



## Dirtguard I.R. Gloss Cool Roof Solutions



Astec Dirtguard I.R. Gloss is labeled with the Energy Star<sup>®</sup> logo and is a qualified Energy Star<sup>®</sup> product. Dirtguard I.R. Gloss meets the Energy Star<sup>®</sup> specifications for cool roof coatings and strict energy efficient guidelines set by the (E.P.A.), Environmental Protection Agency.

### **INTRODUCTION:**

**Dark Coloured Coatings for Roofing 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.

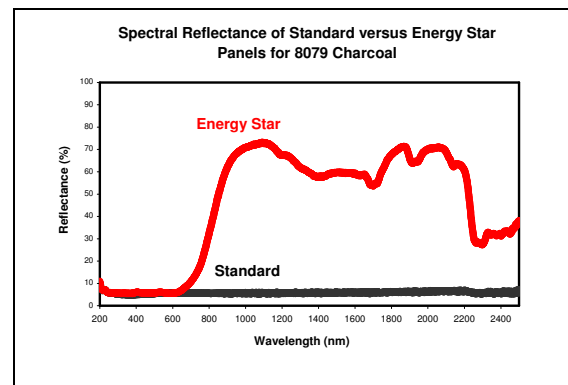
In a world that now demands we be more energy efficient and resource conscious, the use of dark colour, although attractive, presented a design challenge for our industry to overcome. It would be the "holy grail" in coating technology, to achieve a black or deep tone that would reflect solar heat and 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 reflect 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 Dirtguard I.R. Gloss enables you to make choices to provide positive contributions to our global environment. With reductions in Urban Heat, Smog and through it's 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 Dirtguard I.R. Gloss 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 roofing paint and Dirtguard I.R. Gloss Charcoal.



### **PRODUCT TYPE:**

Waterbased, Infrared Heat Reflective, 100% acrylic Gloss coating for primed Metal and Asbestos Roofing.

### **DESCRIPTION:**

The product is a highly modified 100% acrylic gloss. It is low in V.O.C, and incorporates Astec Dirtguard and proprietary cross linking technology. The product was originally designed to tolerate the demanding environments in Asian cities and provides excellent long-term resistance to dirt pick-up and mould.

Dirtguard I.R. Gloss is adhesion promoted and provides a strong bond to primed substrates. It has excellent flexibility and copes well with the dimensional instability of roofing sheet.

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The applied film offers rapid resistance to environmental dirt pick-up when applied to sloped roofing and is an excellent replacement for solvent-borne acrylics and polyurethane, providing many of the same performance properties without harmful solvent release to the atmosphere.

The product is water resistant, flexible and has exceptional flow and leveling properties. During brush or spray application the product levels to a very smooth and uniform gloss finish. The product is principally used for metal and asbestos roofing applications where a low film build, but a highly infrared reflective, (S.R.I. 112.33), coating is required.

The cured film is tough, flexible and block resistant, and because it remains cool, testing has shown that it will last eight times longer than all conventional acrylic roof coatings. Astec Energy Star paints were the first in Australia to earn the ENERGY STAR label for energy efficient paints. As an Architect, Builder or Homeowner, cooler buildings are a positive contribution to our global environment.

## **DIRT PICK-UP RESISTANCE:**



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 its 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 the 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 lodged within the cured film.

## **DURABILITY:**

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

In Australia some dark metal roofing can start to change colour and fade from its original depth 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 of Slate Grey.

Because Dirtguard I.R. Gloss 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.

Dirtguard I.R. Gloss is one of the Energy Star range which are the most advanced and functional roof coating available in Australia. They provide high Solar reflectivity in dark colours, excellent resistance to moisture and remain cleaner far longer than any other roofing acrylic available.

## KEY PROPERTIES

- **High Solar Reflectivity in dark colours**
- Energy efficient.
- Cooler internal building temperatures.
- Reduces Urban Heat output
- Suitable for rain water collection (after 3 rains)
- Outstanding Durability.
- Excellent dirt pick-up resistance..
- Plasticizer free.
- Rapid cure and bond strength.
- Excellent resistance to alkali

## **PRINCIPLE USES:**

- Galvanized and pre-painted sloped metal and fibro cement roofing sheet.

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## **COLOUR RANGE:**

44 standard exterior colours.

## **SUBSTRATE:**

Correctly prepared new or aged metal roofing.  
Correctly prepared new or aged fibro roofing.

## **PREPARATION:**

### Previously painted metal:

- All surfaces must be clean, dry and free of contaminants. Remove dirt or dust with a wire brush and any grease with a household detergent. Alternatively, the surface should be high pressure water cleaned to remove any surface contaminants. The most suitable nozzle to achieve the best results is a Kranze Turbo Nozzle. Any deposits of grease, oil or silicone must be removed.
- Scrape off any loose or flaking paint 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.
- Rusted surfaces or nail heads should be treated with Astec Rus-traint and once cured spot primed with Astec B-16 I.R. Grey Primer. (See relevant technical bulletin).
- Prime the entire surface with one light, transparent coat of Astec B-16 I.R. Grey Primer. (See relevant technical bulletin).

### New unpainted metal:

- Degrease thoroughly with Astec Enviro-green, while frequently changing rags.
- Prime the entire surface with one light transparent coat of Astec B-16 I.R. Grey Primer. (See relevant technical bulletin).

### 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 prime the bare areas. Apply suitable Energy Star top coat.

### 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 suitable Energy Star top coat.

## **APPLICATION:**

### LEAKS / FASTENERS / FLASHING SEALING :

- Any loose flashings, holes or sheet overlaps that can allow water ingress to the roof can be repaired by using 70 mm wide Astec Sontara tape embedded in Astec Taping Membrane.
- Allow the Taping Membrane to dry (usually four hours), and recoat any thin areas to cover any pin holing.
- Apply a dab of Astec Ultra-Flash to all fasteners with a small brush to make them water tight.

### TOP-COATING:

- Apply one full wet coat of **Dirtguard I.R. Gloss**, to the entire roof surface. (Coverage rate not to exceed 5m<sup>2</sup> per liter). WFT 200 microns.
- Apply a second full wet coat of **Dirtguard I.R. Gloss** straight from the drum at a coverage rate of no more than 5m<sup>2</sup> per liter. WFT 200 microns.
- The above coverage rates include the average substrate profile area for corrugated sheet.

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

## **NOTE:**

If the roof is to be used for the collection of drinking water, the down pipes should only be reconnected after exposure to 3 or 4 heavy rains.

## **MIXING:**

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

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## **PRECAUTIONS FOR USE;**

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

## **LIMITATIONS**

**Dirtguard I.R. Gloss** is a waterbased material, therefore should not be applied during inclement weather or when precipitation or freezing are imminent.

## **PACKAGING**

20L open top pail.

## **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

<b>PRODUCT DATA;</b>	
S.R.I. <i>Solar Reflectance Index</i> (White) to ASTM E 1980-01	112.33 (Medium wind conditions)
%T.S.R. <i>Total Solar Reflectance</i> (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	Velvet Gloss
Drying Time at 25°C @ 100 MIC W.F.T.	35 min dry (touch)
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)	13.65 m <sup>2</sup> per ltr
Spread rate at recommended D.F.T (150 D.F.T.)	2.73 m <sup>2</sup> per ltr ( including two coats and profile)
Specific Gravity. Gloss	1.158
Volume Solids. Gloss	41% V/V
P.V.C. Gloss	41% V/V

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

TEST DESCRIPTION	PREMIUM ACRYLIC	DIRTGUARD IR GLOSS
1 Boiling Water Test	Fail Severe whitening	Pass – 1
2 Water Resistance -Blistering -Whitening	Dense poor 8 DL + 4.88 (Whitening did not recover)	Spars good 2 -0.318
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:**

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 Accelerated Weathering (ASTM G53-96)

2800hrs of UVB 313 Lamps/Moisture testing, in accordance to 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.