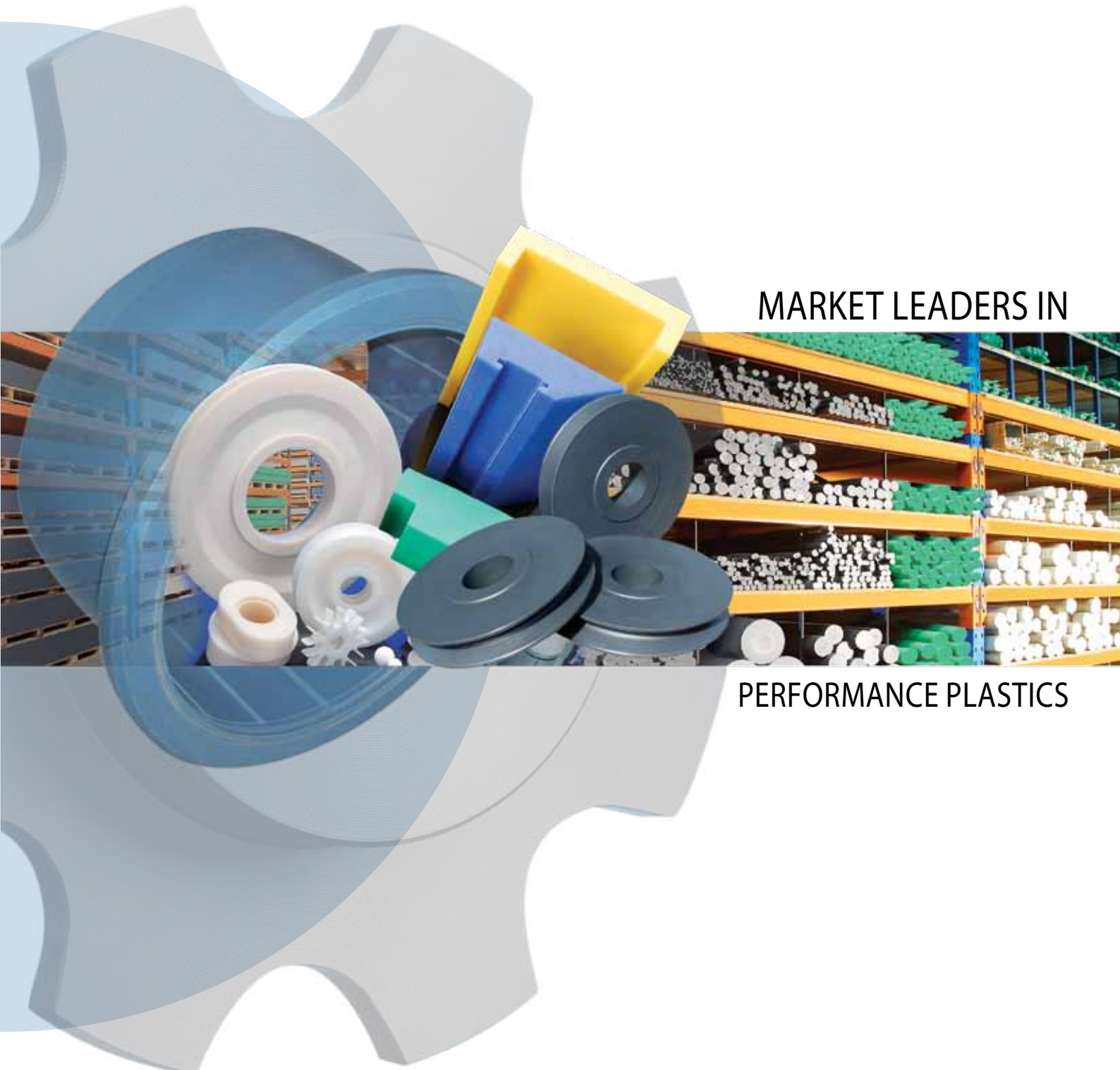


MARKET LEADERS IN

PERFORMANCE PLASTICS





## COMPANY PROFILE

Dotmar Engineering Plastic Products was founded in 1967 and is currently the largest importer and distributor of thermoplastic stock shapes, polyurethane and conveyor components in Australia and New Zealand. Dotmar's distribution footprint extends to over 5,000 customers servicing over 100 diverse industry sectors.

Dotmar has built up its market-leading position by delivering a high level of customer service and applications advice, supported by a deep level of technical expertise. Dotmar is at the forefront of developing thermoplastic applications for commercial and industrial use and has built up a highly-skilled product development team supported by a network of mechanical engineers. Dotmar offers an extensive knowledge base in thermoplastics, polyurethane & conveyor products coupled with strong partnerships with world leading manufacturers.

Dotmar's focus is the technical application of thermoplastic materials in a number of exciting industries, ranging from pharmaceutical and materials handling to as far a field as architectural design. Dotmar excels in distribution, technical support, material selection and applications development.

### So why choose the market leader...

- Offering the widest range of quality engineering thermoplastics
- Specialists in our field, offering the highest levels of material selection advice and technical support in the industry
- Largest distribution footprint in Australia and New Zealand
- Capital investment in inventory - commitment to continuous material supply and customer service delivery
- Long-standing partnerships with the world leaders in thermoplastics manufacturing

### Dotmar is focussed on three key areas of the business...



#### Materials Distribution

Import and Distribution  
Representing world leading ISO9002 accredited, semi-finished thermoplastics manufacturers.

Semi-finished delivery programme in rod, sheet or tube.

The distribution of specialised conveyor components and chain to the bottling, beverage and food industry.

Extensive range and largest stock holding in Australia/NZ.

Wide-spread distribution network through Dotmar branches and strategic partner resellers.

#### Applications Development

Supporting innovative applications development.

Unsurpassed in-house technical expertise/support Thermoplastic /Polyurethane applications advice.

Flow promotion liner solutions to accommodate a broad range of mining applications and onsite installations.

#### CAMSAD

"Computer Aided Material Selection and Design".

#### RITA

"Rochling Integrated Tank Building Assistant".

#### Custom Manufacturing & Engineering

Manufacture of polyurethane parts and components.

Manufacture of cast nylons stock shapes for special nylon products.

Engineering and conversion of semi-finished stock shapes into finished plastic parts.

Thermoplastic trained, technical teams using state of the art machining facilities.

CAD/CAM Manufacturing & Design  
CNC – Machining Milling / Routing / Spindle Moulding.



## DISTRIBUTION PLATFORM

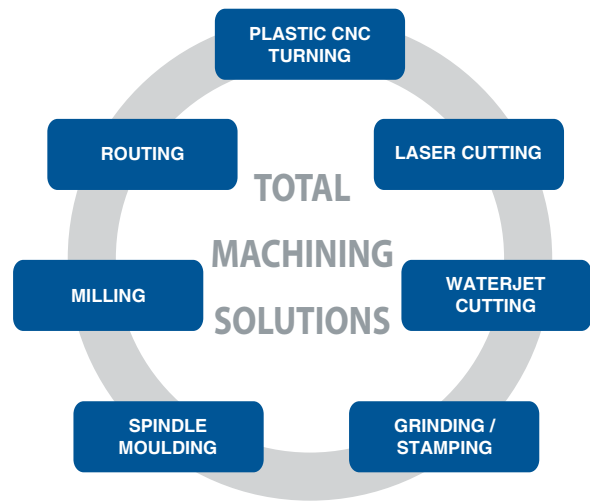
The Australian market is serviced through 5 state distribution branches that are located in the major metropolitan areas and 3 engineering facilities (co-located with distribution branches in Sydney, Melbourne and Brisbane). The New Zealand market is served through 5 branches and 2 engineering facilities. The branch network and dedicated sales force is complemented by strategically placed reseller partners that operate predominately in regional Australia with high geographic reach providing customised service to their local markets.

## CUSTOM MACHINED ENGINEERING PLASTICS

Dotmar operates 5 state-of-the-art plastic machining technology centres across Australia & New Zealand that produces machined plastic parts and custom plastic parts across a wide range of applications. Engineering Plastics & Polyurethanes are the only materials machined in our fully equipped technology centres.

Our technology centres are managed by trained staff that is qualified to work across the whole spectrum of engineering thermoplastics. Materials such as Ultem PEI, Acrylic, Safeguard Polycarbonate, Nylon (Ertalon), Acetal (Ertacetal) are all easily machined. Dotmar also machine different grades of Torlon (Polyamideimide), PTFE (Teflon), PVC and HDPE (Polystone P300) and UHMWPE (Polystone 7000), while even exotic plastics such as Vespel don't prove a challenge for the expertise of our machinists.

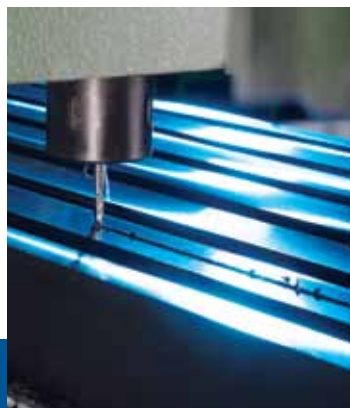
- **FAST QUOTES**
- **EXCELLENT LEAD TIMES**
- **MAXIMISED EFFICIENCIES**
- **HIGHEST QUALITY**



Plastic machining offers an alternative to traditional steel, stainless steel and aluminium parts and are used as replacements for OEM parts or as a newly developed part to improve machine performance. Plastic machined parts are lightweight and used where chemical resistance, electrical resistance, quietness, or extreme wear resistance is required.



Our plastic machining service is used across a wide range of industries such as Mining, Food, Bottle/Beverage and Transport as direct metal replacements for bearings, thrust washers, crane sheaves, pulleys and wear strips and conveyor curves.



## POLYETHYLENES (PE/HDPE/UHMWPE)



### TRADE NAME

- **POLYSTONE PG100 – Black**  
High Density Polyethylene  
*"The material of choice for chemical tank construction."*
- **POLYSTONE P300 – Natural / Black / Yellow**  
High Density Polyethylene  
*"The material of choice for fabricators."*
- **POLYSTONE HM500 – Natural**  
High Molecular Weight Polyethylene  
Molecular weight +/- 500,000 g/mol
- **POLYSTONE 7000 – Natural**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +7 million g/mol
- **POLYSTONE 7000 SR – Black**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +7 million g/mol
- **POLYSTONE ULTRA – Light Green**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +7 million g/mol
- **POLYSTONE EZYSLIDE 78 – Light Green**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +9.2 million g/mol
- **POLYSTONE M-SLIDE – Dark Grey**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +7 million g/mol
- **POLYSTONE FLAMETEC – Black**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +7 million g/mol
- **POLYSTONE 8000 PLUS – Blue**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +8 million g/mol
- **POLYSTONE MATROX FAMILY (Different Grades Available)**  
Ultra High Molecular Weight Polyethylene  
Molecular weight +9.2 million g/mol

### PROPERTIES

Excellent abrasion & chemical resistance, Very low co-efficient of friction, Very high surface release properties, Excellent impact resistance, Very high damping properties.

### MATERIAL DESCRIPTION

- Copolymer, HDPE manufactured from a P100 base resin, offering 100% weld integrity with P100 pipe. Polystone PG100 exhibit outstanding properties in terms of weatherability, long term material and weld strength, superior chemical and stress cracking resistance. Approved for chemical engineering and tank building and meets the strict requirements set for pipe-grade PE.
- A rigid material available in large sheets for general use in plant engineering, tank construction and waste water industry, where all round chemical resistance and weatherability are required. Also available in yellow for Machine Guarding applications. Polystone P300 guards are corrosion and rust free, with low maintenance.
- Excellent mechanical properties supported by rigidity and creep resistance. Ideal for use in the food industry as cutting boards, underlays in food preparation and machined parts.
- General purpose UHMWPE suited to engineered applications where its unique properties of excellent impact strength, wear and abrasion resistance are required.
- Specifically formulated with a carbon filler to suit applications where reduced static is required in handling of bulk materials and other high speed sliding applications including lining of storage systems and change parts for the beverage industry.
- Specifically formulated with improved sliding characteristics improving its resistance to wear, abrasion and environmental stress cracking. Ideally suited to flow promotion and mechanical transmission support products.
- A special formulation of UHMWPE with high abrasion resistance, excellent non-stick properties and excellent corrosion resistance. Ideally suited for the lining of hoppers, bins and earth moving equipment to promote flow, reduce hang-up and carry-back.
- Companies involved with bottling, canning, packaging, conveying and materials handling have a need for thermoplastic components which exhibit exceptional friction and abrasion properties. Polystone M-Slide is a dark grey UHMWPE incorporating a solid lubricant to optimize specific properties.
- The first flame retardant and anti static UHMWPE that has the following special properties - Halogen and antimony free, no strong smoke emission, non-toxic smoke/gas. Technical properties of UHMWPE are not reduced.
- Specifically formulated Polyethylene with inorganic fillers to enhance its rigidity, dimensional stability and abrasion resistance. Ideal for dewatering elements for the paper industry.
- The enhanced co-efficient of friction provides unique mass flow properties with UV stability. Unique properties of Polystone Matrox are high abrasion resistance, excellent non-stick properties and excellent corrosion resistance. Ideally suited for bulk material handling applications - lining of hoppers, bins and earth moving equipment to promote flow, reduce hang-up and carry-back.

### APPLICATIONS

Flow promoting liners to resist sliding abrasion and to assist release, conveyor components subject to high wear and requiring low friction, componentry in direct contact with food stuffs, parts subject to high impact stresses.

## BOATBOARD (SPECIAL GRADE HDPE)



### PROPERTIES

Weather resistant, Easy to handle & clean, Low maintenance - no delamination, Attractive surface, No moisture absorption (water resistant), No rotting (compared to pressed wood), Excellent resistant to UV (no bleaching), Good machinability and weldable.

### MATERIAL DESCRIPTION

- Boatboard is a special grade HDPE with a special textured surface on both sides, for use in the marine environment.

### APPLICATIONS

Boat furniture and fittings, doors and hatch covers, transform covers, bathing platforms and steps, instrument panels and control mounts.

## POLYPROPYLENE (PP)



### TRADE NAME

- **POLYSTONE PP**  
Polypropylene, Homopolymer  
- Grey/Natural - Copolymer Available on indent

### PROPERTIES

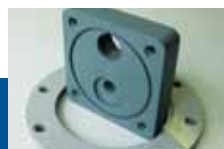
Very high chemical resistance, Excellent impact & moisture resistance, Higher scratch resistance than HDPE, Thermoformable, Weldable, & lightweight, Physiologically inert (suitable for food contact).

### MATERIAL DESCRIPTION

- A stiff and hard material with high heat resistance and excellent chemical resistance at elevated temperatures. Used extensively in the chemical process industry.

### APPLICATIONS

Food or corrosive storage vessels, cooling or scrubbing towers, pump bodies and components, construction material for process equipment, electroplating, components in medical applications, laboratory equipment and bench tops, wall cladding, etc.



## POLYVINYLCHLORIDE (PVC)



### TRADE NAME

- **TROVIDUR PVC RIGID ROD AND SHEET**  
Polyvinyl Chloride U (Grey)

### PROPERTIES

High rigidity and strength, Excellent electrical insulating properties, Very high chemical resistance, Thermoformable and bondable, Moderate impact resistance and service temperature, Very good moisture resistance.

### MATERIAL DESCRIPTION

- Excellent chemical and mechanical properties with remarkable anti-corrosive characteristics.

### APPLICATIONS

Chemical storage vessels, tank liners and fittings, fume cupboards, pump components, electrical insulators, and equipment construction in clean room technology, electroplating, pickling and etching technology, photography industry.

## POLYVINYLIDENE FLUORIDE (PVDF)



### TRADE NAME

- **PVDF 1000**  
Polyvinylidene Fluoride - Natural (White)

### PROPERTIES

High max, allowable service temperature (150°C continuously), Excellent chemical and hydrolysis resistance, Good mechanical strength, Stiffness and creep resistance, Good sliding properties, Wear and abrasion resistance, Good electrical insulating properties, Excellent UV and weather resistance.

### MATERIAL DESCRIPTION

- A highly crystalline, unenforced fluoropolymer combining good mechanical, thermal and electrical properties with excellent chemical resistance.

### APPLICATIONS

Used for chemical storage tank linings, gear wheel cams, bearings, bushings, pump components. Also applications in the petrochemical, nuclear, pharmaceutical and hydro metallurgical industries.

## NYLONS (PA)



### TRADE NAME

- **ERTALON 6SA**  
Polyamide - PA6 Natural (white) / Black  
EXTRUDED
- **ERTALON 66SA**  
Polyamide - PA66 Natural (cream) / Black  
EXTRUDED
- **ERTALON 6PLA**  
Polyamide - PA6G Natural (ivory) / Black  
CAST
- **ERTALON 6XAU**  
Polyamide - PA6G Black  
CAST
- **ERTALON LFX**  
Polyamide - PA6G Green  
CAST
- **ERTALON 4.6**  
Polyamide - PA 4.6 Reddish brown  
EXTRUDED
- **ERTALON 66GF30**  
Polyamide - PA66-GF30 Black  
EXTRUDED
- **NYLATRON GS**  
Polyamide - PA66 + MoS2 Grey / Black  
EXTRUDED
- **NYLATRON GSM**  
Polyamide - PA66 + MoS2 Grey / Black  
CAST
- **NYLATRON MC901**  
Polyamide - PA6G Blue  
CAST
- **NYLATRON 703XL**  
Polyamide - PA6G Deep Purple  
CAST

### PROPERTIES

Excellent bearing properties, High mechanical strength, stiffness and hardness, Good fatigue resistance, High mechanical damping ability, Good sliding properties, Excellent wear resistance, Good machinability.

### MATERIAL DESCRIPTION

- ERTALON 6 SA can be considered a 'general purpose' nylon ideal for mechanical construction and maintenance. Offering the best combination of mechanical strength, stiffness, toughness, mechanical damping properties, wear resistance, good electrical insulating ability and chemical resistance.
- Higher mechanical strength, stiffness, heat and wear resistance than ERTALON 6SA. Better creep resistance, but impact strength and mechanical damping ability are reduced. Well suited for machining on automatic lathes.
- Characteristics of this cast nylon grade come very close to those of ERTALON 66SA. The production method (direct polymerization in the mould), make manufacture of large-sized stock shapes and custom cast shapes with minimal machining possible.
- ERTALON 6XAU+ is a cast, heat stabilized grade particularly recommended for bearings and other mechanical parts subject to wear at elevated temperatures above 60°C.
- ERTALON LFX is an internally lubricated cast nylon offering "real" self-lubricating properties such as reduced coefficient of friction (-50%) and improved wear resistance (up to x10). Specifically suited for un-lubricated moving parts over a wide applications range.
- Features a better retention of stiffness and creep resistance over a wider range of temperatures, as well as superior heat ageing resistance. Applications for ERTALON 4.6 are suited in the 'higher temperature area' (80-150°C) where stiffness, creep resistance, heat ageing resistance, fatigue strength and wear resistance of PA6, PA66, POM and PETP fall short.
- Compared with virgin PA66, this 30% glass fibre reinforced Nylon grade offers increased strength, stiffness, creep resistance and dimensional stability whilst retaining an excellent wear resistance. Also allows for higher max. service temperatures.
- The addition of MoS2 renders this extruded nylon somewhat stiffer, harder and dimensionally more stable than Ertalon 66SA. Better wear resistance and lower coefficient of friction with improved temperature resistance, but minor loss of impact strength. The improved crystalline structure enhances bearing and wear properties.
- Excellent wear resistance, self lubrication and low friction characteristics. It is an ideal material for dynamic bearing applications, even at elevated temperatures up to 100 °C. These superior mechanical properties, combined with low moisture absorption, extend its range of uses.
- Has better impact strength and fatigue resistance compared with other cast Nylons in the range. It has proved an outstanding material for large gears, racks and pinions, successfully replacing phosphor bronze and cast iron in many applications.
- Nylatron 703XL is a new internally lubricated cast nylon for special applications. Zero "stick / slip" is its differentiating feature.

### APPLICATIONS

CAST and EXTRUDED Nylon are used in a wide range of industrial components both for original equipment manufacturing and maintenance. Sleeve and Slide bearings, wear pads, support and guide wheels, conveyor and tension rollers, sleeves for wheels and rollers, pulleys and pulley liners, cams, buffer blocks, sprockets, seal rings, starwheels, insulators etc.

## ACETALS - Delrin® (POM)



### TRADE NAME

- **ERTACETAL (C) + (H)**  
Natural (white) / Black  
*"General Purpose Parts in Wet Environments"*

### PROPERTIES

High mechanical strength, stiffness, hardness and toughness. Excellent resilience and good creep resistance, High impact strength even at low temperatures, Good sliding properties and wear resistance, Very good dimensional stability, Physiologically inert.

### MATERIAL DESCRIPTION

- The acetal copolymer is more resistant against hydrolysis, strong alkalis and thermal - oxidative degradation than the acetal homopolymer. The latter, however, has higher mechanical strength, stiffness, hardness and creep resistance as well as lower thermal expansion rate and very often it also presents a better wear resistance.

### APPLICATIONS

Gear wheels with small modules, bearings and gears with close tolerances, heavily loaded gears and rollers, cams, all kinds of dimensionally stable precision parts for machine construction, electrical engineering insulators, snap-fit assemblies, rollers, parts which operate in water between 60 and 90°C.

## POLYESTER (PETP)



### TRADE NAME

- **ERTALYTE**  
Virgin PETP - Natural White / Black
- **ERTALYTE TX**  
PETP and Solid Lubricant - Bearing Grade - Pale Grey  
  
*"Wear Resistance of Nylon coupled with Dimensional Stability of Acetal"*

### PROPERTIES

Similar properties to Acetal, with Improved tensile strength, Dimensional stability, Operating temperature, reduced notched impact resistance.

### MATERIAL DESCRIPTION

- The specific properties of this virgin PETP make it specially suitable for the manufacture of mechanical precision parts which must sustain high loads and/or are subject to wear.  
- ERTALYTE TX is a special grade incorporating a uniformly dispersed solid lubricant. Its specific formulation yields a premium internally lubricated bearing-grade. ERTALYTE TX has not only an excellent wear resistance but offers, in comparison with ERTALYTE an even lower coefficient of friction as well as higher Pressure-Velocity capabilities.

### APPLICATIONS

Heavily loaded bearings (bushings, thrust washers, guide etc). Dimensionally stable parts for mechanisms of precision (bushings, slide ways, gears, rollers, pump components etc). Insulating components for electrical engineering.

## ORKOT



### TRADE NAME

- **ORKOT TL**  
Orkot TL (320)
- **ORKOT TLG**  
Orkot TLG (321)
- **ORKOT TLM**  
Orkot TLM (322)
- **ORKOT TXM**  
Orkot TXM Marine

### PROPERTIES

High load capacity, Good chemical resistance, Operates in fresh or salt water without lubrication, Ease of machining, Fitting by pressing, freezing, adhesives and mechanical methods, Reduced thermal softening and minimal creep, Does not encourage galvanic corrosion, Contains no asbestos or environmentally hazardous/toxic substances.

### MATERIAL DESCRIPTION

- Standard grade typically used in electrical insulators, food applications and structural parts.  
- Standard grade with Graphite for use against Carbon Steel, treated surfaces, ceramic or chrome-plated counter faces.  
- Standard grade operating in water, typically used against Stainless Steel counter faces, where water is present, or electrical insulation is required.  
- An advanced reinforced medium weave polymer material using a unique manufacturing process that provides a high concentration of PTFE in sliding area while maintaining high compressive strength.

### APPLICATIONS

Railways, off-road vehicles, process equipment, injection moulding machines, pumps and valves, lifting and handling equipment, hydropower, formula one racing cars, roll coverings, marine (specialised marine applications).

## POLYTETRAFLUOROETHYLENE (PTFE)



### TRADE NAME

- **TETRON S**  
Virgin PTFE - White
- **TETRON G GLASS FILLED**  
PTFE & Glass - Cream
- **TETRON C CARBON FILLED**  
PTFE & Carbon - Black
- **TETRON B BRONZE FILLED**  
PTFE & Bronze - Bronze

### PROPERTIES OF VIRGIN PTFE

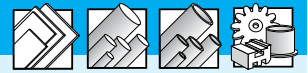
Not affected by almost all chemicals and solvents, Outstanding dielectric properties, Capable of continuous use at 260°C, Excellent low temperature toughness, Slippery non stick surface, Excellent UV resistance.

### MATERIAL DESCRIPTION

- Chemically inert, with a low friction coefficient and ultimate non-stick properties. Excellent electrical insulating properties and high and low temperature resistance.  
- Improved creep resistance at high and low temperatures. Chemically stable, with little effect on electrical properties. Improved wear and friction properties.  
- Inert alloy which improves creep and wear resistance. Anti-Static, with self lubricating properties. Hard and soft alloys are available which permit close tolerance machining.  
- Best creep resistance of alloys. High thermal conductivity, good wear properties for hydraulic systems components. Low chemical resistance. Not suited for electrical applications.

### APPLICATIONS

Seals, seats, chevrons, piston rings, glide rings, lantern rings, and back up rings. Slide bearings, electrical and thermal insulators.



## TRADE NAME

- **PPSU**  
Polyphenylsulphone - Black
- **PEI 1000**  
Polyetherimide  
Natural (yellow/translucent)
- **PSU 1000**  
Polysulphone  
Natural (yellow/translucent)
- **KETRON® PEEK**  
Polyetheretherketone  
PEEK 1000 - Natural (brownish grey) / Black  
PEEK - HPV (PEEK + CF + PTFE + graphite) - Black  
PEEK - GF30 - Natural (brownish grey)  
PEEK - CA30 (PEEK – CF30) - Black
- **TECHTRON® HPV PPS**  
Polyphenylene Sulphide - Deep Blue
- **CELAZOLE® PBI**  
Polybenzimidazole - Black
- **TORLON® PAI**  
Polyamide-imide  
Available in three different grades, 4203 PAI, 4301 PAI, 5530 PAI

## MATERIAL DESCRIPTION

- 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 superior hydrolysis resistance and virtually unlimited steam sterilizabilities, which makes it an excellent choice for medical devices that are subjected to repeated steam autoclaving. Maximum continuous allowable service temperature of 190°C.
- 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°C continuously.
- PSU 1000 stock shapes are produced from non-stabilised 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.
- The KETRON® PEEK family of materials is based on VICTREX® Polyetheretherketone polymers. These materials exhibit a unique combination of high mechanical properties, temperature resistance and excellent chemical resistance, making it the most popular advanced plastics material. Ideal for applications where excellent performance under extreme conditions of temperature, chemical attack, high energy radiation (gamma and X-rays), electrical duty etc.
- 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.
- Celazole® parts offer a combination of properties that allows them to excel in applications requiring low wear and long life in severe environments. Maximum allowable service temperature 310°C, continuously and 500°C for short periods.
- 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.

## PROPERTIES

This unique group of products offer properties which expand the limits of other engineering thermoplastics. Some of the advantages gained by using AEPP's are, retention of mechanical and fatigue properties and elevated temperatures, resistance against high energy radiation, maximum thermal operating temperatures are approaching that of PTFE, improved chemical resistance and increased dielectric properties.

## APPLICATIONS

Insulators, load carrying bearings, bushes, chemical seals and components, medical parts and food machinery components.

# POLYCARBONATE (PC)



## TRADE NAME

- **SAFEGUARD UVX**  
Clear
- **SAFEGUARD HARD**  
Clear

## MATERIAL DESCRIPTION

- Premium quality clear, UV stabilised, high impact engineering and glazing sheet, excellent for use in safety glazing and guarding and external use.
- Highly engineered see-through sheet with high abrasion and UV resistance.

## PROPERTIES

Excellent impact resistance (x250 stronger than glass), Very good optical properties, Ability to be cold formed in thinner gauges, Moderate chemical and scratch resistance, Self extinguishing, Excellent acoustic properties with good acoustic properties.

## APPLICATIONS

Safety and vandal resistance glazing, machine guards, sight glasses, safety visors, transparent instrument components, electrical components, impact resistant manifold in a variety of industries.

# UNIBOARD



## TRADE NAME

- **UNIBOARD ECO**
- **UNIBOARD STANDARD**
- **UNIBOARD ULTRA-STIFF**

## MATERIAL DESCRIPTION

- Uniboard is a recycled plastic material that is an ideal timber panel replacement for marine ply board, plywood and traditional construction materials. Uniboard combines the advantages of plastics and timber and its advanced polymer structure ensures that it is lightweight, yet almost indestructible.

## PROPERTIES

Good strength to weight ration, Rustproof, Chemical, bacteria and mould resistant, Low maintenance, Will not rot or swell, UV resistant, Scratch resistant, Non-stick surface.

## APPLICATIONS

Construction of battery boxes, major retail shelving and pallets, concrete form work, scaffolding floors and cubby house/dog kennel flooring, horse stable partitions, feed troughs, electrical cabinetry, caravan and bus flooring.



## MACHINING

Our machining facilities are equipped with state of the art CAD-CAM and CNC systems, to convert our basic shapes into custom machined finished components.

## MACHINING OF ENGINEERING PLASTICS - GENERAL REMARK

In view of the poor thermal conductivity and the relatively low melting points of thermoplastics, one must make sure that the generated heat is kept to a minimum and heat-build up in the plastic part is avoided. This is in order to avoid colour changes or melting of the plastic surface.

Therefore:

- tools must be kept sharp and smooth at all times;
- tools must have sufficient clearance so that only the cutting edge contacts the material;
- coolants should be applied for operations where excessive heat is generated (e.g. drilling operations).

As engineering plastics are not as rigid as metals, it is essential to support the work adequately during machining to prevent deflection, e.g. thin walled bushings often require an internal plug for accurate machining of the outside diameter.

## CUTTING TOOLS

Similar to metal work, carbon steel, high speed steel and TCT tools can be used. However high speed steel and carbide tipped tools are preferred for long production runs on graphite and glass fibre filled thermoplastics.

## COOLANTS

Only required for machining operations where a lot of heat is generated. Cooling liquids, preferably of the soluble oil type do perfectly. Compressed air can also be used.

## MACHINING TOLERANCES

The machining tolerance for thermoplastics are considerably larger than those normally applied to metal parts. This is because of the increased coefficient of thermal expansion, plus swelling due to moisture absorption and possible deformations caused by internal stress relieving during machining. The latter phenomenon mainly occurs on parts where machining has caused heavy section-changes (e.g. on a bushing machined out of a large round rod). In these cases thermal treatment (stress relieving) after premachining of the part is necessary (oversize of min.3%). As a rule of thumb, for turned or milled parts, a machining tolerance of 0.1 to 0.2% of the nominal size can be allowed without taking special precautions (min. tolerance for small dimensions being 0.05mm). Speed and feed charts are available. Refer to Dotmar for more information on machining tolerances.

The suggestions and data presented here are based on information we believe to be accurate and reliable. They are given in good faith, but without guarantee, as the condition and methods of use of our product are beyond our control. Each user should make his own tests to determine the suitability of our materials and suggestions before adopting them on a commercial scale. This publication is not to be taken as a license to operate under, or recommendation to infringe upon, any patents.



For guidance only, under load.  Indicated figures reveal the highest number has the "best" property.	Elongation	Compressive Strength	Impact Resistance	Wear Resistance	Dimensional Stability	Dielectric Strength	Co-efficient of Friction*	Machinability	Moisture Content	Chemical Resistance	Temperature °C	
											Min.	Max.
Polystone PG100	19	9	18	8	5	10	9	20	19	13	-50	80
Polystone 300	19	9	18	8	5	10	9	20	19	13	-50	80
Polystone 500	20	12	20	10	5	10	12	19	19	13	-100	80
Polystone 7000	18	10	20	17	5	10	18	19	19	13	-260	90
Polystone Ultra	18	11	20	19	6	10	18	19	19	13	-260	90
Polystone 7000SR	14	11	19	18	6	9	18	19	19	13	-200	80
Polystone 8000+	14	10	18	19	5	10	18	19	19	13	-260	90
Ezslide E78	14	10	18	19	5	10	18	19	19	13	-200	90
Matrox Classic	16	11	20	20	6	10	19	19	19	13	-250	80
Ertacetal (H)	2	19	7	9	10	6	9	17	14	8	-50	105
Ertacetal (C)	2	18	8	7	9	6	9	17	15	9	-50	115
Ertalyte	1	20	4	8	14	5	15	18	16	9	-20	115
Ertalyte TX	1	19	4	15	13	6	18	18	17	9	-20	115
Ertalon 6SA	3	12	14	7	5	6	10	15	4	6	-40	85
Ertalon 66SA	2	16	12	11	7	4	10	16	5	7	-30	95
Ertalon 6PLA	2	14	12	11	7	6	10	16	5	7	-30	105
Ertalon 6XAU	2	15	10	12	7	8	10	16	5	7	-30	120
Ertalon LFX	4	12	8	14	7	3	15	16	5	7	-20	105
Ertalon 66GF30	1	18	11	12	14	9	10	12	5	7	-20	95
Ertalon 4.6	2	14	8	10	12	6	11	16	6	7	-40	155
Nylatron GS	2	16	7	11	6	5	11	16	5	7	-20	100
Nylatron GSM	2	16	7	11	6	4	14	16	5	7	-30	105
Nylatron MC901	2	15	12	12	7	5	10	16	5	7	-40	105
PEI 1000	3	16	9	7	20	7	14	15	15	7	-60	200
PSU 1000	3	15	6	7	14	8	14	15	15	7	-60	170
Ketron PEEK 1000	2	17	10	11	16	6	16	16	17	17	-60	250
Ketron PEEK HPV	1	18	9	15	19	1	17	15	18	17	-30	250
PVDF 1000	16	13	15	8	6	4	16	17	19	15	-40	150
Techtron HPV PPS	3	16	12	17	16	5	16	15	15	7	-20	220
Vespel	2	16	9	11	16	5	16	16	16	17	-273	255
Celazole	2	20	10	10	20	6	16	16	13	9	-	310
Torlon 4203	2	16	10	7	16	6	15	17	5	9	-200	250
Tetron S	14	1	16	2	8	20	20	20	20	20	-200	260
Tetron G	12	2	10	3	15	20	19	15	19	20	-200	260
Tetron B	8	3	6	4	7	2	19	7	19	12	-200	260
Tetron GR	6	4	7	5	10	3	18	12	19	18	-200	260
Tetron C	5	4	8	5	12	1	19	11	19	18	-200	260
Polystone P(H)	18	13	19	8	5	10	9	10	18	13	-20	130
Polystone P(C)	19	12	20	9	4	10	8	10	18	13	-20	60
Safeguard	3	16	15	3	6	15	-	8	4	2	-60	135
Trovidur PVC	3	15	10	4	9	12	-	12	19	12	-10	60

