Technical Bulletin apaa-2074

EC-5000 PCM Low Sheen

A Waterproof Crack Bridging Elastomeric wall coating with outstanding elongation and elastic recovery.

KEY FEATURES

- *Complies with* AS/NZS 4548.5-1999
- *Crack Bridging Ratio, 31 X DFT*
- *Low water transmission rate* <1 g/24h/m2/kPa
- *High* Water vapor transmission rate, 118.7 g/m²/24 hour
- *B.C.A. CodeMark Certified*
- *Certified by Good Environmental Choice Australia*
- *Low V.O.C.*
- *Highly Elastic, 680% elongation*
- *Highly Elastic, 1220% elongation, (reinforced)*
- *Excellent Dirt Pickup Resistance*
- *High U.V. stability, 4000 hrs UVB testing, no chalking*
- *Low temperature flexibility -20 deg*
- *Plasticizer free.*
- *Excellent resistance to alkali*

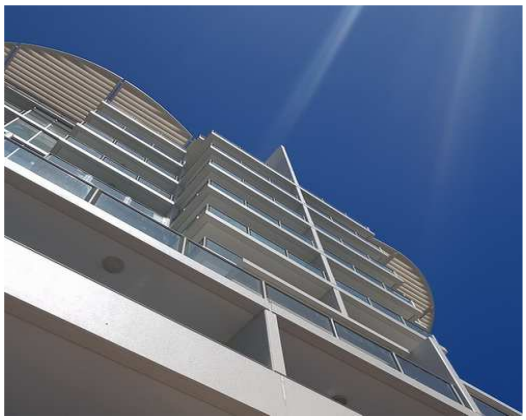
Description:

EC-5000 PCM Low Sheen is a Crack Bridging 100% acrylic, elastomeric waterproof membrane designed for the long-term waterproof protection, durability, and aesthetics of masonry walls. The product exhibits outstanding exterior durability and possesses the excellent elasticity and elongation properties necessary to bridge continually-moving cracks without itself cracking or wrinkling.

Astec elastomeric wall coatings maintain their flexibility with time. Substrate movement, for whatever reason, leads to cracks. These cracks are easily bridged during initial application and remain bridged throughout the worst ravages of cold winters and hot summers. The product ensures crack-free protection against the ingress of water and carbon dioxide. Moreover, its unique Dirtguard chemistry gives a high level of resistance to dirt pick-up.

EC-5000 PCM Low Sheen is based on our proprietary Dirtguard 301 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. It is highly abrasion resistant. Dirt, dust and contaminants wash away easily from its surface, maintaining that freshly painted look over long periods of time.

Where to use:



Confidence for Certifiers, Builders and Architects

Astec Elastomeric wall coating are independently tested for compliance to Australian Standards, AS 4548 Guide to long-life coatings for concrete and masonry. They deliver Australia's highest performance in crack bridging ability, water transmission and water vapour transmission rates.

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EC-5000 PCM

Description cont:

Astec EC-5000 PCM 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 elasticity.

Astec EC-5000 PCM Low Sheen is highly water resistant, has excellent flexibility and is adhesion promoted, providing a strong bond to the substrate.

The product can be used as a standalone membrane or it can be reinforced with Astec Sontara or Deckweb polyester cloth to enhance tensile strength and tear resistance with a subsequent increase of elongation to break from 680% to 1220%.

The cured film is tough and highly elastic. Testing has shown that it will retain its elasticity up to eight times longer than conventional acrylic waterproof membranes.

Low Temperature Flexibility to -20 deg C:

Membranes for dimensionally-unstable facade substrates must have long-term low temperature flexibility. This low temperature flexibility is necessary to accommodate thermal expansion and contraction of the substrate caused by rapid freeze/thaw weather cycling.

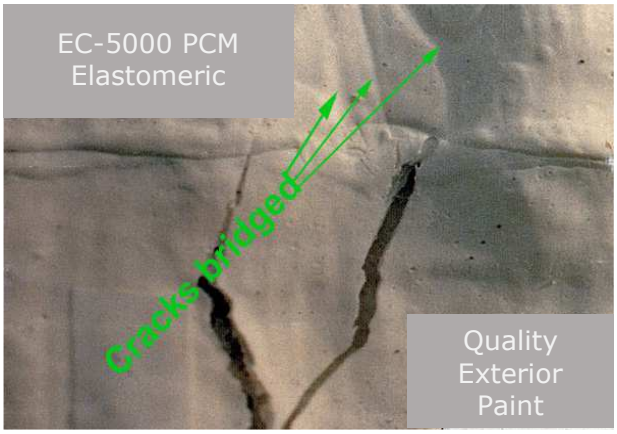
To achieve low temperature flexibility, most manufacturers of elastomeric coatings products add external plasticizers to their formula, even though there are serious drawbacks to its use. Plasticisers leach from the film over time and result in a steady reduction in elongation from that of its original state. They eventually harden to an embrittled state then crack with any substrate movement.

Our proprietary Dirtguard polycarbonate technology does not rely on the addition of external plasticizers to acquire the right level of softness. The right level of softness is inbuilt (internal plasticisation) from the ground up during resin manufacture. Our products derive elasticity from a unique combination of special composition, molecular weight, and cross linking.

As a result, they retain their flexibility for extended periods of time and over a broad range of extreme temperatures. They will expand and contract over continually moving substrates without themself cracking or wrinkling.

Our unique low temperature chemistry ensures that the system will not fail over extended period of time under any extreme low temperature conditions and resists the degrading effects of harsh freeze-thaw cycling with low temperature flexibility to -20deg C.

We guarantee this low temperature flexibility will be retained for the functional life of the product.



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.

Astec elastomeric coatings have increased durability and life expectancy compared with conventional paints.

After exposure to 2800hrs 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 roofing 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 EC-5000 PCM Low Sheen prevent the entry of moisture into the coating film. With water transmission resistance testing in accordance with AS/NZS 4548.5-1999 results at <1 g/24h/m2/kPa.

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

Outstanding Crack-Bridging performance, excellent resistance to water, strong elastic performance and low temperature flexibility all contribute to EC-5000 PCM being one of the most advanced and functional crack bridging waterproof elastomeric wall coatings in Australia.

EC-5000 PCM

Principal Use:

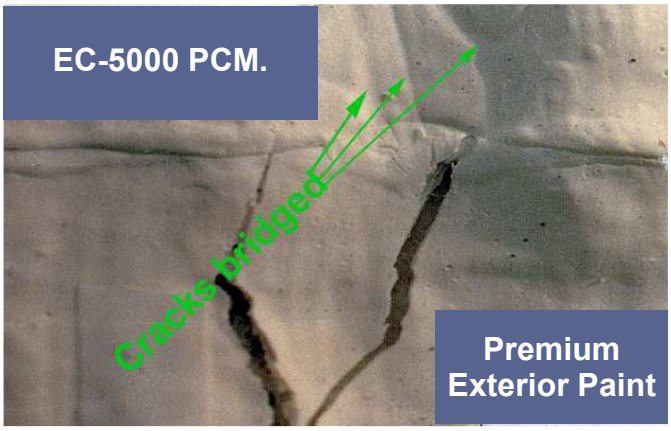
Correctly prepared, masonry, brick, block, aerated concrete, fibre cement sheets and panel, PVC permanent formwork and all previously painted building facades.

Available Colours:

Full range for light to dark accents.

Key Benefits:

- Excellent Crack Bridging.
- Excellent elongation 680%.
- Excellent elongation 1220% reinforced.
- Resistance to Co2
- Plasticizer free, (internally plasticized).
- Outstanding elastic recovery.
- Low temperate flexibility to **– 20ºC**.
- Excellent dirt pick-up resistance.
- Will form films at temperatures as low as 12ºC.
- High volume solids.
- Outstanding Durability.
- Low V.O.C., Low odour.
- Rapid cure and bond strength.
- Excellent resistance to alkali and efflorescence.



For your absolute confidence:

EC-5000 PCM Low Sheen possesses the ability to bridge a forthcoming crack 31.00 times its dry film thickness.

(190 microns dry film thickness will accommodate a forthcoming crack of 5.89 mm).

Surface Preparation

All surfaces must be clean dry and free of contaminants. Remove dirt, dust and any grease with a household detergent. Scrape of any loose or flaking paint on existing painted surfaces then sand any remaining paint to a flat finish. Any existing paint that exhibits a complete lack of adhesion should be entirely removed for the best results. Wipe down with a damp cloth to remove any dust. Where it is not possible to completely remove all chalk or contaminants from the surface, apply Astec Multi-seal, which will bind the surface to a hard finish prior to painting. Rusted surfaces or nail heads should be treated with Astec Rus-traint then spot primed with Astec B-16 IR Grey Anti-corrosive primer.

Brick, Concrete Block, Fibro Cement Sheet & Masonry

No primer is required on these surfaces that are in a new sound condition, (that are not weathered to a point where the surface or mortar joints are friable or continue to powder after cleaning). However, If the surface is friable, apply Astec Multi seal which will bind the surface to a hard finish.

Previously Painted Masonry and Texture Coatings

No primer is required on these surfaces that are in a good sound condition, (that do not have paint delaminating, blistering or have excessive chalking of the existing paint). However, If the surface after high pressure cleaning has any slight trace of retained chalk or any building that is of a seafront location. Apply Astec Multi seal which will bind the existing painted surface to a hard finish.

Glazed Brick

Apply one coat Wallmaster Multi-block Primer.

Mould Infested Areas

Wash down using a stiff brush with (Chlorine) or a household bleach and water to remove the mould. Apply one coat Astec Barrier.

Aerated concrete panel / Fibre Cement sheet Panel / PCV Premiant formwork.

Contact Astec for the substrate relevant specification.

EC-5000 PCM

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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 EC-5000 PCM Low Sheen with a good quality synthetic brush or new unused 10 to 12 mm synthetic roller cover. For airless spray applications use a 518 to 523 tip. NOTE: the number of coats required to achieve full cover will depend of the primers and sealers used during preparation, application technique and/or the underlying substrate colour. 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.

Limitations

EC-5000 PCM 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 / 20 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:

Gloss level	Low Sheen
Drying Time at 25°C @ 100 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
Theoretical spread rate at D.F.T (30 microns Dry)	16.00 m² per ltr
Spread rate at recommended D.F.T (350 D.F.T.)	1.37 m² per ltr
Spread rate at recommended D.F.T (192 D.F.T.)	2.5 m² per ltr
Specific Gravity.	1.124
Volume Solids.	55% V/V
P.V.C.	17% V/V
V.O.C	<1 g/l

EC-5000 PCM

Performance Data:

PROPERTY	TEST METHOD	MEASURED RESULT
Water vapor transmission rate. @ 25ºC, g/m²/24 hour (SGS)	AS/NZS 4548.5-1999	118.7
Water transmission Resistance. @ 25ºC, g/24h/m2/kPa (SGS)	AS/NZS 4548.5-1999	<1 g/24h/m2/kPa
Crack Bridging Ratio (CSIRO)	AS/NZS 4548.5-1999	31.00
Elongation @ 25ºC, at break, %	ASTM D412-1992	680
Elongation @ 25ºC, at break, % (Reinforced)	ASTM D412-1992	1220
Tensile strength @ 25ºC, MPa	ASTM D412-1992	5.9
Water ponding resistance mg passed (50 hours)	(1)	5.4
Stability, heat aged, 10 days @ 60ºC	(1)	Pass
Water swelling @ 25ºC, maximum, %	ASTM D471	12
Resistance to Carbon Dioxide Permeability.		
Air Equivalent (m)	65	"Standard" recommendation minimum figures are,
Concrete Equivalent (cm)	16	50m (air) and 12.5cm (concrete)

Physical resistance properties compared to a premium acrylic:

TEST DESCRIPTION	PREMIUM ACRYLIC	Dirtguard IR Elastic PCM LS.
1 Boiling Water Test	Fail Severe whitening	Pass – 1
2 Water Resistance		
-Blistering	Dense poor 8	Sparse good 2
-Whitening	DL + 4.88 (Whitening did not recover)	-0.326
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

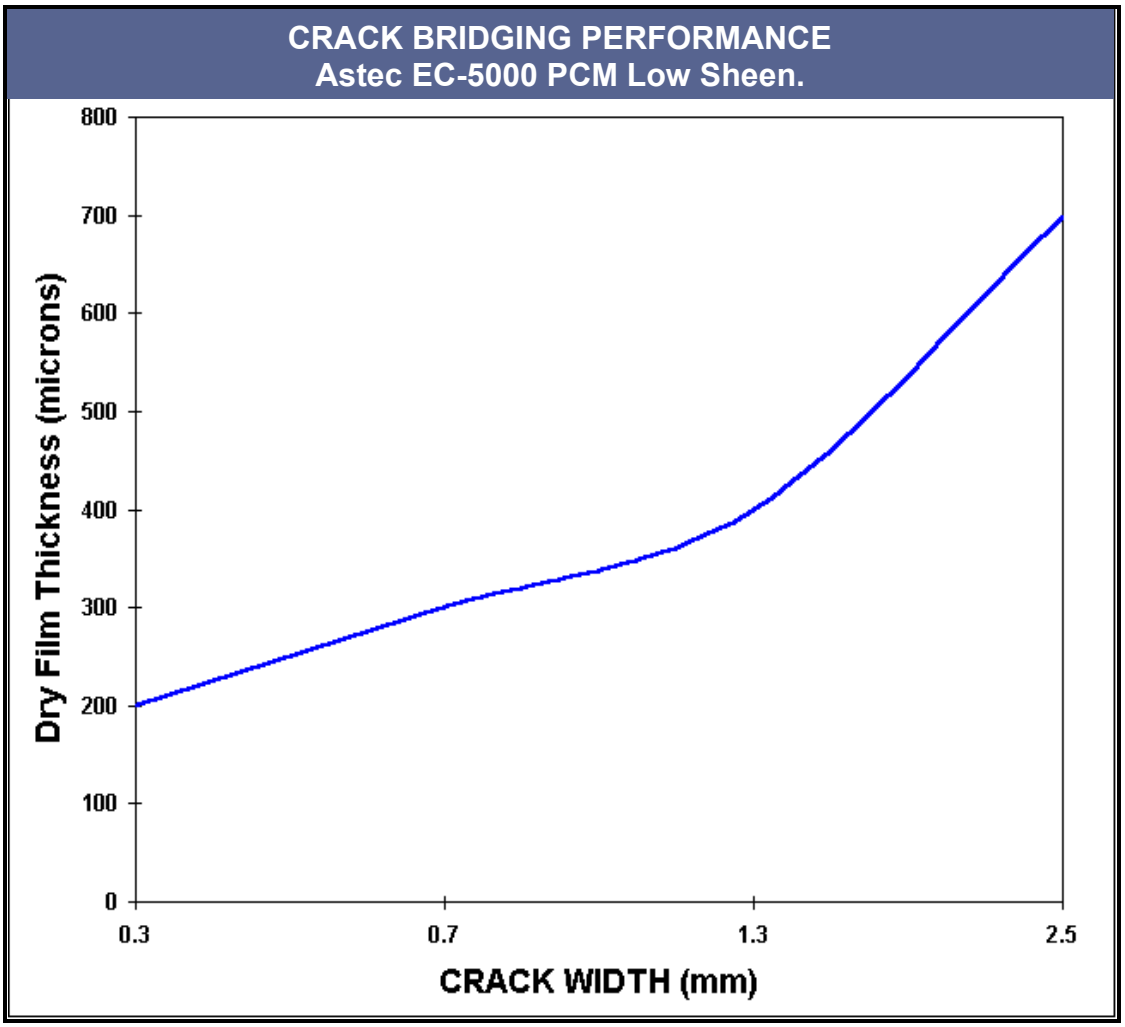
2800hrs of UVB 313 Lamps/Moisture testing, in accordance with ASTM G53-96. Sample were exposed to four-hour cycles of U.V.B. at an irradiance of 1.05 then moisture at 60 deg C for a total period of 2800 hrs.

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.

CRACK BRIDGING PERFORMANCE
Astec EC-5000 PCM Low Sheen.

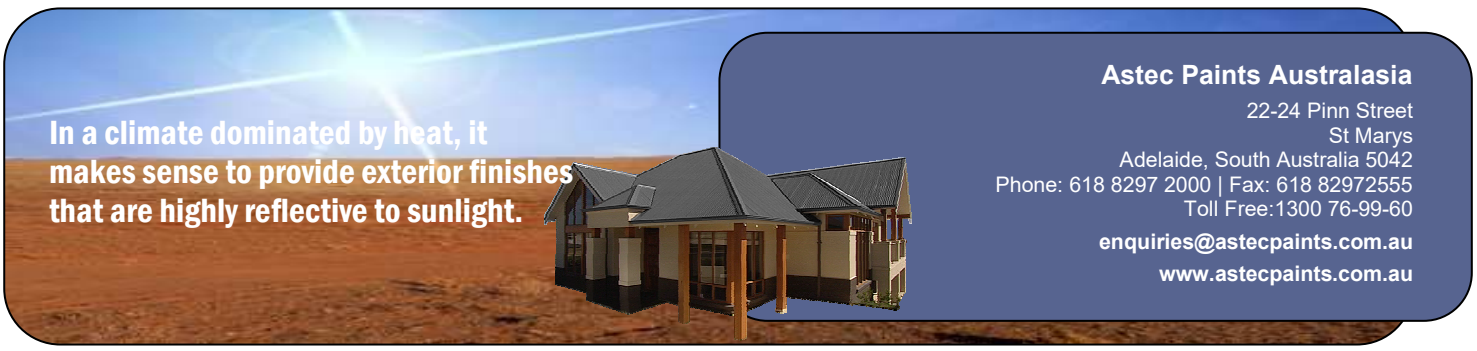


Square metres / Litre = $\dfrac{\textbf{623.4}}{\textbf{Dry Film Thickness (microns)}}$

Wet Film Build = $\dfrac{\textbf{Dry Film Thickness (microns)}}{\textbf{0.6234}}$

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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