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Abodo Vulcan Timber

Solar Reflectance Index (SRI) and Light Reflectance Value (LRV) Guide

This document applies to Abodo Vulcan timber coated with Protector – Water Borne oil stain or Sioo:x natural wood coating. Due to variations in the natural timber substrate, coating application rates and weathering the values presented are indicative only.

Solar Reflectance Index (SRI)

Solar Reflectance is the fraction of incident solar radiation upon a surface that is reflected from the surface. The SRI was measured and calculated by Resene Paints Ltd, report number 2061 (available on request).

The test method used was ASTM C1549: Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer and ASTM C1371: Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers. The slide method was used for this set of Emissiometer tests.

Measurement was made in standard ambient temperature and humidity lab conditions. Samples were measured in an as received condition.

The solar reflectance index was calculated in compliance with ASTM E 1980: Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

Standard solar and ambient conditions used for the calculation:

- Solar flux = 1000 $W \cdot m^{-2}$
- Ambient air temperature = 310 Kelvin
- Ambient Sky temperature = 300 Kelvin
- Convective coefficients = 5,12, 30 $W \cdot m^{-2} \cdot K^{-1}$ corresponding to low (0-2ms-1), medium (2-6 ms-1) and high (6- 10 ms-1) wind conditions respectively

Light Reflectance Value (LRV)

LRV is a scale that determines the quantity of visible and usable light reflected by all directions and all wavelengths when a surface is illuminated.

Measurement of LRV for a coloured semi-transparent stain or oil coating is very difficult to achieve, given the transparency of the material compared to that of a solid colour and influence of the substrate colour. However, to overcome this we have looked to match Abodo Vulcan stain colours to a solid paint colour and then used the LRV of the solid colour as an approximation of the LRV for both new and weathered timber. The stated LRV's are therefore indicative only.

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Vulcan in Sioo:x Finish
Non-weathered

Thermal Emittance (e)	TSR	Solar Absorbance
0.90	0.35	0.65

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	37	39	40

Vulcan in Sioo:x Finish
Weathered 8 months

Thermal Emittance (e)	TSR	Solar Absorbance
0.83	0.33	0.67

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	32	34	36

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Santé Fe	29	8 months	Greywacke	58

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Vulcan in Ebony
Protector Oil Finish

Thermal Emittance (e)	TSR	Solar Absorbance
0.91	0.09	0.91

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	6	6	6

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Caffeine	7	12 months	Chocolate Lounge	10

Vulcan in Teak
Protector Oil Finish

Thermal Emittance (e)	TSR	Solar Absorbance
0.90	0.25	0.75

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	24	26	27

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Mochaccino	9	12 months	Cumin	14

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Vulcan in Graphite

Thermal Emittance (e)	TSR	Solar Absorbance
0.90	0.21	.79

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	19	20	21

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Zulu	16	12 months	Matakana	20

Vulcan in Patina

Thermal Emittance (e)	TSR	Solar Absorbance
0.91	0.36	0.64

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	38	40	41

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	High Tea	37	12 months	Ghost	59

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Vulcan in Walnut

Thermal Emittance (e)	TSR	Solar Absorbance
0.91	0.23	0.77

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	22	24	24

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Espresso	8	12 months	Redwood	10

Vulcan in Straw

Thermal Emittance (e)	TSR	Solar Absorbance
0.91	0.41	0.59

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	44	46	47

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Cashmere	54	12 months	Flotsam	64

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Vulcan in Nero

Thermal Emittance (e)	TSR	Solar Absorbance
0.90	0.06	0.94

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	1	1	1

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Diesel	6	12 months	Diesel	20

Vulcan in Manuka

Thermal Emittance (e)	TSR	Solar Absorbance
0.91	0.29	0.71

Wind Condition	Low	Medium	High
Connective Coefficients	5	12	30
SRI	29	30	31

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Burgundy	6	12 months	Prairie Sand	16

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Vulcan in Pearl

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Just Right	63	12 months	Pearl Bush	10

Vulcan in Clear

Condition	Resene Colour Reference	LRV (Indicative)	Weathered	Resene Colour Reference	LRV (Indicative)
Finish Day 1	Desperado	13	12 months	Wafer	58

Colours presented are in Protector – Water Borne and are indicative only. Colour may change/fade as a part of the natural weathering process.

Please check with your local Abodo distributor as the full range of finish colours may not be available in all markets.

Disclaimer: This document is offered as a guide only based on the best available information at the time of publication. Abodo does not accept liability for any loss or damage suffered as a result of any errors in the interpretation or application of this document. It is recommended to seek independent advice prior to specification.

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