

PERFORMANCE DATA – InfraCOOL™ CHARCOAL vs Std Charcoal

KEY FACTS : HEAT REFLECTIVE COATINGS

- Due to their large surface area and exposure, Roof Surfaces capture enormous amounts of the suns energy and thus COOL ROOFS offer potential energy savings of 10-30%*, resulting in direct cost and green house gas emission savings
- Dulux® InfraCOOL™ technology works by maximising the TOTAL SOLAR REFLECTION including the (invisible) infra-red portion of the suns energy which accounts for over 50% of the suns total light energy
- Various internationally accepted verification methods demonstrate the direct benefits of InfraCool technology in comparative testing vs comparable std colour and/or surface materials

ASTM E1980-01 : SOLAR REFLECTANCE INDEX

The following comparative test data (based on constant solar conditions) demonstrates the calculated surface temperature cooling benefit using Dulux® InfraCOOL™ technology against the nominated system.

Total Solar Reflectance <i>% TSR ASTM E903 or C1549</i> <i>Reflectance of the suns energy across the broad solar spectrum including</i>	Std Charcoal			Dulux® AcraTex® COOL ROOF Charcoal				
	<ul style="list-style-type: none"> • visible region , defining the colour we see • non visible region, mainly Infra-red (approx 50% of Total Suns rays) 	6.8 %			26.9%			
Thermal Emittance <i>0-1 scale, ASTM C1371</i> <i>The ability of a material to release (ie. emit) captured heat energy</i>	0.85			0.90				
	<i>Wind condition...</i>			<i>low</i>	<i>medium</i>	<i>high</i>	<i>low</i>	<i>medium</i>
Solar Reflectance Index <i>relevant to wind conditions</i>	-2.36	-0.27	1.59	27.61	28.13	28.59		
Surface Temperature <i>constant air temperature : 37C</i> <i>constant Solar flux : 1000 W/m2</i>	104	83	61	88	72	55		
InfraCOOL™ effect <i>potential surface temp. COOLING</i>	16°C COOLER <i>low wind conditions</i>							

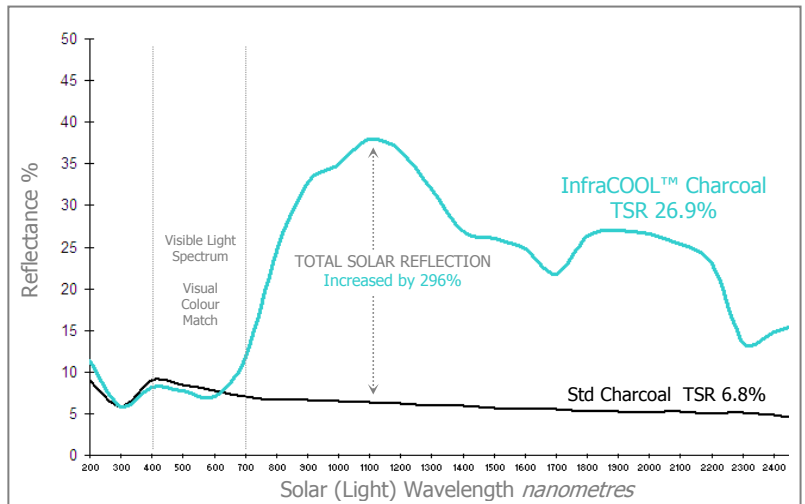
ASTM E903 : SOLAR ABSORBANCE

TSR and Spectral Reflectance is tested in accordance with ASTM E-903.

% Reflectance of 2 visually equal panels reported at individual wavelengths from 200-2500 nanometers.

Results:

- ❖ Matching reflectance (intersecting lines) in the visible light region confirm the colours are close visual matches.
- ❖ Significantly higher reflectance of InfraCool across the infrared region (separation of the lines above 700 nm).
- ❖ TSR (Total Solar Reflectance) increased from 6.8% to 26.9% (296% increase) with InfraCool™ Technology.



COLOUR CLASSIFICATIONS :

Solar Absorbance (SA)		Building Code of Australia (BCA) Classification			NSW Building & Sustainability Index (BASIX) Classification		
Std (SA)	InfraCOOL™ (SA)	Criteria (SA)	STD rating	InfraCOOL™ rating	Criteria (SA)	STD rating	InfraCOOL™ rating
0.932	0.731	Light : <0.55 Dark : >0.55	DARK	DARK	Light: <0.475 Medium: 0.475-0.70 Dark : >0.70	DARK	DARK

❖ Energy saving potential based on Field Study of 2 identical buildings with constant state air-conditioning. High reflectance white coating vs original dark roofing surface
 ❖ Technical Report : ICCharcoal-02

InfraCOOL™...Colours that shield from the sun