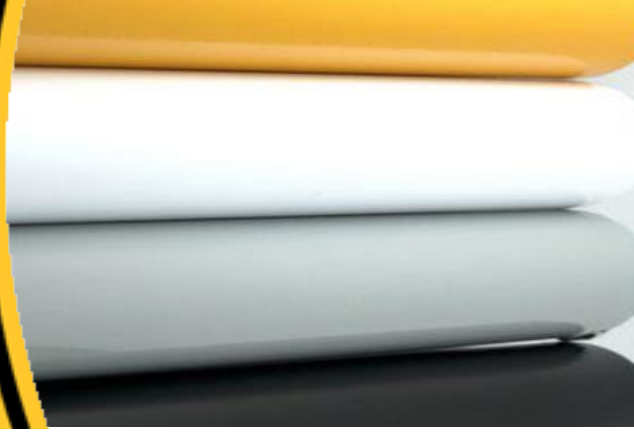
Bollards that don't cost the earth!

ZERO WASTE technology substantially reduces the cost of installing and maintaining bollards. Advanced Polymer Bollards are designed to outlast and outperform alternative means of protecting for your people & assets.





ADVANCED POLYMER

Advanced Polymer Bollards 150 mm ⌀ x 1200/1500/1800 L in Safety Yellow have a design life of around 50 years (25 years in direct sunlight).



ADVANCED POLYMER

Advanced Polymer Bollards 150 mm ⌀ x 1200 L can be installed 500 in ground to create a durable alternative to copper logs



ADVANCED POLYMER

Advanced Polymer Bollards 150 mm ⌀ x 1200 L can be installed 500 in ground to create a durable alternative to copper logs

NB: The design life of steel or wood when installed directly in concrete can be reduced considerably due to the corrosive nature of concrete when acting upon steel and the fact that wood will splinter and rot.

Advanced Polymer

Our Advanced Polymer is highly durable material designed to withstand impact from a vehicle and the harsh Australian environment. Polyethylene is an efficient electrical insulator, making it great for applications where safety is paramount. We use a crosslinked UV stabilized HDPE, Ultra-High Molecular Weight Polyethylene (UHMW PE) thermosetting polymer providing excellent impact resistance, and high tensile strength. An in-house QA system is in place to provide reliability and continuity of supply.

Benefits

Abrasion Resistant
High impact resistance
Low coefficient of friction
Abrasion resistant
Scratch and marking resistant Chemical resistant
Water and moisture resistant
UV Resistantshatter resistant
Long-wearing
Corrosion resistant
Strength tested to AS/NZS 4766:2006
UV20 Protection to ASTM D2565
Australian Made

ASTM or UL test	Property	LDPE	HDPE	UHMW
	PHYSICAL			
D792	Density (lb/in³) (g/cm³)	0.033 0.92	0.035 0.96	0.034 0.93
D570	Water Absorption, 24 hrs (%)	<0.01	<0.01	<0.01
	MECHANICAL			
D638	Tensile Strength (psi) at 72°F	1,400	4,600	5,800
D638	Tensile Strength (psi) at 150°F	400	400	400
D638	Tensile Modulus (psi)	57,000	200,000	80,000
D638	Tensile Elongation at Break (%)	100	400	300
D790	Flexural Strength at Yield (psi)	1,500	4,600	3,500
D790	Flexural Modulus (psi)	29,000	174,000	88,000
D695	Compressive Strength (psi)	1,400	4,600	3,000
D695	Compressive Modulus (psi)	54,000	100,000	80,000
D732	Shear Strength (psi)	-	-	3,000
D785	Hardness, Shore D	D45	D69	D62-D66
D256	IZOD Notched Impact (ft-lb/in)	No Break	1.3	No Break
	THERMAL			
D696	Coefficient of Linear Thermal Expansion (x 10^{-5} in./in./°F)	-	6	11
D648	Heat Deflection Temp (°F / °C) at 66 psi at 264 psi	 120 / 48 116 / 46	 170 / 76 176 / 80	 203 / 95 180 / 82
D3418	Approx. Melting Temperature (°F / °C)	244 / 118	260 / 125	275 / 136
-	Max Operating Temp (°F / °C)	160 / 71	180 / 82	180 / 82
C177	Thermal Conductivity (BTU-in/ft²-hr-°F) (x 10^{-4} cal/cm-sec-°C)	 - -	 - -	 2.84 10.0
UL94	Flammability Rating	HB	HB<	HB
	ELECTRICAL			
D149	Dielectric Strength (V/mil) short time, 1/8" thick	460-700	450-500	2300
D150	Dielectric Constant at 1 MHz	2.25-2.30	2.30-2.35	2.30-2.35
D150	Dissipation Factor at 1 kHz	0.0002	0.0002	0.0005
D257	Surface Resistivity (ohm/square) at 50% RH	> 10^{15}	> 10^{15}	> 10^{15}
D495	Arc Resistance (sec)	135-160	200-250	250-350

Sun Resistance:

Bollard Covers are made of a plastic material unlike traditional plastics. Many have seen the effects on plastic objects that are exposed to harmful UV-rays. Over time, they become brittle, chalk and crack as the polymer elongation drops, that is, the structural integrity of traditional plastics.

The natural conclusion is that plastic Bollards won't last long in the Sun. This is just not true, especially not with our Advanced Polymer Bollards and Covers which are made from a blend of HDPE, Ultra-High Molecular Weight Polyethylene (UHMW PE) thermosetting polymer and Rotathene® SUPA UV poly our Advanced Polymer Bollards and Bollard Covers have more than 4.5 times the UV8 protection required by the Australian standards (AS/NZ 4766:2006).

What is UV Stabilisation?

Many metals will rust and corrode as they weather and wither away. Steel, however, can be strengthening against oxidisation when chromium is added or protected from rust and oxidisation using galvanising. There are different grades of stainless steel. Kitchen sinks, for example, are often made of a high-grade of stainless steel.

Similarly, UV stabilisers are to bollards like what the chromium is to steel. When added to the polymer mix, the plastic is protected against becoming brittle in the Sun. UV stabilizers in the polymer protect the Bollard against the harmful UV rays, preventing it from bulging, warping, or going brittle over time, inhibiting and absorbing the harmful UV light that causes it break down.

So, in the same way that some steels are called stainless, you could similarly label UV stabilised poly a type of "stainless poly". Of course, all material has a finite life. Stainless steel will still rust and corrode, it just takes much longer for this to happen.

SUPA UV Polyethylene

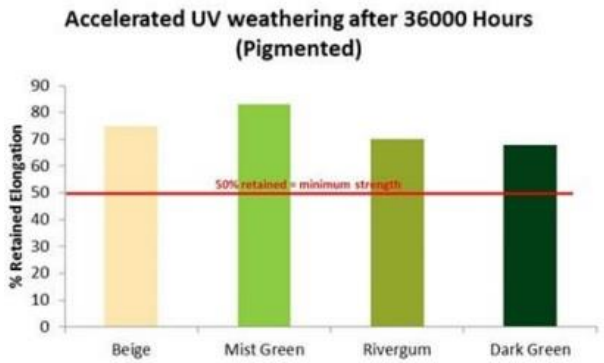
Australia experiences some of the highest levels of UV radiation in the world. As such, leading edge technology is required to ensure our bollards remain reliable and durable for a long time. UV8 level of stabilisation has been considered the minimum required for good long-term protection in Australia. Rotathene® SUPA UV, provides a much higher level of protection than the Australian industry standard (AS/NZ 4766:2006).

Through careful selection of a high-quality Polyethylene base polymer specifically designed for tank use, advanced additives such as UV stabilisers and antioxidants, pigmented "SUPA UV" provides a UV36 level of stabilisation.

Testing UV Protection Levels in Polyethylene

UV protection levels in polyethylene are assessed under highly controlled conditions of high intensity UV radiation with similar wavelengths to those from the Sun. Samples are removed from the UV weatherometer every few thousand hours and stretched in a tensile tester to determine how much they can still stretch.

This provides the % Elongation of the test sample. This value is compared to the value obtained for the set that was not placed in the weatherometer and recorded on a graph as the % Retained Elongation. The % Retained Elongation decreases as degradation increases. Once the Elongation drops to 50% the poly sample is deemed to have failed. After 36,000 hours of accelerated UV weathering, pigmented SUPA UV poly samples retained well over 50% of their original elongation properties.



Impact Resistance

Plastic materials are frequently used in construction, military and industrial applications that require impact resistance and toughness. As implied by the name, impact resistance is the ability of a material to resist both fracture and deformation when temporary force is applied.

High impact resistant plastics

Unlike steel Bollards (and most imported plastic Bollards on the market made from old fashioned plastics that over time fade and become brittle), our Bollards have unique properties and benefits that allow them to perform in demanding environments. Whilst the impact resistance of a plastic is temperature-dependent (becoming brittle below 15° , **HDPE** retains its properties in even low temperatures.

Heavy Duty Design

Unlike most plastic Bollards on the market with thin 1-3 mm wall thickness, our Bollards and Bollard Covers are rotomoulded from a solid piece of Advanced Polymer material, with heavy duty 7 mm walls which ensures that they are structurally sound and robust enough to withstand light impact from a vehicle and self-recover.

Looking good is also important to us!

Solid 7 mm walls also ensure our Bollards and Bollard Covers remain looking good impact after impact. Made using a durable, versatile thermoplastic that offers fantastic impact resistance and tensile strength. Since its molecules are packed together so tightly, this material boasts incredible toughness and rigidity combined with the ability to absorb impact force.

Unlike steel that will distort when impacted, our Poly Bollard Covers will flex under extreme conditions and recover. If scratched, we are the same colour throughout and when scuffed by vehicle tyres, we can simply be wiped clean. We can even self-recover from light impact, substantially improving our lifespan and reducing maintenance costs.

SPECS

Tensile strength at 72°F: 1,400 psi
Tensile modulus: 57,000
Tensile elongation at break: 100%
Flexural modulus: 29,000 psi

