEEK LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make KETRON PEEK-LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.

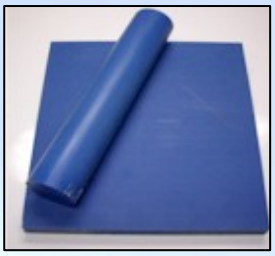


Ketron ® PEEK-CLASSIX ® LSG - White

Ketron ® PEEK-CLASSIX ® LSG PolyEtherEtherKetone stock shapes are produced from Invibio ® PEEK-CLASSIX ® white resin. This material exhibits a unique combination of mechanical properties, temperature and chemical resistance. The composition of the Invibio PEEK-CLASSIX White resin complies with the regulations of EU Directive 2002/72/EC (as amended) and in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. Ketron PEEK-CLASSIX LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make Ketron PEEK-Classix LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets. Ketron PEEK-CLASSIX LSG is available in sheet and rod forms and is **white in color.**

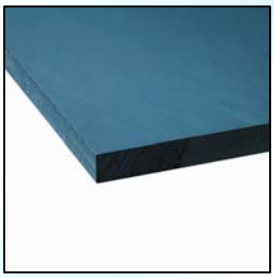
Ketron ® PEEK-CA30 LSG - Black

Ketron ® PEEK-CA30 LSG PolyEtherEtherKetone stock shapes are produced from genuine Victrex ® PEEK polymer. This 30% carbon fiber-reinforced grade combines even higher stiffness, mechanical strength and creep resistance than Ketron ® PEEK-GF30 LSG blue with an optimum wear resistance. Ketron PEEK-CA30 LSG stock shapes have been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make KETRON PEEK-CA30 LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.
Ketron PEEK-CA30 LSG is available in sheet and rod forms in **black color only.**



Ketron ® PEEK-GF30 LSG - Blue

Ketron ® PEEK-GF30 LSG PolyEtherEtherKetone stock shapes are produced from genuine Victrex ® PEEK polymer. This 30% glass fiber-reinforced grade offers higher stiffness and creep resistance than Ketron ® PEEK-LSG and has much better dimensional stability. Ketron PEEK-GF30 LSG blue stock shapes have been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make Ketron PEEK-GF30 LSG blue stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.
Ketron PEEK-GF30 LSG is available in sheet and rod forms and is **medium blue in color.**



Techtron ® HPV LSG - Blue

Techtron ® HPV LSG stock shapes are produced from a proprietary reinforced and internally lubricated polyphenylene sulfide (PPS) compound. This material exhibits a unique combination of properties including wear resistance, load bearing capability and dimensional stability when exposed to chemicals and high temperature environments. The composition of the PPS-based compound used for production of the Techtron ® HPV LSG stock shapes complies with the regulations of EU Directive 2002/72/EC (as amended) and in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. Techtron HPV LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to a very good sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make Techtron HPV LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.

Radel® PPSU LSG – Black

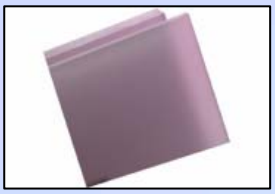
RADEL PPSU LSG stock shapes are produced from selected batches of a specific RADEL R polyphenylsulfone resin. This material offers a better impact strength and chemical resistance than ULTEM® PEI LSG and PSU LSG and it also has superior hydrolysis resistance as measured by steam autoclaving cycles to failure. The composition of the resin used for the production of the RADEL PPSU LSG stock shapes complies with the regulations of EU Directive 2002/72/EC(as amended) and in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. RADEL PPSU LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make RADEL PPSU LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.

Radel® R-5500 - PPSU Rod & Sheet

Radel® R-5500 polyphenylsulfone (PPSU) is an amorphous high performance thermoplastic offering better impact resistance and chemical resistance than polysulfone and polyetherimide (Ultem* PEI). Radel R has virtually unlimited steam sterilizability. This factor makes it an excellent choice for medical devices as steam autoclaves are widely used to sterilize medical devices. Radel R is stocked in natural (bone white) and available in transparent and custom colors. It is commonly used in sterilization trays, dental and surgical instrument handles, and in fluid handling coupling and fitting applications. It is suitable for use in electronic assembly equipment and devices that must withstand solder temperatures. Radel has a heat deflection temperature of 405°F (207°C). **Applications Include:** Medical Wands, Endoscopic Probe Positioning Ferrules, Biocompatible Medical Applications, such as Insulin Pens, Blood Glucometers, Tubing, Sterilization Trays, and Cauterization Devices, End caps and other small components.

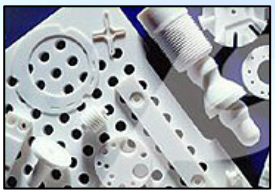
Acetron ® LSG

Acetron LSG stock shapes are produced from selected batches of polyacetal copolymer resin. This engineering plastic combines good mechanical strength, stiffness, impact strength, chemical resistance, dimensional stability and friction and wear properties with an excellent machinability. The compositions of the resins used for the production of the Acetron LSG stock shapes comply with the regulations of EU Directive 2002/72/EC (as amended) and in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. Acetron LSG stock shapes have also been successfully type tested for their compliance with ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to the availability of different colors (natural / black / yellow / red / blue / green / brown) which allow for easy differentiation between similar parts (e.g. different sizes of trial implants), make Acetron LSG stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.



PC LSG - Natural Polycarbonate
PC LSG stock shapes are produced from selected batches of a specific non-UV-stabilized polycarbonate resin. This polymer shows a combination of good mechanical, thermal and electrical properties combined with a good chemical resistance. The composition of the resin used for the production of the PC LSG stock shapes complies with the regulations of EU Directive 2002/72/EC (as amended) and in the USA (FDA) for plastic materials and articles intended to come into contact with foodstuffs. PC LSG stock shapes have also been successfully type tested for their compliance with both USP and ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to a good sterilizability by means of ethylene oxide, plasma and gamma irradiation, make PC LSG stock shapes suitable for applications in the medical, pharmaceutical and biotechnology markets.

Ertalyte® TX
Ertalyte® TX rod for machining high-wear-resistant parts is an unreinforced semi-crystalline thermoplastic polyester (PET-P) that has a solid lubricant filler. The material has excellent performance in both high-pressure and high-velocity conditions, and is ideally suited for applications involving soft metal and plastic mating surfaces. High strength and stiffness, high wear-resistance, very good dimensional stability, high creep resistance and very good chemical resistance. This combination of properties make Ertalyte TX an ideal material for machining bushings and bearings that require no startup or running lubrication. Ertalyte TX has FDA and USDA compliance and is ideal for applications in food packaging and processing equipment.



Macor ® Machinable Glass Ceramic
Macor® is a machinable glass ceramic material that posses outstanding engineering properties. Unlike other ceramics, Macor® can be machined with ordinary metalworking tools. Macor® is also a problem solving material combining 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. It is strong and rigid and, unlike high temperature plastics, will not creep or deform. Macor® is also radiation resistant.

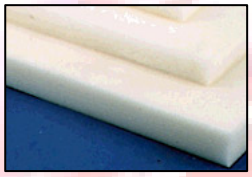
Olefin-Based Industrial Plastics

Polypropylene Sheets & Rods
Noted for its excellent chemical resistance in corrosive environments, this polymer is easily welded and machined. Homopolymer and copolymer grades, as well as, a popular heat-stabilized formulation, are used in various applications throughout the chemical and semiconductor industries.

- Available in Sheets (standard and custom sizes), rods, welding rods, cut-to-size blocks, and tubing.

Polypropylene - Proteus® O&P Grade
Orthopedic polypropylene sheets are used for orthotic & prothics devices. Because people come in all different shapes and sizes, orthotic and prosthetic devices must be custom fit — and that's where Proteus® O&P Grade comes in. Proteus® O&P Grade maintains the rigidity and durability required by the orthotics and prosthetics industry, while exhibiting top thermoforming performance.
Proteus® O&P Grade is a "natural" color and available in 48" x 96" sheets with gauge sizes ranging from 1/16" to 1/4".

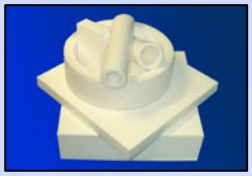
Tivar ® H.O.T. (Higher Operating Temperature) UHMW
Developed specifically to excel in chemical and thermocycling environments with temperatures ranging up to 275°F. FDA/USDA-compliant, TIVAR® H.O.T. can be used as wear strips in chemical and medical processing equipment. Meets FDA guidelines 21CFR 178.2010 and 21CFR 177.1520



HDPE Sheets & Rods
HDPE (high-density polyethylene) offers excellent impact resistance, light weight, low moisture absorption, and high tensile strength. HDPE is also non-toxic and non-staining and meets FDA and USDA certification for food processing. Available As Extruded or Stress Relieved (S/R)

King Plasti-Shield® Borated Polyethylene
King Plasti-Shield® has been used as medical and industrial neutron shielding for more than 25 years. It is a light-weight, cost-effective and easily fabricated solution for a wide variety of neutron-shielding needs. Compared to paraffin-based products, King Plasti-Shield sheets are durable and perform well in a wider range of temperatures. With 5% boron by weight and a distinctive purple color, King Plasti-Shield Industrial Grade is effective in medical and other applications requiring attenuation of thermal neutrons. Grade II (yellow, 1% boron) and Grade III (red, 2% boron) are used as neutron shielding in the construction and repair of US Navy ships. These products are manufactured to MIL-P-23536, Rev. A. Certification and testing is available to meet MIL-Spec. requirements. **Grades:** - Industrial Grade (purple, 5%* Boron by Weight) W - Grade III (red, 2%* Boron by Weight) W - Grade II (yellow, 1%* Boron by Weight) W - Virgin Polyethylene (natural color) **Popular Applications:** - Medical vaults and doors for linear particle accelerators and other radiation applications, research applications, nuclear reactors and construction of nuclear-powered vessels.

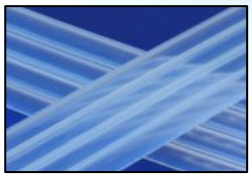
Fluoropolymer Materials



Teflon® - PTFE- Virgin Grade
Teflon® - PTFE Virgin Grade Rods & Sheets - exhibit astonishing chemical resistance and ultra high-purity. Self-lubricating and with a low friction coefficient, Teflon PTFE (polytetrafluoroethylene) is ideally suited for the manufacture of high-temperature seals, insulators and bearings used in semiconductor, aerospace & chemical processing industries.

Rulon® 641
Rulon® 641 is manufactured from FDA compliant materials which possess excellent load and wear characteristics. It offers excellent, continuous non-lubricated service up to 10,000 PV - higher for intermittent service. While the load capacity of Rulon 641 is generally limited to 1,000 psi at room temperature, deformation is a function of wall thickness, temperature, and load. Its compatibility with a wide array of mating surfaces, including mild steel, 303 and 316 stainless steels, as well as harder materials, make it a good choice for most food and pharmaceutical bearing applications.

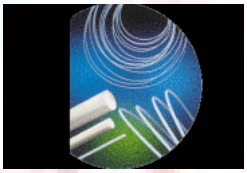
Kel-F® - PCTFE
Kel-F® - PCTFE (PolyChloroTriFluoroEthylene) is a fluorocarbon-based polymer and is commonly abbreviated PCTFE. PCTFE offers the unique combination of physical and mechanical properties, nonflammability, chemical resistance, near zero moisture absorption, and excellent electrical properties. These characteristics cannot be found in any other thermoplastic fluoropolymer with a useful temperature range of -400°F to +400°F. PCTFE also has extremely low outgassing, making it well suited for use in aerospace and flight applications.



FEP
FEP is a relatively soft thermoplastic with lower tensile strength, wear resistance, and creep resistance than many other engineering plastics. However, it is chemically inert and has a low dielectric constant over a wide frequency range. FEP possesses a very high degree of stress crack resistance, a low coefficient of friction, exceptional dielectric properties, heat resistance, retention of properties after service at 400°F (204°C) with useful properties at -454°F (-270°C), and meets FDA 21CFR.177.1550. FEP has high transparency (with good transmittance of UltraViolet and visible wavelengths.) FEP offers the lowest refractive index of all thermoplastics with low light reflection (the same as water.)

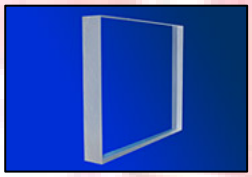
PFA
PerFluoroAlkoxy (PFA) offers similar properties to FEP, but is considered more of a premium resin. PFA is preferred when extended service is required in hostile environments involving chemical, thermal, and mechanical stress. PFA offers high melt strength, stability at high processing temperatures, excellent crack and stress resistance, a low coefficient of friction, and more than 10 times the Flex life of FEP. It has high resistance to creep and retention of properties after service at 500°F (260°C), with useful properties at -320°F (95°C). PFA also meets FDA 21CFR.177.1550.

Halar ® - ECTFE
Halar ECTFE is a partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of processability. Halar ECTFE, a copolymer of ethylene and chlorotrifluoroethylene, can bring advantages to the end user when compared to other fluoropolymers. It is a very versatile polymer, available in all forms to meet processing needs. Halar offers excellent resistance to abrasion, harsh chemicals, and permeation.



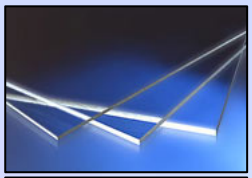
Tefzel ® - ETFE
Tefzel ® ETFE provides both corrosion resistance and mechanical strength over a wide temperature range. The fluoroplastic family offers plastics with high chemical resistance, low and high temperature capability, resistance to weathering, low friction, electrical and thermal insulation. High purity, Excellent chemical resistance, good permeability resistance & excellent abrasion resistance over a temperature range of -300°F to +300°F (-185°C to +150°C).

Transparent & Forming Grade Materials

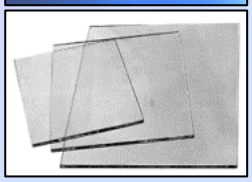


Medical Grade PMMA
Spartech Polycast (formerly Glasflex) medical grade PMMA cast acrylic products are manufactured using Good Manufacturing Process (GMP). Intended applications include implantable intraocular lenses and cement spacers for orthopedic prostheses. Biocompatibility studies were performed by an independent laboratory using Good Laboratory Procedure (GLP) regulations. This information is supported by certified results of extensive clinical scientific data. All information is included at Spartech Polycast in our FDA Master File # MAF-300 and MAF-211, which is held under the custodianship of the FDA and can be issued upon request.

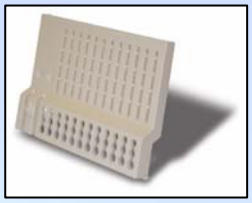
Makrolon ® FD – FDA Compliant Polycarbonate Sheet
Makrolon FD polycarbonate sheet is a clear, non-UV stabilized sheet which complies with FDA and NSF standard 51 requirements. Close gauge tolerance control combined with high impact strength and heat resistance make Makrolon FD polycarbonate sheet ideally suited for demanding applications in medical equipment as well as food processing environments. Makrolon FD polycarbonate sheet is covered by a five year warranty against breakage.



Vivak ® PETG Copolyester Sheet
Vivak PETG Copolyester sheet is a thermoplastic sheet used in engineering applications. PETG offers the capability to produce complex shapes, precise details, deep draws and compound curves without worrying about durability. It's easily formed, die-cut and punched. It brings increased design freedom and lower fabrication costs. In sheet form, PETG has the impact strength and fabrication ease that acrylic can't touch, with the durability to significantly reduce packaging and shipping costs. FDA Compliant to 21 CFR 177.1315, 21 CFR 174, as well as, 21 CFR 177.1315(b)(1)



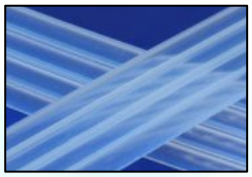
Leaded Acrylic Sheet - Radiation Sheilding
Leaded X Ray Glass Barriers / Acrylic Glass Barriers. Leaded Acrylic can be used for viewing windows and radiation shielding. (item # 3300) Leaded acrylic contains 30% lead by weight. Its physical properties are similar to those of conventional acrylic resins and routine acrylic fabrication techniques (machining and cementing) can be applied. Density: 1.6 gm/cm3 • Available in 12mm,18mm, 22mm & 35mm thicknesses



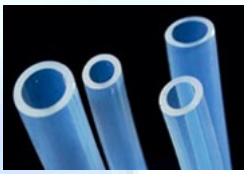
Kydex ® PVC-ABS
Outstanding physical properties and fire ratings, together with a wide selection of forming methods and specialized grades, explain why KYDEX sheet is the preferred material for high performance medical products. From thermoformed equipment components to membrane pressed or laminated medical building products to sanitary ceiling panels, specialized grades of KYDEX sheet offer the durability, cleanability, and versatility required to exceed the most demanding application requirements.
Applications include; Medical equipment housings, Mobile carts, Seating, Trays, Tables, Work surfaces, Hospital bed footboards, headboards, Orthotics and prosthetics, Ceiling panels

Fluid Handling & Tubing Products

Teflon ® PTFE Tubing
Teflon® PTFE Tubing exhibits astonishing chemical resistance and ultra high-purity. Working temperature range 500° F (260° C) to -454° F (–270° C). Chemically Resistant (all common solvents, acids and bases), Chemically Inert, Low Extractrables & Excellent Dielectric Insulation Properties



FEP Tubing
FEP tubing (Fluorinated Ethylene Propylene tubing) is made from a melt processable thermoplastic that has end uses similar to PTFE. However, it has several properties PTFE does not have. FEP is 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 (204°C). Good transmission of ultraviolet rays • FDA compliant & USP Class VI approved.



PFA Tubing
PFA (PerFluoroAlkoxy) 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. PFA offers high melt strength, stability at high processing temperatures, excellent crack and stress resistance, a low coefficient of friction, and more than 10 times the Flex life of FEP. It has high resistance to creep and retention of properties after service at 500°F (260°C), with useful properties at -320°F (95°C). PFA also meets FDA 21CFR.177.1550.

PVDF/ Kynar Pipe & Tubing
Chemfluor® PVDF is manufactured from Kynar® 740, an engineering thermoplastic that offers the stable characteristics of a fluoropolymer, as well as mechanical strength, abrasion resistance and high purity. Chemfluor® PVDF also offers excellent chemical resistance, UV radiation resistance and low permeability. These shapes are stocked in rigid material, but are available in other resins on a custom basis. Chemfluor® PVDF can be used in the semiconductor, pulp and paper, and pharmaceutical industries, as well as for nuclear waste, and chemical and food processing. Chemfluor® PVDF meets ASTM D3222.

Versilic® SPX-50 High-Strength Silicone Tubing
Peroxide-cured Versilic® High-Strength Silicone Tubing is designed for use in applications where flexibility, resiliency and durability are required. Its smooth inner surface reduces the risk of particulate entrapment and microscopic buildup during fluid transfer. In addition, its high and low working temperatures help the tubing retain its flexibility under extreme conditions. Because of its consistently reliable performance, Versilic® High-Strength Silicone Tubing is ideal for applications such as food & beverage dispensing & processing, appliance manufacturing, cosmetic production and electronic equipment.

Versilic® SPX-70 I.B. Tubing
Versilic® SPX-70 I.B. high-strength pressure tubing, which utilizes peroxide-cured silicone tubing, is designed for use in applications where elevated pressures, flexibility, resiliency and extreme durability are required. Produced from proprietary silicone elastomers, Versilic® SPX-70 I.B. optimizes critical physical properties such as tensile strength, elongation, and compression set, resulting in a more physically durable product. Its smooth inner surface reduces the risk of particulate entrapment and microscopic build-up during fluid transfer. Features/Benefits: Tough braid reinforcement permits use under elevated working pressures, Withstands repeated CIP and SIP cleaning and sterilization, Ultra-smooth inner bore reduces potential particle entrapment, Taste and odor free, Meets USP Class VI and FDA criteria
Typical Applications: Veterinary pharmaceuticals, Sterile filling and processing, Analytical instrumentation, Respiratory and anesthesia equipment, Sanitary fitting assembly.

PharmaPure® Tubing

PharmaPure® is a premium, low spallation, biologically compatible peristaltic pump tubing developed especially for pharmaceutical, biotechnology, and laboratory applications. This tubing meets the demanding challenges of providing unsurpassed pump life, with ultra-low particulate spallation and very low permeability. PharmaPure®'s superior flex life characteristics simplifies the manufacturing process by reducing production downtime due to pump tubing failures. PharmaPure® has low permeability & is ideal for protecting sensitive cell cultures, fermentation, separation, purification, process monitoring, & sterile filling.

PharMed® BPT Tubing

PharMed® BPT Tubing is less permeable to gases and vapors than silicone tubing. It is ideal for cell culture, fermentation, synthesis, separation, purification and process monitoring and control. Independent tests show that PharMed® 65 Tubing is safe for use in sensitive cell culture applications. PharMed® BPT Tubing has very good general chemical resistance and excellent acid, alkali and oxidation resistance. Opaque to visible and UV light, it helps protect sensitive fluids. Continuous service temperature range is -60°F (-51°C) to 275°F (135°C). PharMed PBT Tubing For Peristaltic Pumps and Cell Culture outlasts silicone tubing in peristaltic pumps by up to 30 times. Features: Can be autoclaved repeatedly • Heat weldable for sterile access in closed systems • Documented biocompatibility to the ISO 10993 Standard • Meets USP Class VI, FDA and NSF criteria **Applications**: Diagnostic test product manufacturing • Cell harvest and media process systems • Vaccine manufacturing • Bioreactor process lines • Production filtration and fermentation • Sterile filling • Shear-sensitive fluid transfer

Bev-A-Line® Tubing

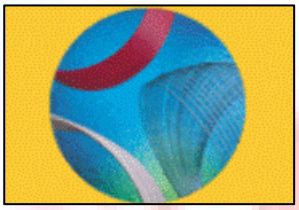
Bev-A-Line IV & V HT® Clear and Flexible High Purity Process Tubing is lightweight, high clarity, and transparent. It provides higher-pressure and vacuum capabilities than other products on the market. Bev-A-Line IV & V HT is coextruded to combine the benefits of two tubes in one seamless product. Bev-A-Line meets FDA, USDA, National Formulary and USP standards for food, beverage, pharmaceutical, laboratory and medical device usage. **Features & Benefits**: Superior durability and greater burst strength than PVC. Exceptional flexibility provides superior resistance to freezing and thermal cycling. Lower friction coefficient and excellent chemical resistance allow easy passage of solids, alcohols, acids, caustics and solvents. Exceptionally resistant to the absorption of liquids providing a neutral and stain-free environment that remains translucent.

Latex Tubing

Latex Tubing provides a combination of features including: Elasticity, Sterlization capability, Transluscency, Uniformity of Color & Gripping Power that make it suitable to a broad range of apllications. These applications include medical, dental, exercise, therapy, food, and beverage just to name a few.
Sizes: Choose from over 200 sizes, ranging from 1/32" to 1" I.D. and wall thicknesses from .015" up to .330" (1/3") **Lengths:** custom cutting allows lengths from 1/16" to 50 feet. **Colors:** In addition to natural amber or black, virtually any color can be matched (including fluorescent) to meet your specification

PEEK Tubing

PEEK Tubing is available from Professional Plastics offers a variety of sizes. PEEK Tubing Products include extruded large bore tubing, small capillary tubing, & large compression molded tubes. Wall thicknesses vary as does the color, from a light amber when produced as a thin wall tube to a dark tan if manufactured with a heavier wall. Extruded PEEK Tubing has a maximum service temperature of 500°F (260°C) and offers excellent abrasion and wear resistance. PEEK tubes are also USP Class VI compliant, have excellent chemical resistance and are radiation resistant.



PEEK Capillary Tubing

PEEK capillary tubing is designed specifically for the demands of high pressure chromatography (HPLC). More corrosion resistant than stainless steel, PEEK is strong enough to take the pressure of 5,000 psi. PEEK has nearly the heat resistance and chemical resistance of PTFE, but it is also structurally strong and abrasion resistant. It does not leach, and it is unaffected by continuous exposure to steam.
Product Features: Excellent chemical resistance, Abrasion resistance, Structural strength, Dimensionally stable, Flame retardant (UL 94 V-O), Continuous service temperature 480°F, USP Class VI compatible
Typical Applications: Liquid chromatography, Pump and valve components, Seal rings

Polyimide Microbore Tubing

Polyimide Tubing Micro Tubing features include: superior pushability and tractability, flexibility, ink resistance, and column strength. This Polyimide Tubing is ultra-smooth & chemically inert.
Applications include: Cardiovascular Catheters, Urological Retrieval Devices, Electrical Applications, Fiberoptics, Intravascular Drug Delivery, Balloon Angioplasty, & Stent Delivery. Polyimide tubing transmits torque, & is transparent • USP class VI compliant • Stocked in AWG # 12 to AWG # 40

Convoluted Teflon® PTFE Tubing

PTFE (Teflon) convoluted tubing, ranging from 1/8" inside diameter up to a 4" inside diameter. Normally supplied in natural PTFE, we can also provide this convoluted tubing in FEP, MFA, PFA, ETFE, PVDF, or PEEK. Convoluted Tubing is available in coils or with cuffs (straight ends on each side of the tubing) that can be sized on the inside or outside diameter. Flares and flanges for fittings are available upon request. PTFE has the lowest coefficient of friction of any solid material allowing unrestricted flow. Moisture retention is less than 0.01% over a 24 hour period. PTFE has an indefinite shelf life and low void content.

Sani-Tech® SIL-250

Sani-Tech® Sil-250 is a high-performance platinum-cured extended-life silicone-tubing formulation specifically designed for demanding peristaltic pump applications. With its superior flex life characteristics, manufacturing processes can be simplified by reducing potential production time due to pump tubing failure. Sani-Tech® Sil-250 has an extreme smooth inner surface that helps reduce the risk of particle entrapment during sensitive fluid transfer. Lasts up to five times longer than other platinum silicone tubings. Minimal extractables help maintain fluid integrity. Ultra smooth inner bore reduces potential particle entrapment. Documented biocompatibility for sensitive applications. Excellent fluid flow characteristics. Taste-free & odor-free. Meets USP Class VI and FDA criteria. **Typical Applications:** Production filtration & fermentation, Sterile fill lines, Media processing, Cell harvest collection systems, Chemistry & blood analysis, Liquid chromatography

Sani-Tech® STHT™-R

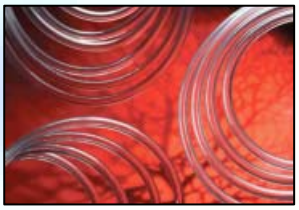
Sani-Tech® STHT-R platinum-cured braid-reinforced silicone hose is an ultra-flexible, high-purity hose that was developed for higher-pressure applications. Sani-Tech® STHT-R is manufactured with Sani-Tech® 65 custom-brand silicone resin. Sani-Tech® STHT-R hose resists temperature extremes, ozone, radiation, moisture, compression sets, weathering and chemical attack and imparts no taste or odors to fluids transported within it. Sani-Tech® STHT-R hose withstands repeated autoclaving & sterilization & resists the adherence of blood products and other sanitary fluids. **Typical Applications:** Load cell, Pump applications, Cell cultures, Vessel or tank transfer, Laboratory use

Tygon® R-3603 Laboratory Tubing

Tygon® R-3603 Laboratory Tubing is crystal-clear and flexible, and handles virtually all inorganic chemicals found in the lab. It is non-oxidizing and non-contaminating. Long-lasting and crack-resistant, Tygon® R-3603 Laboratory Tubing is less permeable than rubber tubing. The glassy-smooth inner bore helps prevent buildup so that cleaning is facilitated. Coils are marked at 1-foot intervals for easy measuring. Autoclavable. Remains flexible at -45°F (43°C). Durometer Hardness: Shore A, 55. Outstanding chemical resistance and lot-to-lot consistency for reproducible results. Increases productivity in peristaltic pumps - outlasts other clear tubing 2 to 1. Ideal for condensers, incubators, desiccators, gas lines and drain lines

Tygon® S-50-HL Medical/Surgical Tubing

Tygon® S-50-HL Originally developed for use in cardiac surgery, Tygon® Medical/Surgical Tubing's consistent quality provides dependable performance in medical device applications. Saint-Gobain Performance Plastics compounds its own materials to specific formulation requirements using select ingredients that have been carefully qualified and specified. It has been fully tested for biological safety to the ISO 10993 standard. Durometer hardness: Shore A, 66. Tygon® Medical/Surgical Tubing can be sterilized by radiation, ethylene oxide, steam or chemical methods. **Features:** Ideal for contact with blood. Flexible and resilient with established performance in peristaltic pump applications. Fully characterized to ISO 10993 and FDA guidelines for biocompatibility. Meets USP Class VI criteria

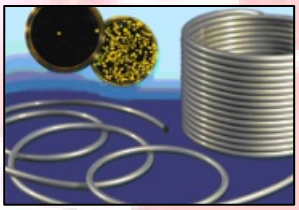


Tygon® S-95-E Medical Tubing

Tygon® S-95-E (formerly Tygon® ECMO) is a medical grade, clear, non-DEHP polymer tubing offering superior peristaltic pump life and exceptional flexibility. **Typical Applications:** Extracorporeal membrane oxygenation (ECMO) pumps • Kidney dialysis pumps • Peristaltic pumps • Blood and IV solutions **Features/Benefits:** Superior peristaltic pump life • Non-DEHP formulation • Ideal for contact with blood • Meets USP Class VI and FDA criteria • ISO10933 testing in progress • Withstands both EtO and gamma sterilization

Tygon® S-54-HL Microbore Tubing

Tygon® S-54-HL Microbore Tubing for intravenous and arterial infusion as well as other surgical, hospital and laboratory applications. Tygon® S-54-HL is flexible enough to permit use of a single size tubing with several different needle gauges, yet sufficiently rigid to minimize the danger of wall collapse. Tygon® S-54-HL Microbore Tubing is non-toxic, non-pyrogenic and biocompatible. Durometer hardness: Shore A, 83. Tygon® S-54-HL Microbore Tubing can be sterilized by radiation, ethylene oxide, steam or chemical methods. **Benefits:** Stiff enough for easy handling, soft enough to resist puncturing. Micro-diameter sizes fit needle gauges 30 to 17 Ideal for precision injection and dispensing applications. Meets USP Class VI.



Tygon® Silver Antimicrobial Tubing

Formulated with Alphasan®, a silver based compound on the inner surface at the point of fluid contact. Growth of microbes on many materials can lead to foul odors, discoloration and formation of mildew and biofilm. In the case of tubing, microbes can contaminate the material being transferred, as well as degrade the tubing itself. This tubing helps to prevent contamination. Plasticizer-free inner bore. Formulated with a silver based compound on I.D. surface. Reduces formulation of biofilm and mildew. Inhibits growth of microbes. Will not discolor. Meets FDA requirements. Meets NSF 51 requirements. PSI listed at 73° F.

Tygopure™ Monobarb Sanitary Fittings

TygoPure Monobarb Sanitary Fittings provide quick and secure sanitary tubing attachments in a variety of low-pressure biopharmaceutical and laboratory applications. Due to the fact that contamination of fluids and product loss can be a very costly issue, TygoPure Monobarb sanitary fittings provide superior connections to tubing through single-barb construction and thus reducing the leakage potential. TygoPure sanitary tube fittings are free of seams and angles, eliminating the potential of creating spaces that act as a potential source for microbial growth. Each sanitary tube fitting has a gradual taper between inlet and body allowing for an undisturbed fluid path and facilitating thorough cleaning.

Tygon® Sealing & Transfer Systems
Tygon® sealing and fluid transfer systems are manufactured from high-purity bisopharmaceutical grade platinum-cured silicone elastomers or thermoplastics. Our components and assemblies provide an aseptic seal for handling various high-sensitive fluids in biopharmaceutical applications. The Tygon® sealing and transfer systems allows you to easily retrofit your existing glass and plastic carboys, glass solution and media bottles, and stainless steel vessels for aseptic fluid transfer, sampling or sealing. These Tygon systems can be supplied in a wide range of sizes and customization features, including multiple ports and coding identification. Meets USP Class VI, European Pharmacopoeia 3.1.9, and FDA criteria

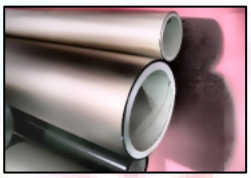
High Performance Films

Aclar ® PCTFE Film
Aclar® flexible PCTFE film provides unsurpassed moisture barrier properties for health care and industrial applications. Aclar ® provides an excellent moisture barrier, it is thermoformable and features up to 10 times the barrier of other transparent blister packaging films. This material is crystal clear & clean, chemically stable, biochemically inert. Aclar PCTFE film is plasticizer and stabilizer free, antistatic, and has excellent electrical properties. It can also be laminated and metallized. Aclar is preferred by pharmaceutical companies for blister packaging and other health care packaging.

Kapton® Polyimide Film
Kapton film from DuPont has more than 35 years of proven performance as the flexible material of choice in applications involving very high, 400°C (752°F), or very low, -269°C (-452°F) temperature extremes. Kapton is used in a wide variety of applications such as substrates for flexible printed circuits, transformer and capacitor insulation and bar code labels.
Kapton® polyimide film possesses a unique combination of properties that make it ideal for a variety of applications in many different industries. The ability of Kapton® to maintain its excellent physical, electrical, and mechanical properties over a wide temperature range has opened new design and application areas to plastic films.

KYNStick® Kynar® Film Tape with Adhesive
KYNStick® Tape is made with Kynar® film with an Acrylic Pressure Sensitive Adhesive for ease of application, positioning and fastening. KYNStick® Tape offers excellent chemical and corrosion resistance and has a high tensile strength. KYNStick® has good thermal stability and can be used in applications up to 300°F. Kynar® (PVDF) has extremely high purity which makes it a good candidate for food applications. When specified, Kynar 740 FILM complies with FDA regulation 21 CFR 177.510, USDA, USP XX Class VI, 3A sanitary standards and meets ASTM D3222 resin specifications. KYNStick® Tape also possesses high impact resistance and is tough and durable.

Makrofol® Polycarbonate Film
Makrofol ® DE and Bayfol® PC polycarbonate films are available in a wide variety of surface textures, including glass-clear with both sides gloss. These films offer high light transmittance, excellent surface uniformity, and ease of processing. All films use pure Bayer Makrolon polycarbonate resin. Most meet FDA approval and have the necessary UL ratings. Makrofol DE 1-1 is a clear general purpose polycarbonate film that delivers superior impact and clarity. This standard product offers a gloss surface on both sides and is available in thickness from .005" to .030". Makrofol DE 1-1 is supplied with combinations of cling and of stick maskings. Gloss-Gloss Polycarbonate Film. **Applications:** Labels, Membrane Switches, Nameplates, Packaging

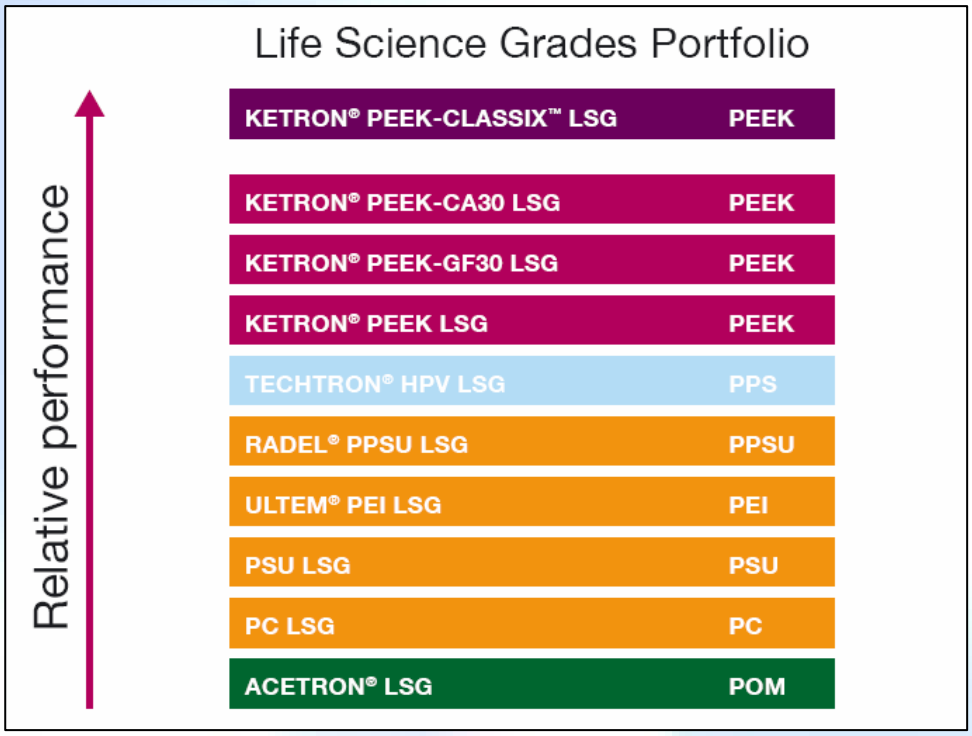


PEEK Film - Crystalline
Crystalline PEEK film offers an outstanding range of physical, thermal, chemical & radiological properties. PEEK is a high performance semi-crystalline thermoplastic. PEEK's characteristics include high temperature performance, excellent wear properties, superior chemical resistance, hydrolytic stability and outstanding toughness and strength. PEEK meets many aerospace, automotive, fire, smoke and toxicity, food/water, medical/pharmaceutical, and military approvals and standards.

PVDF Film
PVDF Film (Kynar ® Film) is both strong and tough as reflected by its tensile properties and impact strength. Compared to many thermoplastics, PVDF Film (Kynar ® Film) has excellent resistance to creep and fatigue, yet in thin sections such as films, PVDF (Kynar ®) components are flexible and transparent.
Applications for PVDF (Kynar ®) Film**:** Filters, Diaphragms, Release Films, Piezoelectric films, Medical bags

Ultem® PEI Film
Polyetherimides are amorphous thermoplastics whose chemical structure is based on repeating aromatic imide units. Thermoplastic polyimides are linear in structure without crosslinks. Film/Thin Sheet Products: Ultem® 1000-1000, CRS, XHT 6050 – Polyetherimide. Benefits: High rigidity, High strength, Inert to flame, High temperature resistance, Excellent chemical resistance Applications: Flexible circuits, Solder mask tape, Electrical insulation, Speaker cones and voice coils, High temperature vacuum bagging films.

Quadrant Life Science Grades Overview



Quadrant LSG Product Compliance Overview

GLOBAL NAMES	COMPOSITIONS	USP compliance of the stock shapes	ISO 10993 compliance of the stock shapes	FDA compliance of the resins (****)
KETRON® PEEK-CLASSIX™ LSG white (*)	PEEK white	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
KETRON® PEEK-CA30 LSG	PEEK + 30%CF	Class VI (**)	10993-4, -5, -10 & -11 (**)	no
KETRON® PEEK-GF30 LSG blue (RAL 5019)	PEEK + 30%GF	Class VI (**)	10993-4, -5, -10 & -11 (**)	no
KETRON® PEEK LSG natural	PEEK natural	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
KETRON® PEEK LSG black	PEEK black	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
TECHTRON® HPV LSG	PPS HPV	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
RADEL® PPSU LSG black (*)	PPSU black	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
ULTEM® PEI LSG natural (*)	PEI natural	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
PSU LSG natural (*)	PSU natural	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
PC LSG natural (*)	PC natural	Class VI (**)	10993-4, -5, -10 & -11 (**)	yes
ACETRON® LSG natural	POM-C natural	not tested (***)	10993-5 (**)	yes
ACETRON® LSG black	POM-C black	not tested (***)	10993-5 (**)	yes
ACETRON® LSG yellow (RAL 1007)	POM-C yellow	not tested (***)	10993-5 (**)	yes
ACETRON® LSG red (RAL 3027)	POM-C red	not tested (***)	10993-5 (**)	yes
ACETRON® LSG blue (RAL 5005)	POM-C blue	not tested (***)	10993-5 (**)	yes
ACETRON® LSG green (RAL 6016)	POM-C green	not tested (***)	10993-5 (**)	yes
ACETRON® LSG brown (RAL 8016)	POM-C brown	not tested (***)	10993-5 (**)	yes

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