

# COOLING

## OUR URBAN ENVIRONMENT

### KEY FEATURES

- Heat Reflective.
- Complies with AS/NZS 4859.1.
- Energy efficient., less CO<sub>2</sub>.
- Superior fade resistance.
- Strong water resistance.
- Available in dark colours.
- Great Opacity.
- Soft tough technology.
- Mould & mildew protection.
- Self-priming on most surfaces.
- B.C.A. CodeMark Certified
- GECA Certified.
- Water Based.
- Low V.O.C.
- Highly Flexible.
- Excellent Dirt Pickup Resistance.
- High U.V. stability, 2800 hrs UVB testing, no chalking.
- Plasticizer free.
- Rapid Cure and Bond Strength.
- Excellent resistance to alkali.

**ASTEC** **A**  
 AUSTRALIAN PAINT MAKERS



(Technical Bulletin), apaa-2063

## Exterior Low Sheen

An Infrared Heat Reflective Paint for all Exterior Surfaces.

### Description:

Energy Star Exterior Low Sheen is Australia's toughest heat reflective paint for all exterior surfaces. The product reflects fully 50% of solar heat by infrared reflection. Even in darks colours, the products low solar absorbance and high emittance value will significantly reduce solar induced heat in the substrate during the extremes of summer. Surface temperatures can be as much as 50% cooler than standard paints reducing internal building temperatures, air conditioning running times while creating a more comfortable living space in the home.

Unlike most shop tinted paints, Energy Star Exterior Low Sheen is coloured with our most advanced and highly light stabilised pigments that are guaranteed to perform in any climatic conditions. Energy Star Exterior Low Sheen is highly flexible expanding and contracting with the substrate and will not crack or peel for the life of the paint.

The product is formulated with our exclusive Dirtguard Technology that delivers a new level of durability to the coating. 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 coating utilising over four decades of formulation experience with our harsh Australian conditions. It is highly abrasion resistant with a silky-smooth surface that is soft to the touch. Dirt, dust and contaminates wash away easily from its surface, maintaining that freshly painted look over long periods of time.

Energy Star Exterior Low Sheen is an infrared heat reflective exterior paint that incorporates colour infused nano ceramics. This technology developed by Astec reflects heat by selective reflection of infrared light. The technology enables us to offer a dark-coloured paint that reflects fully 50% of Solar energy with solar reflectance values of up to 58% higher than 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).

### 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.



# Energy Star Exterior



## Description cont:

Energy Star Exterior Low Sheen will reduce surface temperatures by as much as 50% during the extremes of summer, reducing internal building temperatures and air conditioning running times while creating a more comfortable living space in the home.

Energy Star Exterior 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.

Energy Star Exterior Low Sheen is highly water resistant, has excellent flexibility and its adhesion is promoted, providing a strong bond to the substrate.

The cured film is tough, highly flexible, and because it remains cool, testing has shown that it will retain its mechanical properties up to four times longer than all conventional exterior paints.

## 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.

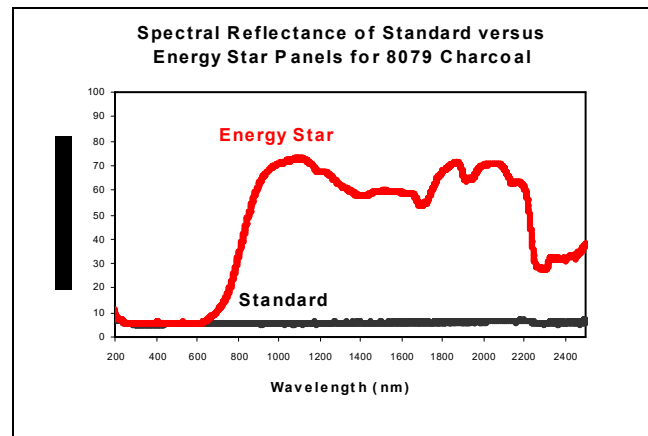
The comparative data represented on the graph above is actual spectral results printed during tests conducted to ASTM E-903 on a Lambda 9000 Solar Reflectometer. The graph shows the difference in heat reflection between a standard charcoal paint and Energy Star Charcoal. Solar reflectance values for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

Energy Star® coatings are sustainable Energy Efficient solutions for roofs and walls that significantly reduce absorbed heat in the building envelope.

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 paints. In highly humid, tropical environments, conventional acrylics have been known to last as little as three years. In Australia, some dark-coloured paints can start to change colour and fade from its original depth of colour within 3 years.



Energy Star Exterior Paints 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 Exterior Low Sheen remains cool. 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 Energy Star Exterior 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/m<sup>2</sup>/kPa.

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

High Solar Reflectivity, excellent resistance to water and strong mechanical performance all contribute to Energy Star Exterior Low Sheen being one of the most advanced and functional exterior paints in Australia.

# Energy Star Exterior



## Principal Use:

Previously painted or new exterior timber, cement sheet, masonry, brick, concrete block, galvanized iron, zincalume, aged Colorbond, new steel, wrought iron and PVC. Do not use this product for any other purpose than that specified in our literature.

## Available Colours:

Full range from light to dark accents.

## 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, (except on asbestos sheeting). 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 Anti-corrosive primer.

### New Timber, (Tannin Rich)

On tannin rich timbers, (Oregon, Cedar, Merbau), prime with Wallmaster Multiblock Primer to prevent staining of light tinted colours. Apply two coats of Energy Star Exterior Low Sheen.

### Aged Enamels and Stains

Lightly sand where necessary then brush down the surface to remove any dust. Apply one coat Wallmaster Multiblock Primer then apply two coats of Energy Star Exterior Low Sheen.

### New Unpainted Timber

Lightly sand any joints where necessary then brush down the surface to remove any dust. Apply two coats of Energy Star Exterior Low Sheen.

### New Pre-Primed Timber

Lightly sand where necessary then brush down the surface to remove any dust. Apply two coats of Energy Star Exterior Low Sheen.

### New Steel and Wrought Iron

Remove any excessive rust with a scraper, wire brush or by sanding. Wipe clean and remove any grease with Astec Enviro-clean. Apply Astec Rus-traint to application details on its can. Apply one coat Astec B-16 Anti-corrosive primer. Apply two coats of Energy Star Exterior Low Sheen.

### New Galvanised Iron or Colorbond

Wipe clean and remove any grease with Astec Enviro-clean. Apply two coats of Energy Star Exterior Low Sheen.

### Aged Corroded Galvanised Iron or Colorbond

Remove any excessive rust with a scraper, wire brush or by sanding. Wipe clean and remove any grease with Astec Enviroclean. Apply Astec Rus-traint to application details on its can. Apply one coat Astec B-16 Anti-corrosive primer. Apply two coats of Energy Star Exterior Low Sheen.

### 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 ever after cleaning). However, If the surface is friable, apply Astec Multi seal which will bind the surface to a hard finish. Apply two coats of Energy Star Exterior Low Sheen.

### Glazed Brick

Apply one coat Wallmaster Multi-block Primer. Apply two coats of Energy Star Exterior Low Sheen.

### P.V.C Downpipes

Wipe clean and remove any grease with Astec Enviro-clean. Apply two coats of Energy Star Exterior Low Sheen.

### Mould Infested Areas

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

# Energy Star Exterior



## 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 Exterior Low Sheen with a good quality synthetic brush or new unused 10 to 12 mm synthetic roller cover. 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 extremely high.

## 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.

# Energy Star Exterior



S.R.I. <i>Solar Reflectance Index</i> (White) to ASTM E 1980-01	113.89 (Medium wind conditions)
%T.S.R. <i>Total Solar Reflectance</i> (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	6.2% @ 60 deg
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 m <sup>2</sup> per ltr
Specific Gravity.	1.245
Volume Solids.	42% V/V
P.V.C.	23% V/V
V.O.C	<50 gl

## Physical resistance properties compared to a premium acrylic:

<b>TEST DESCRIPTION</b>	<b>Competitor Acrylic</b>	<b>Energy Star Exterior Low Sheen.</b>
1 Boiling Water Test	Fail Severe whitening	Pass – 0.02
2 Water Resistance		
-Blistering	Dense poor 8	Sparse good 0.5
-Whitening	DL + 4.88 (Whitening did not recover)	-0.015
3 Crosshatch Adhesion	OB,c	OB,c
4 Accelerated Weathering (ASTM G53-96) 2800 hrs	Moderate chalking and surface whitening.	Excellent gloss retention with little to no surface change. >98% gloss retained.

# Energy Star Exterior



## 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.



**In a climate dominated by heat, it makes sense to provide exterior finishes that are highly reflective to sunlight.**

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