

## PERFORMANCE DATA – InfraCOOL™ TERRACOTTA vs Std Terracotta

### 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 Terracotta           |       |       | Dulux® AcraTex® COOL ROOF Terracotta |               |             |
|--------------------------|-------|-------|--------------------------------------|---------------|-------------|
| 41.5 %                   |       |       | 49.5 %                               |               |             |
| 0.85                     |       |       | 0.90                                 |               |             |
| <i>Wind condition...</i> |       |       | <i>low</i>                           | <i>medium</i> | <i>high</i> |
| 43.87                    | 45.23 | 46.44 | 57.43                                | 57.79         | 58.12       |
| 80                       | 65    | 52    | 72                                   | 61            | 49          |

**Solar Reflectance Index**      *relevant to wind conditions*

**Surface Temperature**      *constant air temperature : 37C*  
*constant Solar flux : 1000 W/m2*

**InfraCOOL™ effect**              *potential surface temp. COOLING*

**7°C COOLER**  
*low wind conditions*

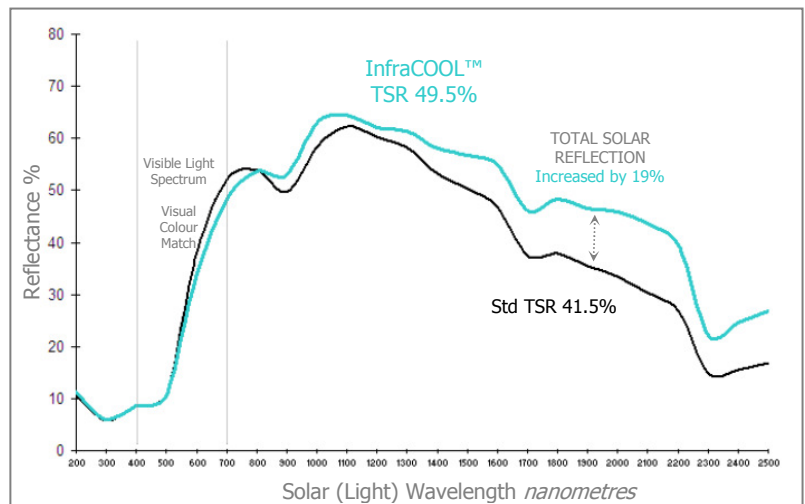
### ASTM E903 : SOLAR ABSORBANCE

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 41.5% to 49.5% (19% increase) with InfraCool™ Technology.



### COLOUR CLASSIFICATIONS :

| Solar Absorptance (SA) |                 |
|------------------------|-----------------|
| Std (SA)               | InfraCOOL™ (SA) |
| 0.585                  | 0.505           |

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

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

❖ 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 : ICTerracotta-01

InfraCOOL™...Colours that shield from the sun