



Energy Star Gloss & Low Sheen Cool Home Solutions.....!



Astec Gloss and Low Sheen are labeled with the Energy Star[®] logo and are qualified Energy Star[®] products. They meet the Energy Star[®] specifications for cool coatings and strict energy efficient guidelines set by the (E.P.A.), Environmental Protection Agency.

INTRODUCTION:

Dark Coloured Coatings no longer need to be HOT.....!

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.

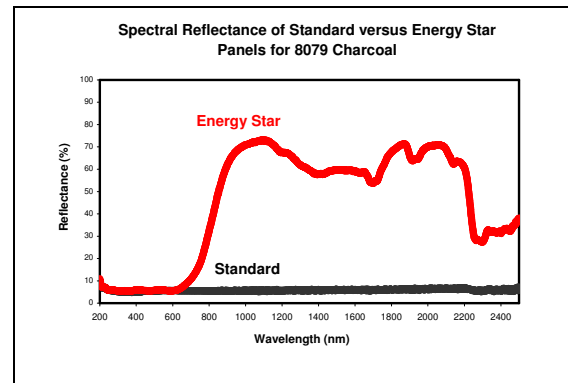
In a world that now demands we be more energy efficient and resource conscious, the use of dark colour, although attractive, presented a design challenge for our industry to overcome. It would be the "holy grail" in coating technology, to achieve a black or deep tone that would reflect solar heat and stay cool.....

As a result of ongoing research and development into heat reflective coatings, Astec developed a new technology of colour infused nano ceramics that reflects heat by selective reflection of infrared light. This technology has enabled us to offer dark colour metal roof coatings that reflect fully 50% of Solar energy and provide positive results for our environment and consumers.

The successful development of Energy Star Gloss and Low Sheen enables you to make choices to provide positive contributions to our global environment with reductions in Urban Heat, Smog and through its energy efficiency, help reduce Co2 emissions.

Our environment is constantly changing and we are all making choices that have an impact now and into the future. Choose Energy Star with confidence and *Paint with Pride*.

The comparative data represented on the graph below 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.



PRODUCT TYPE:

Waterbased, Infrared Heat Reflective, 100% acrylic Gloss and Low Sheen coating.

DESCRIPTION:

Energy Star Gloss and Low Sheen are premium grade, non-splatter, 100% acrylic water-based coatings, designed for use on all correctly prepared exterior timber, fibro, masonry and metal.

They are low in V.O.C. and available in both a Ultra High Gloss and a durable Low Sheen finish. They are rapid drying, high film strength material that exhibits good early resistance to moisture.

The formulation dries to a hard, yet flexible film that flows and settles to a smooth, uniform finish during brush, roll or spray application.

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The products are adhesion promoted and provide a strong bond to all correctly prepared substrates.

They have excellent flexibility and cope well with dimensionally unstable substrates such as metal fence and roofing sheet.

The products are designed to tolerate demanding environments and offer rapid resistance to environmental dirt pick-up. The application of the product to gutters, facias, pergolas, sloped roofing and walls provides a surface that is resistant to dirt pick-up and remains cleaner longer than most conventional acrylic's.

They are excellent replacement for solvent-borne acrylics and polyurethane, providing many of the same performance properties without harmful solvent release to the atmosphere.

The product has excellent flow and leveling properties and levels to a smooth, uniform decorative and protective film. They have very good edge cover and wet hold during brush application which ensures "thin edge lifting" of the cured film is eliminated.

The applied film is resistant to mould and dirt pick-up, is tough, yet flexible and because they remain cool, testing has shown that they will last eight times longer than all conventional exterior acrylic paints.

DIRT PICK-UP RESISTENCE;



As a result of ongoing research and development into dirt pick-up resistance for exterior coatings, Astec developed a new technology now registered to Astec as **Dirtguard**.

Dirtguard technology was developed throughout a decade of R&D that was driven by products exported by Astec to the Asian regions. In some Asian cities environmental contaminants can deface a coating within months of it's application.

Astec now use Dirtguard technology in all Energy Star products. The products remain clean far longer than conventional coatings, a necessary requirement for maximum retention of their Solar Reflectivity.

Coatings based on Astec **Dirtguard** technology incorporate our latest in surface curing and nano particle technology. The surface of the film cross

links around nano particles to provide an extremely tight surface pack, ensuring dirt will not become lodge within the cured film.

Specialty silicones also form part of Dirtguard technology and provide added durability and high water resistance to the cured film. The silicones used to modify Energy Star Gloss and Low Sheen were selected through years of exterior weathering and dirt pick-up resistance trials that were conducted on exposure racks in Asian cities.

The silicone modification provides excellent block resistance to environmental contaminants and adds strong water repellancy for fast rain water run off that carries dust and contaminants from the construction surface. These properties will fully develop even under conditions of high humidity.

The Silicone Modification in combination with gloss modifiers used in the products provide, one of the highest sheen levels available for an exterior grade acrylic and further adds to the long-term durability 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 metal roofing 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 Indexes 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.

These products will remain cool even in a Black. After exposure to 2800hrs of UVB 313/Moisture testing, in accordance to ASTM G53-96 the, gloss, depth of colour, adhesion and film integrity remained un-changed providing 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.

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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.

Because the silicones used in Metal-Flex stop the entry of moisture to the coating film, the coating does not swell and will last 400% longer than standard exterior acrylics.

Simply put, the less moisture that the coating film has to tolerate the longer it will last.

Energy Star Gloss and Low Sheen are the most advance and functional exterior acrylic coatings available in Australia. They provides high Solar reflectivity in dark colours, excellent resistance to moisture and remain cleaner than any other acrylic's available.

KEY PROPERTIES

- **Remains Cool in dark colours.**
- Energy efficient.
- Low V.O.C.
- Cooler internal building temperatures.
- Reduces Urban Heat output
- Suitable for rain water collection (after 3 rains)
- Outstanding Exterior Durability.
- Excellent dirt pick-up resistance.
- Outstanding face to face block resistance.
- Excellent water whitening resistance.
- Plasticizer free.
- Rapid cure and bond strength.
- Excellent resistance to alkali.

PRINCIPAL USES:

- Correctly prepared exterior timber, fibro, masonry and metal.

COLOUR RANGE:

44 standard exterior colours.
(Other colour available on volume request).

PACKAGING

1, 4, 10, 20L open top pail.

PREPARATION:

All surfaces must be clean dry and free of contaminants. Remove dirt or dust and any grease with Astec Enviro-green Surface Cleaner. 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 Rivett, which will bind the surface to a hard finish prior to painting. Rusted surfaces or nail heads should be treated with Astec Rus-traint, fill any imperfections with a suitable filler and spot prime or seal any bare surfaces with the appropriate Astec primer as detailed in the following sections.

APPLICATION:

- Apply one full wet coat of Energy Star Gloss and Low Sheen at a recommended wet film thickness of 125 microns. Coverage will be approximately 6 to 8 m² per ltr substrate dependant. Allow to dry, usually between 1/2 an hour and 3 hours is required, weather dependant.
- Apply a second full wet coat of Energy Star Gloss and Low Sheen at a recommended wet film thickness of 125 microns. Coverage will be between 6 to 8 m² per ltr substrate dependant.
- Recommended dry film thickness is between 95 and 125 microns dry including two coats.

NEW TIMBER

- Treat all nails with Astec Rus-traint allow to dry then fill all nail holes with a suitable wood filler. For optimum adhesion sand all dressed timber. On tannin rich timbers, (Oregon, Cedar ext), prime with Astec Oil Based Primer to prevent staining of light tinted colours. For maximum performance on all other timbers apply Astec Acrylic Primer Undercoat, sand smooth then apply two coats of Energy Star Gloss or Low Sheen.

WINDOW PAINTING

- Use sparingly on all contact areas, open and close windows within 30 minutes and there after at 4 hour intervals over the following 24 hours.

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-green. Apply Astec Rus-traint in accordance with the application details on its can. Apply two coats of Energy Star Gloss or Low Sheen.

BRICK AND MASONRY

- No primer required on surfaces that are in a sound condition, (that are not weathered to a point where the surface is friable or continues to powder ever after a wash down). If the

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- surface is unsound apply Astec Rivett which will bind a soft wall to a hard finish. Walls in sound condition, wash down the surface with water and a stiff brush to remove all contaminants, fill all holes with a grouting cement. If the surface is mould covered wash down with Sodium Hypochlorite, (Chlorine), or a household bleach to remove the mould then apply Astec Barrier, an under film mould retardant. Apply two coats of Energy Star Gloss or Low Sheen.

P.V.C. Gutter and Down pipes

- Sand the entire surface and wipe down with Astec all Purpose thinners prior to any coating application.

GALVANISED IRON, ZINCALUME

New unpainted:

- Degrease thoroughly with Astec Enviro-green, apply one coat of Astec B-16 I.R. Grey Anti-corrosive metal primer then two coats of Energy Star Gloss or Low Sheen.

Previously painted:

- Remove all loose, chalked and flaky paint, sand any remaining paint to remove any gloss. Treat any rust with Astec Rus-traint in accordance with the application details on its can. Apply two coats of Energy Star Gloss or Low Sheen.

FIBRO CEMENT

New unpainted:

- Wash down the surface with a stiff brush and water to remove any contaminants.
- Allow the surface to dry and apply one coat of Astec Barrier which will stop any under-film mould re-growth.
- Apply one coat Astec Rivett, Multi-seal or Triple-flex to seal and condition the surface. Apply two coats of Energy Star Gloss or Low Sheen.

Previously painted fibro **NOT ASBESTOS:**

- Remove all loose, chalked and flaky paint, sand any remaining paint to remove any gloss.
- Spot treat any bare areas with Astec Barrier, then spot seal with Astec Rivett, Multi-seal or Triple-flex to seal and condition the bare areas. Apply two coats of Energy Star Gloss or Low Sheen.

Weathered asbestos sheeting:

Do not sand or scrub the surface as the dust can be harmful to your health. Pick off any large clumps of mould or debris, apply two coats of Astec Barrier which will kill any mould growth, apply Astec Rivett in multiple coats until all contaminants are securely locked to provide a hard bound surface, (refer to Astec Performance Spec No. 8712). Apply two coats of Energy Star Gloss or Low Sheen.

NOTE:

Do not apply of Energy Star Gloss or Low Sheen to surfaces that have had wax or silicone based materials previously applied.

If Unsure, Contact Astec for the correct preparation technique, sealers, primers and undercoats before proceeding.

NOTE:

If the products are being used on sloped metal roofing which is used for the collection of drinking water, the down pipes should not be reconnected until the roof has been exposure to 3 or 4 heavy rains.

MIXING:

Thoroughly mix before use with a paint wacker or broad flat stick.

PRECAUTIONS FOR USE:

Avoid contact with skin and eyes; always use a respirator during spray applications

LIMITATIONS

Energy Star Gloss or Low Sheen are waterbased materials, therefore, should not be applied during inclement weather or when precipitation or freezing are imminent.

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. It 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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PRODUCT DATA;	
S.R.I. Solar Reflectance Index (White) to ASTM E 1980-01	112.24 (Medium wind conditions)
%T.S.R. Total Solar Reflectance (White) to ASTM	89.20
Emittance to ASTM C	0.89
%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	Full Gloss and Low Sheen
Drying Time at 25°C @ 100 MIC W.F.T.	35 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)	12.67 m ² per ltr
Spread rate at recommended D.F.T (95 D.F.T.)	4.0 m ² per ltr (including two coats.)
Specific gravity. Gloss	1.209
Volume Solids. Gloss	38% V/V
P.V.C. Gloss	15% V/V
Specific gravity. Low Sheen	1.335
Volume Solids. Low Sheen	38% V/V
P.V.C. Low Sheen	37% V/V

Table 1 - Physical resistance properties compared to a Premium Acrylic.

TEST DESCRIPTION	PREMIUM ACRYLIC	ENERGY STAR
1 Boiling Water Test	Fail Severe whitening	Pass – 1
2 Water Resistance -Blistering -Whitening	Dense poor 8 DL + 4.88 (Whitening did not recover)	Sparse good 2 -0.318
3 Crosshatch Adhesion	OB,c	OB,c
4 Face to face Block Resistance	Separation caused severe damage	Separated easily with minimal damage.
5 Accelerated Weathering (ASTM G53-96)	Moderate chalking and surface whitening.	Excellent gloss retention with little to no surface change.

Test Procedures:

1 Boiling Water Test

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

2 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.

3 Cross Hatch Adhesion Test

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

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

4 Face to Face block Resistance Test

24 hour old coated M.D.F. test panels where stacked face-to-face with a 245kg weight applied to the stack for 24hours at room temperature. At the end of the test stack was noted for ease in separation.

5 Accelerated Weathering (ASTM G53-96)

2800hrs of UVB 313 Lamps/Moisture testing, in accordance to ASTM G53-96. Sample where 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.