KEY FEATURES

- *Complies with AS/NZS 4859.1*
- *Resistant to Hot Tyres*
- *Resistant to Engine Oils*
- *Resistant to Transmission Fluids*
- *Resistant to Grease*
- *Resistant to Rubber Staining*
- *B.C.A. CodeMark Certified*
- *Certified by Good Environmental Choice Australia*
- Very high **S.R.I. 113.**89 Energy Efficient
- *Water Based clean up.*
- *No toxic solvents*
- *Easy to recoat.*
- *Excellent Dirt Pickup Resistance*
- *High U.V. stability, 2800 hrs UVB testing, >98% Gloss Retained.*
- *Plasticizer free.*
- *Excellent resistance to alkali*

ASTEC AUSTRALIAN PAINT MAKERS

Technical Bulletin apaa-2059

Cool Pave Low Sheen

An Infrared Heat Reflective, Vehicle Resistant Concrete Pavement Coating.

Description:

Energy Star Cool Pave Low Sheen is an Infrared Heat Reflective polycarbonate modified acrylic concrete pavement coating. It is designed for use as a vehicle resistant protective coating for masonry surfaces such as driveways, walkways, garage floors or any masonry surface exposed to moderately heavy vehicle traffic.

Energy Star Cool Pave Low Sheen is based on our proprietary Dirtguard Technology that brings a new level of exterior durability to the product. It employs aerospace industry polycarbonate technologies to give molecular level protection against damage from UV light, water, and environmental contaminants. Outstanding adhesion, flexibility and mould resistance is designed into the product utilising over four decades of formulation experience with our harsh Australian conditions.

The product is extremely tolerant to chemicals released form vehicle engines, transmissions and braking systems such as grease, engine oils, transmission fluids, coolants and washer fluids. Most importantly, the product offers outstanding resistance to softening and hot tyre pick-up form automotive tyres.

The product is extremely abrasion resistant as it contains an exceptionally durable synthetic partial added during manufacture for sheen control of the product. The synthetic partial delivers a smooth uniform low sheen appearance with exceptional resistance to abrading and rubber staining from hot vehicle tyres. The product is easy to maintain where grease and oils are easily removed with household detergent and warm water. Dirt, dust and normal environmental contaminants wash away easily from its surface with rain or a garden hose, maintaining a fresh and even look over long periods of time.

Masonry substrates used for paving and concrete driveways constitute a thermal mass and are extremely high absorbers of infrared heat from the sun. Even with light-coloured concrete, this heat stores in the concrete and radiates back into the air around it and to any human occupant that stands upon it.

Energy Star Cool Pave Low Sheen is an infrared heat reflective pavement coating that incorporates colour infused nano ceramics. This technology developed by Astec reflects heat by selective reflection of infrared light and will reduce surface temperatures by as much as 50% during the extremes of summer.

Where to use:

Confidence for Certifiers, Builders and Architects

Astec Energy Star products are the first, and only range of thermally regulated roofing finishes, texture coatings and elastomeric deck and wall membranes to be CodeMark certified and approved for guaranteed compliance with the B.C.A. Section J – Energy Efficiency Guidelines.

CODEMARK™

ENVIRONMENTAL CHOICE AUSTRALIA
CERTIFIED PRODUCTS

Astec Paints Australasia Pty Ltd 22-24 Pinn Street, St Marys, South Australia 5042
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Cool Pave

Description cont:

The product can be converted to a non-skid safety finish by the simple, add and stir in, addition of Astec non-skid additive. The non-skid additive is exceptionally durable synthetic partial and is added at a rate of between 10% and 15% by volume to the Cool Pave Low Sheen. Example: 1 ltr to 1.5 Ltrs to a 10 ltr of Cool Pave Low Sheen.

Astec Energy Star technology enables us to offer even dark-coloured coatings that reflect fully 50% of Solar energy with solar reflectance values of up to 58% higher than standard coatings of the same colour.

Energy Star Cool Pave Low Sheen is a low odour formulation and contains no harmful solvents making it environmentally friendly and safe for applicators during application.

The product is designed on an internally plasticized acrylic technology, which means, it does not contain plasticizers that can leach from the cured film over time and detract from the product's long-term performance.

Energy Star Cool Pave Low Sheen is highly water resistant, has excellent abrasion resistance and is adhesion promoted, providing an ultra-strong bond to the substrate.

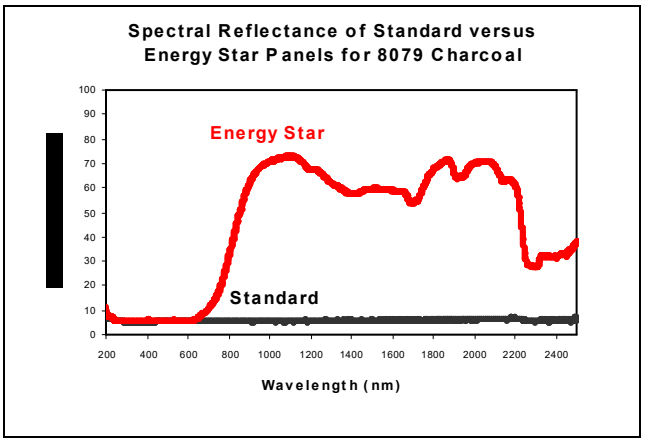
The cured film is tough, highly resistant to vehicle traffic and because it remains cool, testing has shown that it will retain its mechanical performance by up to four times longer than conventional acrylic pavement coatings.

Infrared Heat Reflective:

A coating doesn't have to be white to be cool……! As an Architect, Builder or Homeowner, rich, dark colour is an important part of your building design and decoration. Unfortunately, dark colours soak up the sun and get hotter and hotter as the day progresses. As a result, building temperature and power consumption are increased, and greater demand is placed on our environment and global resources.

The comparative data represented on the graph above is actual spectral results printed during tests conducted to ASTM E-903 on a Lambda 9000 Solar Reflectometer. The graph shows the difference in heat reflection between a standard charcoal roofing paint and Energy Star Charcoal. Solar reflectance values for the Energy Star are 58% higher than the standard coatings of the same colour.

As an example, standard slate grey has a Total Solar Reflectance, (T.S.R.), value of 16.6% compared with Energy Star Slate Grey that has a T.S.R of 40.30%, (58% higher reflectance). Energy Star® coatings are sustainable Energy Efficient solutions for roofs, walls and pavements that significantly reduce absorbed heat in the substrate.



The use of Energy Star® systems during restoration or new construction results in energy cost savings, cooler occupancy zones and reduced Co2 emissions.

Durability:

Heat and moisture are the two main contributing factors that accelerate the degradation of exterior coatings. In highly humid, tropical environments, conventional acrylics have been known to last as little as three years. In Australia some dark façade colours can start to change colour and fade from it's original depth of colour within 3 years.

Energy Star coatings have increased durability and life expectancy compared with conventional paints. Independent laboratory testing to ASTM Standards confirmed Solar Reflectance Indices of 241% greater than normal paints on a dark colour like Slate Grey.

Heat generated by Solar Radiation from the sun is one major contributing factor to exterior coating degradation, especially in a standard dark colour.

Energy Star Cool Pave Low Sheen remains cool. After exposure to 3972 hrs of UVB 313/Moisture testing, in accordance with ASTM G53-96, the gloss, depth of colour, adhesion and film integrity remained un-changed. This provides a performance increase of more than 400% when compared to a standard paving acrylic. Quite simply, the less heat on the coating the longer they last.

Moisture is the second major contributing factor to exterior coating degradation, especially in water based acrylic coatings. Atmospheric moisture enters the coating film on a daily basis and swells the coating, greatly reducing its life.

Our propriety Dirtguard polycarbonate technology and specialty silicones used in Energy Star Cool Pave Low Sheen prevent the entry of moisture into the coating film.

Cool Pave

Durability Cont:

As a result, the coating does not swell and can last 400% longer than standard pavement acrylics. Simply put, the less moisture that the coating film has to tolerate, the longer it will last.

High Solar Reflectivity, excellent resistance to water, strong mechanical properties and UV durability all contribute to Energy Star Cool Pave Low Sheen being one of the most advanced and functional pavement coatings in Australia.

Principal Use:

Correctly prepared, concrete, masonry and pavers.

Available Colours:

Full range for light to dark accents.

Preparation and Application Data:

Key Benefits:

- Very high **S.R.I. 113.89**
- Resistant to Hot Tyres
- Resistant to Engine Oils
- Resistant to Transmission Fluids
- Resistant to Grease
- Resistant to Rubber Staining
- Water Based clean up.
- No toxic solvents
- High Solar Reflectivity in dark colours
- Energy efficient product.
- Cooler pavement temperatures.
- Plasticizer free, (internally plasticized).
- Excellent dirt pick-up resistance.
- Will form films at temperatures as low as 12ºC.
- High volume solids.
- Outstanding Durability.
- Rapid cure and bond strength.
- Excellent resistance to alkali and efflorescence.

Surface Preparation

All surfaces must be clean dry and free of contaminants. Remove dirt, dust from the surface with a high-pressure cleaner or for small areas with a stiff bristle broom and garden hose.

Grease and oils should be removed by first applying Astec Enviroclean, industrial strength degreaser, to the affected areas with a stiff brush then followed by a thorough high pressure clean of the entire area to remove all contaminants. Repeat as necessary until all grease and or oils are removed.

Previously painted substrates should be high pressure cleaned to remove all contaminants including the above methods for any grease and oils. Any blisters or flaking paint should be removed and scraped back to a solid edge.

Previous paints that show a complete lack of adhesion and are fully delaminating from the surface should be completely remove back to the original substrate. Removal can be carried out by either using a concrete grinder or with Astec Regel industrial strength paint stripper and low-pressure hot water. Do not use Regel on bitumen tennis courts as it will emulsify and soften the bitumen.

Allow the surface to thoroughly dry then carefully vacuum the entire surface to remove all micro contaminants left over form the above cleaning processes. Vacuum cleaning should be done just prior to product application. On smooth concrete surfaces vacuuming can be replaced by the use of a garden leaf blower.

Seal bare concrete and existing Acrylic floor coatings.

Bare and previously acrylic painted concrete and or pavers must fist be seal and have their surface conditioned before the application of Cool Pave Low Sheen. Apply one very thin coat of Astec Multiseal to the entire area with a 6mm low nap synthetic roller cover. Multiseal will bind the existing painted surface or bare concrete to a hard well bound surface ready for Cool Pave Low Sheen application.

Prime concrete with reverse water migration.

Concrete floors that exhibit reverse water migration from the underside of the concrete slab bust be primed with Astec Epitec Primer to hold back the moisture. Apply one very solid coat with complete 100% cover of Astec Epitec 2-part water-based epoxy primer to the entire area with a 6mm low nap synthetic roller cover.

Prime existing Epoxy floor coatings.

Floors previously painted with Epoxy coatings must have all their existing gloss removed by using an industrial floor sander with a scourer pad attached. Apply one very thin coat of Astec Epitec 2-part water-based epoxy primer to the entire area with a 6mm low nap synthetic roller cover.

Prime existing Polyurethane floor coatings.

Floors previously painted with Polyurethane coatings must have all their existing gloss removed by using an industrial floor sander with a scourer pad attached. Apply one very thin coat of Astec Epitec 2-part water-based epoxy primer to the entire area with a 6mm low nap synthetic roller cover.

Application Data

Application

Stir well before use with a flat paddle or with a metal paint wacker using an up and down scooping action. Apply two coats Energy Star Cool Pave Low Sheen with a good quality synthetic brush a new unused 4 to 6mm foam roller cover.

Application should be performed as detailed in the graphic below to maintain straight overlap lines that can occur during application on large areas.

Although the product can be walked on generally within one to two hours for recoat purposes, allow the product to cure for 24 hours in direct sun before full pedestrian access is given.

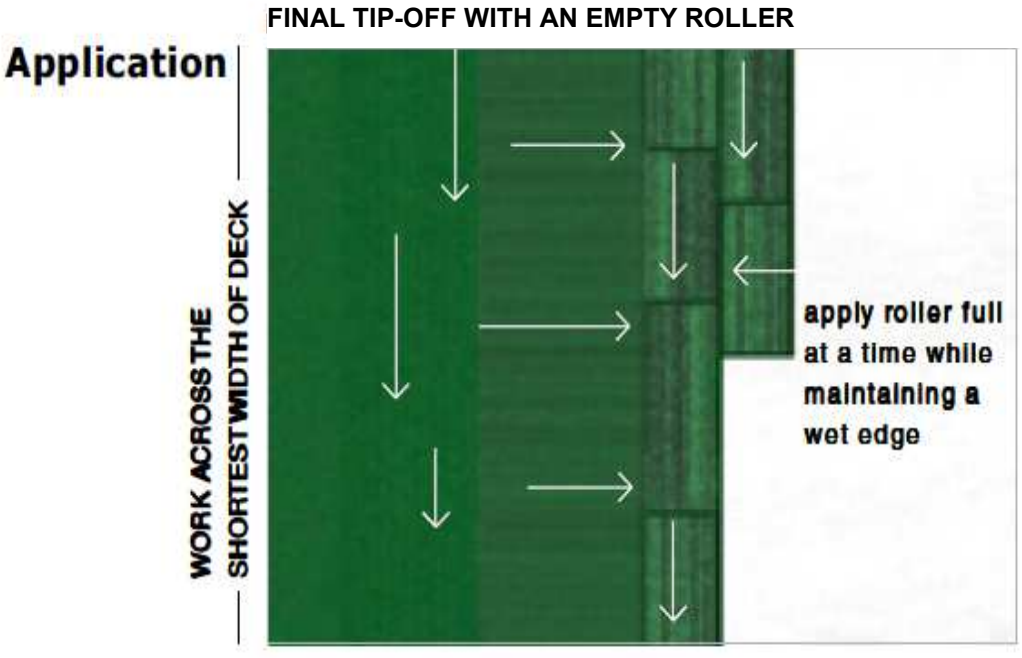
Limitations

Do not apply to surfaces that have had wax or silicone-based materials previously applied. Do not apply when ambient temperature is below 10°C, above 35°C or when humidity is very high.

Energy Star Cool Pave Low Sheen is a water-based material, therefore should not be applied during inclement weather or when precipitation or freezing are imminent.

Pack Sizes

1 Ltr / 4 Ltr / 10 Ltr / 15 Ltr



Paint Disposal

Do not pour left over paint down the drain. Brush any leftover paint onto newspaper and allow to dry in a well-ventilated area. Dispose of the dry paint via domestic waste disposal. Empty cans should be left open and allowed to dry then disposed of in accordance with your local recycling legislations.

Safety Direction

Keep out of reach of children, provide adequate ventilation during use and do not dispose of left-over paint in any drainage systems.

First Aid

Eye Contact

Irrigate continuously with water for fifteen minutes holding eyelids open. Seek Medical advice.

Swallowed

Contact a doctor or Poisons Information Centre immediately. Do not induce vomiting. Give a glass of water. If vomiting does occur, place victim's face downwards at low level to prevent vomit entering lungs. Contact Astec for the relevant Material Safety Data Sheet.

Product Data:

S.R.I. *Solar Reflectance Index* (White) to ASTM E 1980-01	113.89 (Medium wind conditions)
%T.S.R. *Total Solar Reflectance* (White) to ASTM C1549-02	90.03
Emittance to ASTM C-1371	0.90
%T.S.R. 44 standard colours	See test reports or exterior colour card
S.R.I. 44 standard colours	See test reports or exterior colour card
Gloss level	Low Sheen
Drying Time at 25°C @ 250 MIC W.F.T.	45 min dry and block resistant
Recommended thinners	Water / Thinning not recommended.
Wash up	Water
Recoat time at 25°C	1 to 2 hrs
Spread rate at recommended D.F.T (180-micron D.F.T.)	2.33 m² per ltr, (including 2 coats)
Specific Gravity.	1.235
Volume Solids.	42% V/V
P.V.C.	22% V/V
V.O.C	<28 g/l
QUV Accelerated weathering (Colour (Black)UVB / Moisture 60 deg C	2800 hrs >98% Gloss Retained

Cool Pave

Comparative Performance Data:

Product	Comp-1	Comp-2	Comp-3	Comp-4	Comp-5	Cool Pave
VOC (g/l)	250	203	100	250	240	28
Gloss 60/85 deg	13/18	5 / 6	19 / 34	28 / 64	8 / 14	5 / 16
MEK Double Rubs to remove	40	50	20	20	200+	100
Hot Tyre Pick Up 120F(clamp)	3 - 4	3 - 4	4	5	5	1 - 2
Abrasion Resistance (mg lost)	120	90	140	120	160	100
Cleveland Humidity 140F (16 Hrs)	0	0	5	0	0	0
Water Soak 77F (16 Hrs)	0	0	0	0	0	0
Org Fluids Res-Spot Tests (48/16)						
Xylene	5	1	5	5	0	0
Gasoline	0	1	0	1	0	0
Diesel	5	0	3	3	0	0
Motor Oil	0	0	0	0	0	0
Transmission Fluid	0	0	0	0	0	0
Misc. Stain Res-Spot Tests (24 Hrs)						
Windshield Washer Fluid	2	1	3	2 - 3	3	1
Engine Coolant	2	1	3	0 - 1	5	0
Mustard	3	3	5	5	5	1 - 2
Acid/Base Res-Spot tests (24 Hrs)						
HCl (10%)	2	2	4	2	3	1
NaOH (10%)	3 - 4	0 - 1	3	0 - 1	5	1

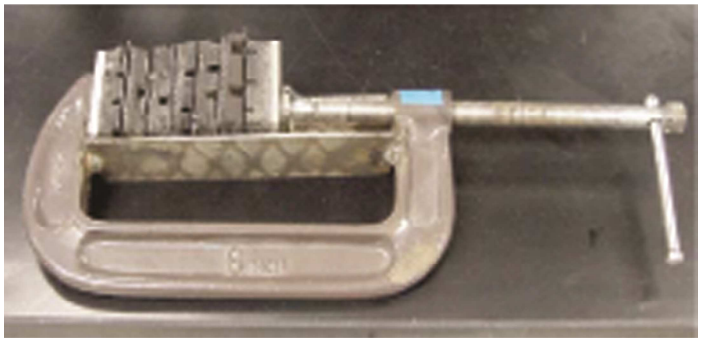
Rating 5: Total deterioration of coating, film can be easily removed by gouging with fingernail, severe colour change, blisters.
Rating 0: Film is untouched

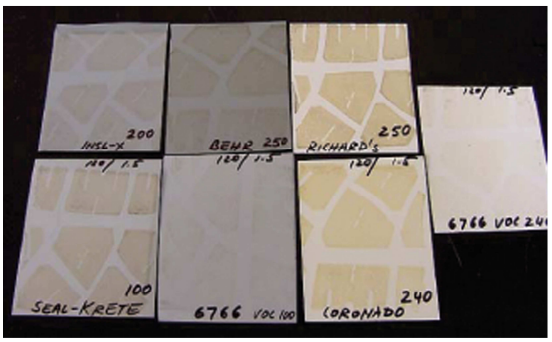
Taber Abrasion Resistance: 6 mils draw-down/48 hrs cure CS-10 wheel, 1000 grams/1000cycles (milligrams lost).

Cool Pave

Hot Tyre Performance Testing:

Test Procedures:





Hot-Tyres-Pickup Test is done in 50 C oven over period of 90 minutes. 2x2 inch squares of tyres and paint coated substrate are pressed together by way of a 150 mm industrial clamp - as on the attached picture. Compression pressure = 5 x 360 deg twists of screw. The substrate that we use is: Black Leneta Wet Adhesion/Scrub Test Panels.

Physical resistance properties compared to a premium acrylic paving paint:

TEST DESCRIPTION	Competitor Acrylic Paving Paint	Cool Pave LS.
1 Boiling Water Test	Fail Severe whitening	Pass – 0
2 Water Resistance		
-Blistering	Dense poor 8	Sparse good 0.5
-Whitening	DL + 4.88 (Whitening did not recover)	-0.002
3 Crosshatch Adhesion	OB,c	OB,c
4 Accelerated Weathering (ASTM G53-96)	Moderate chalking and surface whitening.	Excellent gloss retention with little to no surface change.

Test Procedures:

Boiling Water Test

Place 24hr old test panel into boiling water for 30 minutes. Removed and dried panel then noted blistering and adhesion loss.

Water Resistance Test

Placed 24hr old test panels into lab temperature water, 25 deg C, for 48 hrs. Remove, dry and measure for water whitening and blisters.

Accelerated Weathering

ASTM G53-96

2800hrs of UVB 313 Lamps/Moisture testing, in accordance with ASTM G53-96. Sample were exposed to four-hour cycles of U.V.B. at an irradiance of 1.05 then moisture at 60 deg C for a total period of 2800 hrs.

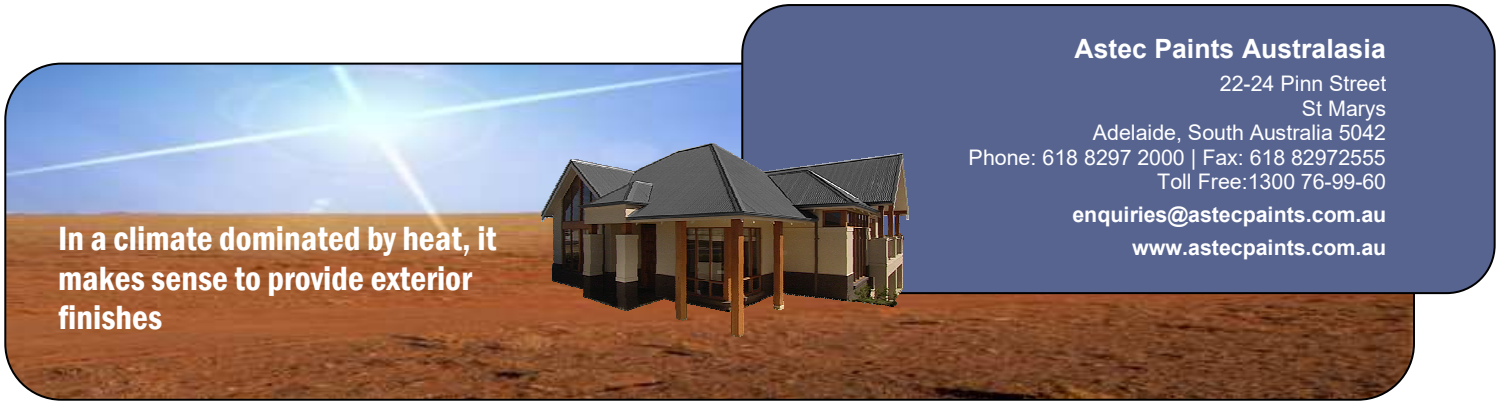
Cross Hatch Adhesion Test

A test panel has lines scribed through the coating to the substrate at 3mm intervals in a crosshatch pattern. Adhesive tape is applied and remove noting any failure.

Rating:-	OB	=	90% squares removed.
	C	=	Cohesive substrate failure.

Warranty:

The technical data furnished herein is based upon data believed by Astec Paints to be true and accurate at the time of writing, however, no guarantee of accuracy is given or implied and is subject to change without notice. This information is given in good faith for the assistance of users. No legal warranty expressed or implied is made as to its accuracy, completeness or otherwise. Every person dealing with this material herein does so at their own risk absolutely and must make independent determinations of suitability and completeness from all sources to ensure their proper use. We have no control over the condition under which these products are stored, handled, or used; therefore, our recommendations must not be regarded as a mounting to legal warranty or as involving any liability on us.



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