

PERFORMANCE DATA – InfraCOOL® DK TERRACOTTA vs Std Dk

KEY FACTS : HEAT REFLECTIVE COATINGS

- Due to their large surface area and exposure, Roof Surfaces can capture large amounts of the Sun's energy and thus COOL ROOFS offer potential energy savings.
- Dulux® InfraCOOL® Technology works by maximising the TOTAL SOLAR REFLECTION including the (invisible) infra-red portion of the Sun's energy which accounts for approx. 50% of the suns total light energy.
- Various internationally accepted verification methods demonstrate the potential 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 as defined) demonstrates the estimated surface temperature cooling benefit using Dulux® InfraCOOL® technology against the nominated system.

| Total Solar Reflectance (TSR) and Thermal Emittance are measured and then used to estimate resultant Surface Temperature | | Std Dark Terracotta | Dulux® AcraTex® COOL ROOF Dk Terracotta |
|--|------------------------|---------------------|---|
| Total Solar Reflectance | ASTM C1549 (% TSR) | 38.2 % | 42.8 % |
| <i>Reflectance of light across the broad solar spectrum inc. visible (colour) and invisible InfraRed radiation</i> | | | |
| Thermal Emittance | ASTM C1371 (0-1 scale) | 0.85 | 0.90 |
| <i>The ability of a material to release (ie. emit) captured heat energy. Higher number = Faster Heat release</i> | | | |

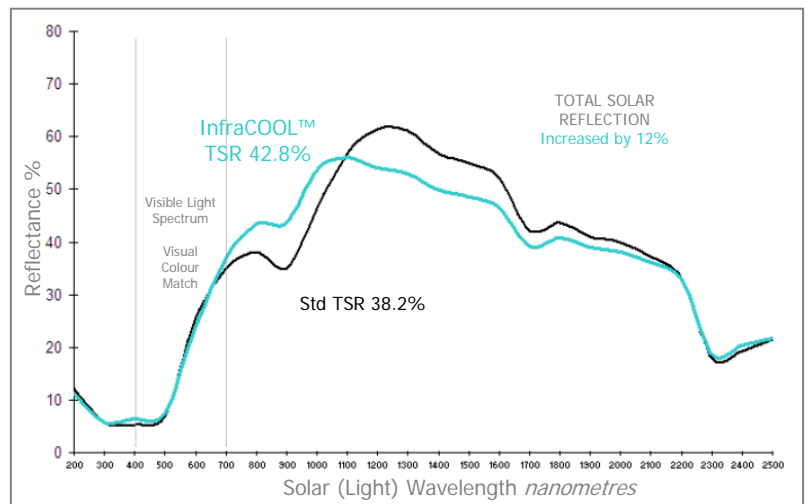
| ASTM E1980 defines a mathematical equation for Calculating Solar Reflective Index and Estimating resultant Surface Temperature | | Test Method defines reporting to 3 wind speeds : Low, Medium & High Medium wind conditions are most typically observed in Australia | | | | | |
|--|--|--|--------|-----------------------|-------|---------------------|-------|
| | | Low | Medium | High | Low | Medium | High |
| Calculated Solar Reflectance Index | <i>relevant to wind conditions</i> | 39.36 | 40.80 | 42.07 | 48.48 | 48.89 | 49.26 |
| Estimated Surface Temperature | <i>Maximum relevant to wind conditions</i> | 82 | 67 | 53 | 77 | 64 | 51 |
| InfraCOOL™ effect | <i>Maximum Potential surface temp. COOLING relevant to wind conditions</i> | Low Wind potential | | Medium Wind potential | | High Wind potential | |
| <i>Calculations based on constant conditions and 3 wind categories in accordance with ASTM E1980 Air temp (37°C), Solar flux (1000 W/m2), Wind Speeds Low, Medium, High corresponding to (5, 12, 30 W·m⁻²·K⁻¹) respectively.</i> | | 5 °C | | 3 °C | | 1 °C | |

ASTM E903: SOLAR ABSORPTANCE :

Total Solar Reflectance (TSR) and Spectral Reflectance of 2 visually equal panels is measured 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 38.2% to 42.8% (12% increase) with InfraCool® Technology.



COLOUR CLASSIFICATIONS :

| Solar Absorptance (SA) | |
|------------------------|-----------------|
| Std (SA) | InfraCOOL® (SA) |
| 0.618 | 0.572 |

| Building Code of Australia (BCA) Classification | | |
|--|------------|-------------------|
| Criteria (SA) | STD rating | InfraCOOL® rating |
| Very Light : <0.4 Light : 0.4-0.60 Dark : >0.6 | DARK | 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 | MEDIUM |

InfraCOOL®...Colours that shield from the sun