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Advanced Plastic Engineering

COMPANY PROFILE

Polytech Plastics (Australasia) was founded in 1981 and is currently an importer and distributor and machinist and fabricator of thermoplastic products for many industries. We have access to a vast range of stock materials that we can use innovatively to produce a solution for your situation. Our skilled staff has an extensive knowledge base in the whole range of plastics so that the most suitable product with the matching specifications will be used for your project.

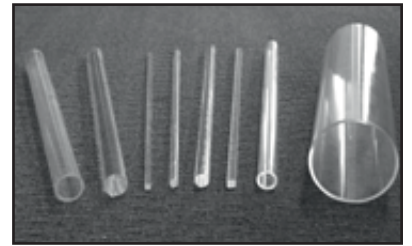
Polytech Plastics (Australasia) is focused on three areas to deliver you the most cost-effective solution:-

Materials Distribution We import from world leading suppliers of semi-finished thermoplastic products such as sheet, rod and tube. We can procure product from anywhere in the world and can deliver anywhere in Australasia.

Innovative Applications Polytech Plastics (Australasia) has the technology, know-how and skills to create anything you need in plastics. Our extensive knowledge of the individual properties of the various plastics allows us to tailor make a solution for you. We can combine the benefits of the different plastics with the use of steel, aluminium or even timber to provide a unique and complete product.

Custom Fabrication & Machining We can convert the semi-finished products into finished items for a specific use. We have extensive CNC machines and other specialist machines for the plastic industry so that we can produce the most cost-effective solution for your requirements.

The range of plastics is vast. Here are some of the common types and not so common types of PLASTICS that POLYTECH PLASTICS (Australasia) has had experience in. We know the special properties of every one and can recommend the correct one so that it performs to your requirements in a particular situation. With our experience, we can also offer other options to help meet availability and pricing issues.



WE USE THE RIGHT PLASTIC FOR THE JOB...

ACRYLIC (PMMA)

Poly Methyl Methacrylate Perspex®, Plexiglas®

Acrylic has excellent optical properties having 92% light transmission, thereby surpassing the clarity of glass and without the edge colorings of glass. It has a specific gravity of 1.19, which is half the weight of glass and is 5 times stronger, hence much safer. Impact modified grades are many times better again. It is easy to clean and remains aesthetically attractive for much longer than other plastics. Acrylic is easy to thermoform with low cost tooling leading to cost effective production. Normal maximum operating temperature is 80-85°.

USES/APPLICATIONS:

Shopfittings, Displays, Aquariums, Signage, Light Fittings, Roof Glazing, Food Handling, Architectural Features, Skylights & Domes, Food Dispensers, Tail Light Glass.



POLYCARBONATE Carbonated Biphenyl

Lexan®, Makro-Lon®, Sustanat®, Safeguard PC®

Polycarbonate also has excellent optical clarity with a light transmission range from 85-89%. It is easy to handle being ½ the weight of glass and yet its impact strength is 250 times stronger. It has good acoustic abilities and high electrical resistance. Polycarbonate is thermally stable and is scarcely affected by sudden changes in temperature and humidity over a wide range of temperatures from -54° to 122°C. It has excellent flame retardant properties and is generally regarded as self extinguishing.

USES/APPLICATIONS:

Machine guards, Sight glasses, Safety & Vandal resistant glazing, Transparent instrument components, high impact engineering & glazing sheets, military aircraft glazing, electrical insulators, medically sterilized equipment.



H.D.P.E. POLYETHYLENE (High Density Polyethylene)

Polystone 300

High Density Polyethylene has good chemical resistance although it is affected by aggressive oxidizing agents such as nitric acid and aromatic hydrocarbons. It does not absorb moisture and has good electrical properties and certain degree of toughness. Although having similar mechanical properties to U.H.M.W.P.E it does not have the same abrasion resistance, coefficient of friction, impact strength or wear properties and should not be considered as a low cost option in arduous applications. There are different grades to meet the special requirements of the chemical engineering, tank building, waste water, food industry equipment and Bench Tops, Wall Cladding, Construction Material for Process Equipment.



"Experienced recommendations for all PLASTICS resulting in practical, economic SOLUTIONS"

U.H.M.W.P.E. POLYETHYLENE

Ultra High Molecular Weight Polyethylene - Polystone Ultra®, Tivar®, Matrox®

This is chiefly used in lining technology because of its highest quality with regard to resistance to wear and low sliding friction. It has excellent abrasion and chemical resistance and with the low co-efficient of friction and very high surface release properties it is used in flow promoting liners to resist sliding abrasion and to assist release. There are many different grades with specific properties for the many different applications.

USES/APPLICATIONS:

Linings For Hoppers & Bins, Bulk Material Handling, Change Parts for Beverage Industry, Cutting Boards, Machined Parts, Underlay in Food Preparation.



POLYPROPYLENE (PP)

Polystone PP®

Polypropylene Copolymer has a very good chemical resistance at elevated temperatures combined with a good mechanical strength although it lacks the self lubricating properties and wear resistance of materials such as nylon and acetals. Minimal moisture absorption of 0.03% and a continuous working temperature range from -160° (copolymer) to 100°C with short term excursions to 130°C makes Polypropylene an ideal candidate in mineral and chemical processing applications.

USES/APPLICATIONS:

Chemical Tanks & Liners, Pump Components, Orthotics & Prosthetics, Cooling or Scrubbing Towers, Laboratory Equipment and Bench Tops, Wall Cladding, Construction Material for Process Equipment.



RIGID P.V.C. Polyvinylchloride

(Industrial grey and clear) Trovidur PVC

Polyvinyl chloride has high rigidity and strength along with excellent chemical resistance and electrical insulation properties. It has a flammability rating of VO. Ease of fabrication includes that it is thermoformable and can be glued or mostly welded. Along with this is its low cost which makes P.V.C. the popular choice for applications in the chemical industry, electroplating and laboratory market.

USES/APPLICATIONS:

Chemical Storage Vessels, Tank Liners, Fume Cupboards, Pump Components, Electrical Insulators, Electroplating, Pickling & Etching Technology, Photography Industry.



NYLON (PA)

Polyamide Ertalon®, Nylatron®, Sustamid®

Nylons are known as the workhorse of Engineering plastics and are available in wide range of grades. They provide optimum bearing qualities, high mechanical strength, stiffness and hardness. Nylons have very good fatigue resistance and high mechanical damping with good sliding properties. A high resistance to aliphatic & aromatic hydrocarbons such as fat, oils & grease.

USES/APPLICATIONS:

Slide Bearings, Bushings, Gears, Crane Sheaves, Pulleys, Electrical Insulators and Wear Parts.



P.T.F.E (Teflon®) POLYTETRAFLUOROETHYLENE

Teflon®, Tetron®

Teflon has been on the market for many years, however new applications are being discovered daily. The material is well known for its non-stick and low friction properties however it has exceptional chemical resistance and outstanding electrical insulation properties with a continuous service range from -270°C to 260°C. It also has a very high resistance to stress cracking and weathering and is insoluble in all known solvents below 260°C.

USES/APPLICATIONS:

Seals, Seats, Piston Rings, Lantern Rings, Back Up Rings, Slide Bearings, Electrical & Thermal Insulators, Chemical Transfer Tubing, Linings and Coatings, Laboratory Ware.



ACETAL (P.O.M.) Polyoxy Methylene

Ercacetal®, Delrin® Sus-Tarin®, Pomalux®

Acetal is a high crystalline thermoplastic with a high level of stability and rigidity as well as good sliding properties and wear resistance with low moisture absorption. Its good dimensional stability, exceptional fatigue resistance and excellent machining properties make Acetal a versatile design material.

USES/APPLICATIONS:

Bushings, Bearings, Wear Plates. Electrical Components, Gears, Sliding Elements, Pump Components.



P.E.T.G

Vivak®

A new generation clear material which exhibits excellent optical clarity combined with an impact strength second only to Poly-carbonate and very good chemical resistance. The material is quite versatile and can be cold formed and fabricated with ease.

USES/APPLICATIONS:

Test Tubes, Bottles, Toys, Displays And Lighting Fixtures, Face Shields, Refrigerator Crisper Pans.



POLYURETHANE (P.U.)

Polyurethanes are unique materials as they can be engineered for softness (rubber Shore A scale) and hardness (rigid plastic shore D scale) as well as being produced as stock shapes such as rod, sheet and tube or cast as a net shape or on to metal substrates. Rebound and memory are two main features of P.U. materials as well as excellent vibration and damping properties, high resistance to oxygen, ozone, oils and solvents; and has a working temperature range of -50°C to 100°C

USES/APPLICATIONS:

Belts, Metal Forming Pads, Wear Strips, Bumpers, Gears, Bellows, Machinery Mounts, Cutting Surfaces, Sound-Dampening Pads, Chute and Hopper Liners, Rollers.



POLYETHYLENE (L.D.P.E.)

Low Density Polyethylene

The first of the Polyolefin's, Low Density Polyethylene (LDPE) was originally prepared some fifty years ago by the high pressure polymerization of ethylene. Its comparatively low density arises from the presence of a small amount of branching in the chain (only about 2% of the carbon atoms). This gives a more open structure. Low Density Polyethylene (LDPE) is a most useful and widely used plastic especially in dispensing bottles or wash bottles.

USES/APPLICATIONS:

Wash Bottles, Pipette Washing Equipment, General Purpose Tubing, Bags and Small Tanks.



ABS & SAN

Styrene Acrylonitrile & Acrylonitrile Butadiene Styrene

These belong to the family of engineering grade plastics. They combine the bonuses of butadiene, the rigidity of styrene and the chemical resistance of acrylonitrile to form a versatile engineering plastic. ABS resins lend themselves to variations of their balance of properties, which mean that impact resistance, heat resistance, hardness, rigidity, chemical resistance, flow characteristics and surface gloss can be selected to meet the application.

USES/APPLICATIONS:

Automotive, Boat & Truck Panels, Poker Machine Faces, Suitcases, Power Box, Casings, Decorative Panels, Packaging.



ADVANCED ENGINEERING PLASTIC PRODUCTS

This unique group of engineering plastic products offer properties which extend beyond the limits of other engineering thermoplastics. These products retain mechanical and fatigue properties at elevated temperatures. Advanced plastics such as Peek, PEI and Torlon are special materials – the value of the benefit in use needs to be properly assessed and understood in order to maximize cost/benefit. Other advantages gained by using Advanced Engineering Plastics are resistance against high energy radiation, some maximum thermal operating temperatures exceed that of PTFE, improved chemical resistance and increased dielectric properties.

BENEFITS	APPLICATIONS
Strength	Electrical Industries
Stability	Coil bobbins, insulating bushings, housings
Wear Resistance	Process Equipment
Increased Dielectric Properties	Pump Components, Bearings, rollers, gears

PSU 1000 Polysulphone (Natural – yellow / Translucent)

PSU 1000 stock shapes are produced from non –UV stabilized polysulphone resin. This material has a maximum allowable service temperature of 180°C for short periods and can continuously be used up to 150 C. Polysulphone shows great thermal stability from -100°C to +160°C. PSU possesses a high mechanical strength, very good dielectric properties and hydrolysis resistance and a high radiation resistance (permeable for microwaves) PSU has low notch impact strength.

APPLICATIONS: Parts of microwave ovens, blow dryers, humidifiers, food industry, pump wheels, insulators, medical industry.



PPSU 1000 Polyphenylsulphone (Black)

PPSU 1000 stock shapes are produced from RADEL®R resin. This material offers better impact strength and chemical resistance than PEI 1000 and PSU 1000. PPSU has also superior hydrolysis resistance as measured by steam autoclaving cycles to failure. This material has virtually unlimited steam sterilisability which makes it an excellent choice for medical devices that are subjected to repeated steam autoclaving. PPSU is an amorphous material, with improved impact and hydrolysis resistance compared to PSU. The usual operating temperature is approximately + 180°C. The extremely high notched impact resistance remains also after a heat aging.

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APPLICATIONS: Parts of microwave ovens, blow dryers, humidifiers, food industry, pump wheels, insulators, medical industry. Same as PSU but with higher chemical resistance.

PEI 1000 Polyetherimide Natural (Yellow / Translucent)

PEI stock shapes are produced from ULTEM® resin. An excellent material for use in applications requiring both high heat resistance and good mechanical performance at elevated temperatures (maximum allowable service temperature of 210 C for short periods and 170 continuously. It also has good dimensional stability and creep resistance. Its unique torque strength permits the economical substitution of machined fabricated small parts from steel.

APPLICATIONS: Parts for electrical engineering, food industry and in the aircraft construction



KETRON PEEK Polyetheretherketone

Semi crystalline polymer with impressive mechanical and thermal properties. It resists creep under load and does not fatigue easily due to its low coefficient of friction. Temperature resistance without load is high. Ketron PEEK is an ideal material for applications where an excellent performance under extreme conditions of temperature, chemical attack, high energy radiation, electrical duty is required. Used in applications such as high mechanical load bearing, pump components and valve seats. Allowable service temperature 250 C

TECHTRON HPV PPS Polyphenylene Sulphide (Deep blue)

This reinforced, internally lubricated polyphenylene sulphide grade offers a valuable combination of properties with respect to wear resistance, load bearing capabilities and dimensional stability when exposed to chemicals and high temperature environments. The linear Polyphenylene Sulphide belongs to the semi-crystalline materials and offers a very high mechanical capacity, thermal and chemical resistance distinguished at the same time (usual operating temperature up to approximately +150 C), high dimensional stability and creep resistance. The LOI belongs to the highest of the polymers. By the reinforcement of glass fibres strength is achieved, which is comparable with light metal. PPS closes the gap between the technical synthetics and PEEK with its strength and economy.

APPLICATIONS: Components in the machine making, pump parts, fan parts, impellers, parts in the fuel and automotive sector.

PPS-40GF - the 40% fibre reinforced PPS has an improved dimensional stability and higher stiffness which can be compared with light metal applications. Usual operating temperature up to approximately +230 C.

TORLON PAI Polyamide-imide available in 3 different grades 4203 PAI, 4301 PAI, 5530 PAI

For high temperature applications, this advanced material offers an excellent combination of mechanical performance and dimensional stability. The TORLON® PAI grades combine excellent retention of mechanical strength, stiffness and creep resistance over a wide temperature range. Top ranked materials for high temperature applications, with an extremely low thermal expansion.

CELAZOLE PBI Polybenzimidazole (Black)

Celazole parts offer a combination of properties that allows them to excel in applications requiring low wear and long life in severe environments. Max allowable service temperature 310 C continuously, 500 C for short periods.

PVDF 1000 Polyvinylidene Fluoride Natural (white)

PVDF 1000 is a highly crystalline unreinforced fluoropolymer combining good mechanical and electrical properties with an excellent chemical resistance. Like other fluoropolymers, its best attribute is its chemical resistance. PVDF shows a higher tensile strength, pressure resistance and dimensional stability than the related PTFE, but friction and insulation properties are lower. PVDF has a high mechanical strength and toughness at lower temperature and it is self-extinguishing. The temperature ranges from -30 C to + 150 C.

APPLICATIONS: Gaskets, pumps, rotation discs, valves, flap traps, centrifugals of extraction, fittings, glide tracks, cogwheels

PVDF STRETCHBACK

PVDF Stretch back provides a bondable service for laying up of fibre glass in tank and vessel construction.

ECTFE Ethylene-Chlorotrifluoroethylene

ECTFE exhibits extraordinary impact strength at temperatures ranging from -76 C to +150 C. A great part of the product properties attributes to the very smooth surface and differentiates HALAR® from other fluoropolymers. Due to the fact that ECTFE is very pure, this material is being used to process chemicals and ultrapure water for the semiconductor industry. Also the permeation resistance to oxygen, carbon dioxide, chlorine gas and hydrochloric acid is 10 to 100 times better than PTFE.

APPLICATIONS: Parts which come in contact with aggressive materials (e.g. machine making industry) , linings of tanks, pumps, flanges, fittings, parts in centrifuges and control engineering industry.

PETP Polyethylene Terephthalate

PET Polyethylene Terephthalate shows high tensile and mechanical strength, hardness and toughness, low friction and a high dimensional stability. PET may be used at temperatures ranging from -20°C to approximately + 100°C.

APPLICATIONS: Bearings, pumps and parts for housings, frame components, tank lids, cogwheels, insulators for electrical engineering, deflection rollers for the filament industry, levers, handles, control discs

PPE Polyphenylenether (PPO, Noryl®)

Polyphenylenether belongs to the group of the amorphous material and can be used in temperatures ranging from -40°C to approx +90°C. PPE exhibits high impact strength, a low water absorption, a very high dimensional stability and a very low tendency to creep. The electrical properties will not be influenced by the surrounding frequencies and therefore can be used in a lot of applications in electrical engineering.

APPLICATIONS: Parts for electrical engineering and household utensils, shafts, gear wheels, parts in the hydrolysis.

PPE-30GF The 30% glass fibre reinforced PPE has an improved dimensional stability, a very high stiffness and heat resistance that allows further uses.

CPVC Chloro Polyvinyl Chloride

CPVC has excellent chemical and corrosion resistance, excellent thermo-stability performance with high rigidity and superior strength. It has low flammability and is self extinguishing.

APPLICATIONS: Mainly used in the chemical industry for chlorine electrolysis, electroplating, paper industry, semi-conductors industry and clean room technology such as Lab equipments, etching equipment, semi-conductor processing equipment, chemical storage tanks, oil tanks for brewing water, acid or alkali production towers.

PCTFE Polychloro, trifluoroethylene

PCTFE has the ability to withstand extremely low temperatures and hence is used in cryogenics. It is used for seals and seats in equipment. The material is very rare and expensive.

THE WIDE RANGE OF PLASTIC PRODUCTS...

MACHINE PARTS TO ORDER

We can produce everything you need in plastic machine parts to order, including:

- **UHMWPE ITEMS**

Including Hoppers, Buckets, Chutes, Bins, Wear Plates, Chain Runners, Wharf Buffers, Dump Truck Liners and Bridge Packs.

- **ACETAL ITEMS**

Used for Dimensional Stability such as close tolerance Spacers and Bushes.

- **TEFLON HIGH PRESSURE LAMINATES**

For High Voltage electrical insulation (such as is used in Japan's Electric Rail Car Brakes Isolators).

- **NYLON ITEMS**

Including Wheels, Rollers, Screens, Pads and Pulleys.



LABORATORY FURNITURE

We can produce everything you need in laboratory plastics to order, including:

- Maintenance & service repairs to laboratory fume cupboards.
- Down draft reticulating laboratory fume cabinets.
- Custom fabricated laboratory bench tops (stainless steel, pvc, pp, hdpe).
- Lab bottle drainers.
- Laboratory sink & lab drainer units.
- New & replacement heat resistant laboratory fume cupboard bases.
- Second hand & refurbished laboratory fume cupboards & fume extraction systems.
- Cross contamination lab benches.



CHEMICAL STORAGE & MIXING TANKS

We can produce chemical storage and mixing tanks to your specifications including:

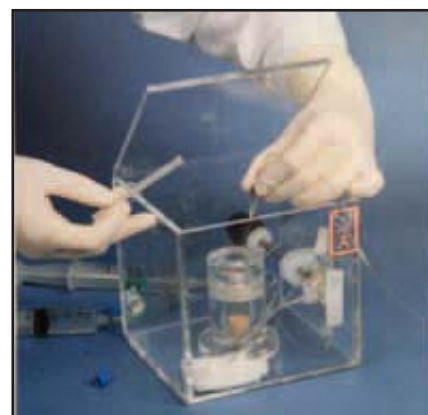
- Custom fabricated chemical storage & mixing tanks (PVC, PP, HDPE, PVDF).
- Vented chemical storage cabinets (240v fan-driven or whirlybird extraction systems).



MEDICAL PRODUCTS

We can produce everything you need in plastics for specialised medical purposes, to order including:

- Phantom box delivery apparatus for surgery.
- Beta radiation safety items including shields, bins, storage boxes, holders and syringe guards used in nuclear medicine.
- Custom made test tube holders for autoclaves.
- Drying Racks.
- Custom made items for complex surgical tasks.
- Hospital equipment including bed pan racks, arm support boards, body boards for stretchers, Clip boards for individual patient records.



PLUMBING EQUIPMENT

We can produce everything you need in plumbing plastics to order, including:

- PVC lab sinks.
- Plaster traps.
- Vented photography troughs.
- Custom fabricated marine sewage tanks.
- Electrical plating tanks.
- Down draft vented silk screening tables.

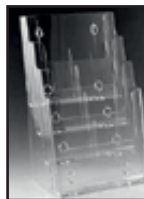


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SHOP FITTINGS & DISPLAY STANDS

We can produce everything you need in plastics to order, and the variety of items we can produce is amply demonstrated by previous projects, which include:

- Revolving counter stands for Watch Works watch bands.
- New Flick-It lighter stands.
- Opal poster boxes, double-sided for shop front and inshore display.
- Variety of jeweler display cases.
- Floor and counter displays for all types of display situations.
- Custom made display stands.
- Brochure holders display.



PLASTIC SCREENS & PLASTIC WINDBREAKS

We can produce everything you need in plastics to order, including

- Tough safety screens for freeway bridges (anti-graffiti film can be applied).
- Drum sound-screens for church groups and bands.
- Removable patio windows with aluminum frames.
- Balustrade safety screens for multi-storey residences and housing.
- Clear screens for swimming pool and spa fencing.



BIOBALLS & FILTRATION PRODUCTS

We can produce our bioballs design or your bioballs design in a wide variety of shapes and colors to suit your requirements - all with a fast turn around time.

We generally manufacture and stock our bioballs in black because it is less affected by algae's. 16 bioballs are required per liter of filtration medium. We can also provide bioballs that float or sink as required. Bioballs are sold in commercial quantities only.



AWARDS, PLAQUES & TROPHIES

We can supply everything you need in plastics, including:

- Deep Etched Plaques • Detailed Laser Engraving
- Corporate Gifts • Embedded Objects - such as a golf ball in clear resin etc...
- Custom Designed Perpetual Trophies



FOOD HYGIENE

We produce a wide range of products for the food industry to order, including:

- Hygienic food dispenser bins.
- Banks of multiple food dispenser bins.
- Coffee & tea dispensers.
- Anti-theft till guards.
- Pick & mix stands.
- Cone holders and sneeze guards.
- Bread bins and cookie cabinets.



CUT TO SIZE PLASTICS

We can supply everything you need in plastics, including:

- Sheets, rods and tubes in Perspex™ clear acrylic.
- Glass replacement products, from 2mm to 50mm thickness.
- Impact resistant & bullet resistant polycarb sheet, 1mm to 32mm thick.
- Mirrors • Patio windows
- Skylight panes • Lighting panels
- Boat windows • Golf buggy windows
- Dance floors • Stage floors • Electrical switchboard cover
- Clear plastic first aid boxes • Plastic washers, nuts & bolts
- Insurance repairs in any plastic



We can manufacture the PLASTIC for Harbour Construction, Truck Docks, Pilings, Scraper Blades, Wear Plates, Chute Linings, Hopper Linings, Bench Work Tops, Pump Bodies & Components, Sliding Plates, Fume Cupboards, Electrical Insulators, Bearings, Precision Gears, Conveyor & Roller tension components, Wire rope Sheaves, Gears, Buffer Pads, Precision machined components, Seats, Seals, Packings, Slide bearings, Process equipment, Coils, Bobbins, Cryogenics & MUCH MORE.

Our services with Plastics include:



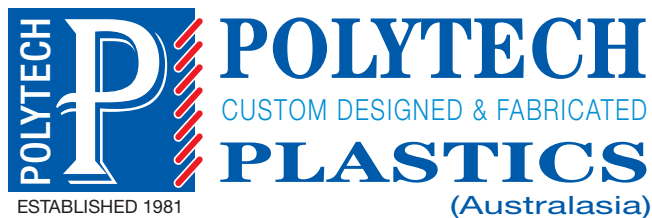
- Cutting •
- CNC Machining •
- Diamond Edge Polishing •
- Drilling •
- Forming •
- Heat Bending •
- Vacuum Forming •
- Welding •
- Gluing •
- Blow Moulding •
- Laser Printing •



Get POLYTECH PLASTICS (Australasia)
listed on your Suppliers List, so that you can have
trouble free access to our services when the need arises.

Call us, Email us, or Fax us with your:

- Enquiry • Problem • Request for Quotation • Specification •
- Design • Drawings • Ideas •



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