InfraCOOL™ Technology

Dulux® AcraTex®

PERFORMANCE DATA – InfraCOOL™ MERINO vs Std Merino

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 *% TSR ASTME903 or C1549*
Reflectance of the suns energy across the broad solar spectrum including
- *visible region , defining the colour we see*
- *non visible region, mainly Infra-red (approx 50% of Total Suns rays)*

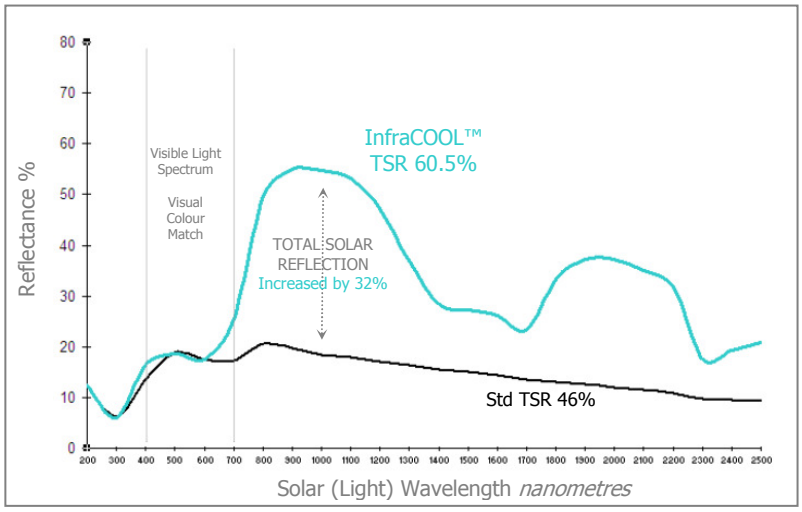
Thermal Emittance *0-1 scale, ASTM C1371*
The ability of a material to release (ie. emit) captured heat energy

		Std Merino			Dulux® AcraTex® COOL ROOF Merino		
		46 %			60.5%		
		0.85			0.90		
	Wind condition...	*low*	*medium*	*high*	*low*	*medium*	*high*
Solar Reflectance Index	*relevant to wind conditions*	50.05	51.32	52.44	72.31	72.59	72.85
Surface Temperature	*constant air temperature : 37C constant Solar flux : 1000 W/m2*	76	63	50	64	55	46
InfraCOOL™ effect	*potential surface temp. COOLING*				12°C COOLER *low wind conditions*		

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 46% to 60.5% (32% increase) with InfraCool™ Technology.



COLOUR CLASSIFICATIONS :

Solar Absorptance **(SA)**	
Std (SA)	InfraCOOL™ (SA)
0.540	0.395

Building Code of Australia (BCA) Classification		
Criteria (SA)	STD rating	InfraCOOL™ rating
Light : <0.55 Dark : >0.55	LIGHT	LIGHT

NSW Building & Sustainability Index (BASIX) Classification		
Criteria (SA)	STD rating	InfraCOOL™ rating
Light: <0.475 Medium: 0.475-0.70 Dark : >0.70	MEDIUM	LIGHT

- *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 : ICMerino-01*

InfraCOOL™...Colours that shield from the sun

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