

### UHMW-PE Natural

- Excellent abrasion resistance
- Very low friction
- Very good chemical resistance
- Extremely tough & durable

UHMW-PE Natural is often referred to as the world's toughest polymer. It has excellent resistance to chemicals, impact, abrasion and has a low coefficient of friction. This makes it effective in a wide variety of demanding applications. Natural is unfilled, 100% virgin resin.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+90°C
MINIMUM SERVICE TEMP	-269°C
FOOD CONTACT	YES
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- WEAR STRIPS & GUIDES
- STAR WHEELS & FEED SCREWS
- BEARINGS & BUSHES
- PUMP & VALVE COMPONENTS
- CONVEYOR CURVES
- ROLLERS
- PADDLES
- IDLER SPROCKETS

### UHMW-PE Black Repro (BR)

- Excellent abrasion resistance
- More cost effective than virgin non-reprocessed material
- UV resistant
- Good chemical resistance

Black Reprocessed grade UHMW-PE utilises finely ground post production material to produce an economical substitute to using 100% virgin resin. Technical properties will be reduced from virgin material although hardness may be slightly increased. Generally the colour is black but it may show other coloured particles.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+90°C
MINIMUM SERVICE TEMP	-269°C
FOOD CONTACT	NO
UV RESISTANT	YES

#### TYPICAL APPLICATIONS

- HOPPER LININGS
- CHUTE LININGS
- WEAR STRIPS & GUIDES
- MACHINE PARTS
- WHARF FENDERS

### HMW-PE

- Moderate abrasion resistance
- Very low friction
- Very good chemical resistance
- Tough & durable

HMW-PE has approximately 10% of the impact resistance and 25% of the abrasion resistance of UHMW-PE. However, HMW-PE fills the gaps where HD-PE is not good enough and UHMW-PE is not necessary. HMW-PE has higher impact strength than HD-PE and is more abrasion resistant. HMW-PE typically has a lower price point than UHMW-PE.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+90°C
MINIMUM SERVICE TEMP	-100°C
FOOD CONTACT	NATURAL ONLY
UV RESISTANT	ONLY BLACK

#### TYPICAL APPLICATIONS

- FOOD PREPARATION BOARDS
- SNOW PLOUGHS
- GUIDES
- SPACERS
- PACKERS
- BIN LINERS

### HD-PE

- Good chemical resistance
- Moisture resistant
- Stain & odour resistant
- Readily fabricated

HD-PE exhibits a well-rounded portfolio of properties that sees it widely used in industry. Typically sheet product is extruded with either a gloss or embossed finish. Rod and tube is available also.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+82°C
MINIMUM SERVICE TEMP	-73°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	SOME GRADES

#### TYPICAL APPLICATIONS

- CUTTING BOARD (COLOURS)
- PLAYGROUND BOARD (COLOURS)
- MARINE BOARD (COLOURS)
- LIGHTWEIGHT (BLACK)
- SIGN BOARD (COLOURS)
- PARTITION BOARD (COLOURS)
- PE100 PIPE GRADE (BLACK)
- STRUCTURAL TANKS
- WOOD REPLACEMENT
- FURNITURE

### Polypropylene (PP)

- Excellent chemical resistance
- Moisture resistant
- Stain & odour resistant
- Readily fabricated

Polypropylene offers a good balance of thermal, chemical and electrical properties with moderate strength. Copolymers offer better impact resistance, while homopolymers are stiffer and have higher operating temperatures. Abrasion resistance is poor.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	PP-C +80°C PP-H +100°C
MINIMUM SERVICE TEMP	PP-C -30°C PP-H -20°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	ONLY BLACK

#### TYPICAL APPLICATIONS

- TANKS, DUCTS & HOODS
- TANK FITTINGS
- FAN SHROUDS
- FUME HOODS
- WASH BOOTHS
- CLICKER BOARDS (PP-H)

### Rigid PVC

- Good mechanical strength
- Solvent cementable
- Good chemical resistance
- Easy to machine

PVC is a flame retardant material with excellent strength and chemical resistance. These properties make unplasticised (rigid) PVC suitable for a wide range of applications.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+60°C
MINIMUM SERVICE TEMP	-40°C
FOOD CONTACT	NO
UV RESISTANT	LIMITED

#### TYPICAL APPLICATIONS

- MANIFOLDS
- VALVES
- PUMP PARTS
- HANDLES & KNOBS
- TANKS
- BACKING BOARDS
- TRAYS
- CABINETS
- CONCRETE MOULD FORMS

### Polycarbonate (PC)

- Virtually unbreakable
- Transparent
- Good weatherability when stabilised
- Easy to form and bond

Polycarbonates are transparent and have exceptional high impact properties over a wide temperature range. Can be hot or cold formed and is virtually unbreakable. Great for machine guarding applications.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+120°C
MINIMUM SERVICE TEMP	-60°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	IF STABILISED/COATED

#### TYPICAL APPLICATIONS

- SAFETY GLAZING
- MACHINE GUARDS
- SNEEZE GUARDS
- SIGHT GLASSES
- SKYLIGHTS
- TRANSPARENT MANIFOLDS

### Acrylic (PMMA)

- High optical clarity
- Solvent cementable
- Excellent weatherability
- Good scratch resistance

Acrylics are strong, stable, weather resistant and thermoformable. Sheets are available in transparent, translucent, and opaque colours, as well as a variety of surface textures. Also known as Perspex®.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+80°C
MINIMUM SERVICE TEMP	-32°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	YES

#### TYPICAL APPLICATIONS

- ARCHITECTURAL GLAZING
- DECORATIVE FITTINGS
- SNEEZE GUARDS
- DISPLAY STANDS
- BROCHURE HOLDERS
- INDOOR & OUTDOOR SIGNS
- SIGHT GLASSES
- TRANSPARENT MANIFOLDS

### Temperature Definitions:

**Long-term service temperature** is defined as the maximum temperature at which a plastic has lost no more than 50% of its initial properties after 20,000 hours of storage in hot air (in accordance with IEC 216). For most plastics their mechanical properties will generally decrease as temperature increases. Careful design consideration must be given to plastics used at elevated temperatures due to their changing properties and viscoelastic nature.

**Minimum service temperature** is the temperature value that the plastic can be used in air without becoming brittle. As temperatures decrease plastics generally show higher mechanical strength while simultaneously becoming more brittle.

### Food Grade (FG) Compliance:

To be in contact with food the plastic material must be compliant with either the FDA regulations from the USA, or the EU 10/2011 regulations from Europe (or sometimes both). FG compliance is the start of the process as some food types may still attack plastic rendering it unsuitable. FG compliance should always be verified against the manufacturers documentation prior to being purchased and the end user should also check that the material is suitable for the environment in which it is to be utilised.

### Machining Plastics:

Engineering plastic materials have unique properties compared to metals, such as:

- Good thermal insulation
- Lower thermal conductivity
- Higher thermal expansion

Special consideration needs to be given to the use of appropriate cutting tools and machining techniques to avoid warping, expansion and fracture.

More care is required for materials which contain reinforcements such as glass fibre, carbon fibre or filler agents such as MoS<sub>2</sub>, graphite and PTFE etc.

Avoid using coolant or cleaning chemicals with amorphous (see through) plastics to prevent environmental stress cracking. Contact us for further information.

### BENEFITS OF ENGINEERING PLASTICS

- REDUCED PART WEIGHT
- WEAR RESISTANCE
- CHEMICAL RESISTANCE
- MECHANICAL STRENGTH
- MACHINABILITY
- ENHANCED PERFORMANCE
- DESIGN FLEXIBILITY

### Polyurethane 90A (PU)

- High elasticity
- High abrasion & tear resistance
- Excellent dampening properties
- Excellent impact resistance

An elastomeric material of exceptional physical properties such as toughness, flexibility and resistance to abrasion, temperature, puncture and tearing. Grades from durometer hardness 50A to 75D. PU combines the toughness of metal with the elasticity of rubber. PU can be custom cast, enabling it to be cost effective for small to medium production runs.

#### SPECIFICATIONS

MAXIMUM SERVICE TEMP	+85°C
MINIMUM SERVICE TEMP	-60°C
FOOD CONTACT	NO
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- WHEELS & ROLLERS
- BUMP STOPS
- SEALS
- HIGH IMPACT BUSHES
- DRIVE COUPLINGS
- MOTOR MOUNTS

### Nylon (PA6C) TECAST T Natural

- High mechanical strength & toughness
- Very good machinability
- Good sliding & wear properties for general purpose applications
- Resistant to many oils, greases & fuels

Compared to extruded PA6E, cast nylon has better physical properties such as higher tensile strength, maximum stiffness and hardness, better wear resistance, lower moisture absorption and better dimensional stability. It particularly suits the production of large parts and thick wall sections.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+100°C
MINIMUM SERVICE TEMP	-20°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- BEARINGS & BUSHES
- ROLLERS & SHEAVES
- GEARS & SPROCKETS
- WEAR PADS

### Nylon Oil Filled (PA6C) TECAST L Yellow

- High mechanical strength & toughness
- Self-lubricating
- Excellent wear resistance
- Low coefficient of friction
- Excellent sliding properties
- Good for dry running conditions

NYLON OIL is a lubricant modified cast PA6C which is particularly suitable for applications involving dry running. The uniform distribution of lubricant over the whole cross-section achieved with NYLON OIL guarantees a constant sliding and wear behaviour throughout the whole service life.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+100°C
MINIMUM SERVICE TEMP	-20°C
FOOD CONTACT	NO
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- BEARINGS, BUSHES, WEAR PADS
- ROLLERS & SHEAVES
- GEARS & SPROCKETS

### Nylon Moly Filled (PA6C) TECAST T MO

- Increased mechanical strength & toughness compared to natural
- Excellent wear resistance
- Improved mechanical properties
- Good for wet running conditions

Similar to standard PA6C but with added solid lubricant Molybdenum Disulphide. Good UV resistance and improved sliding properties. High surface hardness, high strength, good damping properties. A tough material which provides high abrasion resistance. Machines well with better abrasion resistance compared to PA6 Natural.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+100°C
MINIMUM SERVICE TEMP	-20°C
FOOD CONTACT	NO
UV RESISTANT	YES

#### TYPICAL APPLICATIONS

- WEATHER EXPOSED COMPONENTS
- ROLLERS & SHEAVES
- GEARS & SPROCKETS
- BOOM WEAR STRIPS
- CHAIN GUIDES

### Composites - ACM

- High stiffness
- High compression strength
- High dimensional stability
- Low coefficient of friction

Standard grade ACM Composites are bearing materials made from thermosetting polyester resin and engineering grade polyester fabrics. Additional solid lubricants are blended into the matrix.

**Tribotex 7 Natural:** Most economical for high compression bearings and wear pads.

**Tribotex 7G Graphite:** Better wear resistance than natural and lower friction.

**L2 Marine Grade:** Specifically formulated for the marine industry. Virtually zero swell in water and very low thermal expansion makes it suitable for stern tube and rudder bearing applications. L2 Marine has multiple Type Approvals for shipping.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+130°C
MINIMUM SERVICE TEMP	-150°C
FOOD CONTACT	NO
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- STERN TUBE, RUDDER/PINTLE BEARINGS
- WEAR STRIPS & THRUST WASHERS
- HIGH COMPRESSION BEARINGS

### Composites - NEMA and BS

- High stiffness
- High compression strength
- Good electrical insulators
- Good dimensional stability

Composites made from phenolic resin and laminates of paper, canvas or linen.

**Paper Grade:** Phenolic/paper is economical yet provides good mechanical and electrical properties.

**Canvas Grade:** Phenolic/Canvas is a coarse weave cotton machining grade for structural and mechanical applications. It has better impact strength than phenolic/paper grades.

**Linen Grade:** Phenolic/Linen is a medium weave cotton with superior machining and punching properties over canvas.

#### SPECIFICATIONS

MAXIMUM SERVICE TEMP	+125°C
MINIMUM SERVICE TEMP	-70°C
FOOD CONTACT	NO
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- ELECTRICAL BACKING BOARDS
- WEAR GUIDES
- WASHERS
- GEARS
- THERMAL BREAKS

### Acetal (POM-C) TECAFORM AH Natural

- High strength, rigidity & toughness
- Good creep resistance
- Excellent machinability
- Excellent resilience

Low moisture uptake, good fatigue strength and rigidity, easily machined. Good dimensional stability for precision parts with tight tolerances. Good sliding characteristics. Retains impact strength even at low temperatures.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+100°C
MINIMUM SERVICE TEMP	-50°C
FOOD CONTACT	YES
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- ROLLERS, GEARS & CAMS
- BUSHINGS, CLIPS, LUGS
- VALVE SEATS, HANDLES
- SPOOLS, THRUST WASHERS
- SHIMS, SCRAPERS
- SHEAR PINS

### PET TECAPET White

- High mechanical strength, stiffness & hardness
- Very good creep resistance
- Excellent wear resistance
- Very good dimensional stability
- Very low moisture absorption

Good wear properties in damp or dry environments. High dimensional stability due to low thermal expansion and low moisture uptake. Good dielectric properties and chemical resistance.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+110°C
MINIMUM SERVICE TEMP	-20°C
FOOD CONTACT	YES
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- BEARINGS & BUSHES
- ROLLERS, CAMS, WASHERS
- GUIDES
- PARTS WITH TIGHT TOLERANCES
- DIMENSIONALLY STABLE PARTS

### PVDF TECAFLON PVDF

- Good sliding & wear properties
- Good mechanical strength
- Excellent chemical resistance
- Radiation/weather resistant

TECAFLON PVDF is a stable fluoropolymer used in applications requiring high purity, with outstanding resistance to chemicals and higher mechanical strength.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+150°C
MINIMUM SERVICE TEMP	-50°C
FOOD CONTACT	CHECK FIRST
UV RESISTANT	YES

#### TYPICAL APPLICATIONS

- TANK LINERS
- PUMP PARTS
- NOZZLES
- PIPE FITTINGS
- SEALS & GASKETS
- BEARINGS & BUSHINGS
- MANIFOLDS

### Polysulfone (PSU) TECASON S

- High mechanical strength, stiffness & hardness
- Excellent hydrolysis resistance
- Very good dimensional stability
- Good temperature resistance

TECASON S (PSU) is known for its mechanical properties and dimensional stability at high operating temperatures. It has good rigidity, creep strength and is suitable for repetitive steam sterilisation. PSU is transparent with an amber tint.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+160°C
MINIMUM SERVICE TEMP	-100°C
FOOD CONTACT	YES
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- BEVERAGE DISPENSERS
- HIGH TEMPERATURE SIGHT GLASSES
- TRANSPARENT MANIFOLDS
- AUTOCLAVABLE PARTS

### PTFE (Teflon®) Virgin G400

- Lowest coefficient of friction
- Most 'anti-stick'
- Excellent chemical resistance
- Low moisture absorption
- Excellent electrical insulator

PTFE has a broad range of high performance qualities such as a high service temperature, very low coefficient of friction and good wear resistance. It has excellent chemical, UV and weather resistance plus very good electrical insulation ability. Filled versions are available such as glass, carbon and bronze to improve certain properties. Compression strength is low.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+260°C
MINIMUM SERVICE TEMP	-200°C
FOOD CONTACT	YES, VIRGIN
UV RESISTANT	YES

#### TYPICAL APPLICATIONS

- BEARINGS, BUSHES & WEAR STRIPS
- GASKETS & SEALS
- VALVE COMPONENTS
- PUMP PARTS
- SLIDE BEARINGS

### PEEK TECAPEEK Natural

- Very good mechanical properties under thermal load
- Good slide & wear properties
- Good chemical resistance
- Hydrolysis & steam resistant
- Good machinability

PEEK combines excellent wear and mechanical properties even under thermal load. Outstanding chemical resistance and a high operating temperature round out its profile. PEEK is an almost universally appropriate material for highly stressed components. Its excellent dimensional stability, with high creep resistance, makes PEEK suitable for the most sophisticated machined parts.

#### SPECIFICATIONS

LONG TERM SERVICE TEMP	+260°C
MINIMUM SERVICE TEMP	-50°C
FOOD CONTACT	YES
UV RESISTANT	NO

#### TYPICAL APPLICATIONS

- ROLLERS, GEARS & CAMS
- BEARINGS, BUSHES & WEAR STRIPS
- PERFORMANCE PARTS FOR AEROSPACE, MEDICAL, SEMI-CONDUCTOR, AUTOMOTIVE
- HIGH TEMPERATURE APPLICATIONS