DoP - Declaration of Performance

1. **Name of products:**
   C-COAT TIC – THERMAL INSULATING COATINGS

2. **Product identification data:**
   Indicated on the product label: C-Coat 200ST

3. **Declaration of performance as determined by the manufacturer:**
   C-Coat is a water based and solvent-free coating applied in thin layers. C-Coat contains micro- and nanodimensional vacuum glass/ceramic/polymer spheres that form a stable protective coating. The surface, treated with C-Coat becomes a radiant barrier and significantly reduces the heat load, mainly because of specific reflection and emission capabilities when applied on metal, concrete, brick and other surfaces on residential, office and industrial buildings. When used on substrate exteriors, this coating resists weathering, reduces condensation, and lasts for years without reapplication.

4. **Name and address of C-COAT manufacturing plant in Poland:**
   C-COAT Insulation Poland Pty Ltd Sp. z o.o. - Str. Częstochowska 38/52; 93-121 Łódź**,** Poland EU

5. **Authorized representative in Serbia:**
   NANOTERM Arsenija Čarnojevića 21, Rumenka 21201, Serbia

6. **The system serving for the evaluation and control of performance stability of construction materials:**
   System 3

7. **Name of registered organization, and if needed its identification number, in case the manufacturer's declaration refers to constructional products controlled by harmonized standards:**
   - 7.1 KARPENKO INSTITUTE OF PHYSICS AND MECHANICAL ENGINEERING – EU Testing Program 2021
   - 7.2 CETEC Foray Ltd Company No.: 10251530, AU ASTM D3960 – VOC Content test 2021
   - 7.3 HACCP Certification SSZ 19.05.2023
   - 7.4 AWTA Product Testing Lab. North Melbourne, VIC 3031 Australia
   - 7.5 WIMPEY LABORATORIES L.L.C., PO Box 123279, Dubai, UAE; ASTM C518-15, EN ISO-6949:2007
   - 7.6 EU - CE Certificate of Compliance issued by UKCert No: UQ-2024082214
   - 7.7 ISO9001:2015 Certificate No: AMERI7610 Production and sales of Thermal Insulating Coatings
   - 7.8 ISO2900:2020 Certificate No: AQSR16555 QC Systems in Petroleum, Petrochemical and Gas Industries

8. **Evaluation of performance requirements:**
   Equivalent thermal conductivity calculation in C-COAT modelling is based on a similar formula for conductive thermal conductivity, as thickness over conductive thermal resistance, where instead of taking only conductive thermal resistance, all four thermal resistance's are added and considered: conductive, convective, radiative and reflective thermal resistance's when deriving the "R Value Equivalent" factor* for outside applications where C-COAT is directly exposed to heat flux.
   Tests, tables and textbooks used in C-COAT modelling are as follows:
   - 8.1. CONDUCTIVITY TEST: ASTM C518-15, EN ISO-6949:2007: "Determination of thermal transmission properties of C-COAT" (WIMPEY LABORATORIES L.L.C Material Lab Testing Services LLC, UAE);
   - 8.2 CONVECTION TABLE form ASHRAE 2009, Chapter 26, Table 1, ε=0.13, Horizontal Downward, Wind (for summer) 3.4m/s

8.3 RADIATIVE THERMAL RESISTANCE TEXTBOOK: John H. Lienhard IV and John Lienhard V, A heat transfer handbook, Ed.5, Phlogiston Press, Cambridge, 2019

8.4 REFLECTIVE THERMAL RESISTANCE TABLE from ASHRAE 2009, Chapter 26, Table 3, ε=0.13, Horizontal Downward, 90mm Air Space

$$R_{cond}(for\ Insulators) \equiv R_{total}(for\ TIC)$$

NOTE: C-COAT Total Thermal Resistance inclusion is supported by Universities and Independent Experts

NOTE: C-COAT modelling provides the conservative numerical result as in real life tests we have slightly better performance result – See TRACKIE Industries AU Test report 2018 and DARG NANOTECH Italy comparative study.

1. Performance according to the statement:

Basic Properties of C-COAT	**Harmonised Technical Prescription**
Formula base	Water-based styrene acrylic dispersion
Density (at 20°C)	290 kg/m^3 (ASTM D 1622-98)
VOC (volatile organic compounds)	3.0 [g/Lit] (Test Method DMS 033:2016)
	13.0 [g/Lit] Green Building Council AU
Weight	0.56 [kg/Lit] (+/-3%)
Elongation	Above 50% (ASTM412)
Hardness Shore "A"	55 – A/15:64 (ISO868:2003)
Elasticity of the coated film (Band Test)	5.0 (DSTU ISO1519)
R Value Equivalent* - see P8	0.5 mm equivalent to R2.0 (100mm of glass-wool)
	1.0 mm equivalent to R3.0 (150mm of glass-wool)
Solar Reflective Index	104.85% (ASTM E 1980:11)
Specific Heat	1527 J/kg/K
Vapour permeability	<2% (PN-EN12086:2013-07)
Combustibility	Non-Flammable AU – AS1530.3 (Spread of flame – 0, Smoke – 4) EU – PN-EN13823, ISO11925 – (B-s1, d-0)
Drying time at +20 °C in humidity <80%	60 min to touch
Pull of strength (adhesion) - Brick	1.33 [N/mm] (DSTU ISO4624)
Pull of strength (adhesion) - Concrete	1.09 [N/mm] (DSTU ISO4624)
Pull of strength (adhesion) - Steel	0.81 [N/mm] (DSTU ISO4624)
Thermal Conductivity Equiv.* - Indoor	0.00055 [W/mK] under the slab – BLUE graph
Thermal Conductivity Equiv.* - Outdoor	0.00037 [W/mK] in direct Sun heat – RED graph
Productive service life	Physical properties >10 years
Recommended Thickness per Layer (vertical surface – horizontal surface)	0.5 – 1.0 mm DFT
	0.7 – 1.4 mm WFT

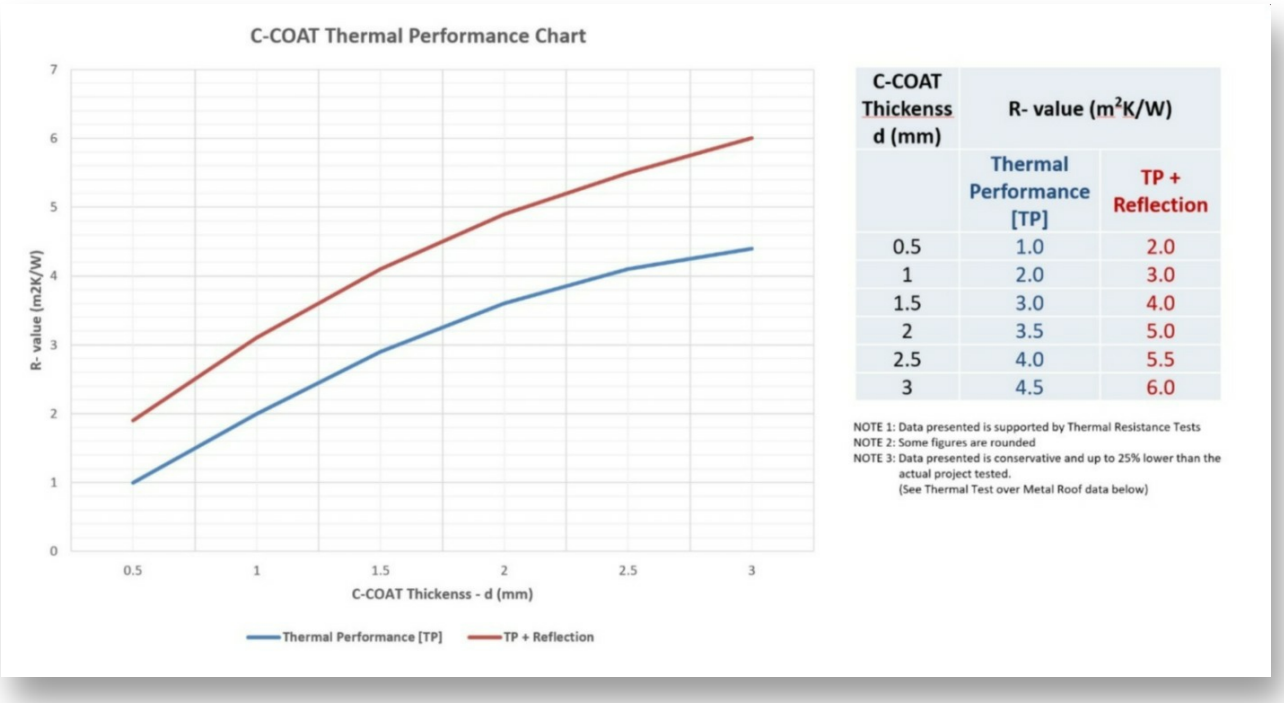
*NOTE: C-COAT thermal performance is application, heat flux source and it's direction, environmental conditions and temperature of the substrate dependent – see our website C-COAT ENERGY SAVINGS pages.

*NOTE: Surface temperature of coated substrate is not the main indicator of energy savings or "safe to touch" temperatures. Heat flux reduction from 50-85% is to be included in assessment of the application energy consumption before and after coating.

*NOTE: TRACKIE test 2018: 0.5mm C-Coat corresponds to R3.0 in application at outside conditions (https://c-coat.com.au/wp-content/uploads/2024/01/C-COAT-TRACKIE-Roof-Test-AU-2018.pdf)

C-COAT ITALY test 2023: 1.0mm C-Coat corresponds to R4.0 in metal roof application at outside conditions (https://c-coat.com.au/wp-content/uploads/2024/01/C-COAT-Italy-Report-Marina-di-Sorso-August-2023-ENG.pdf)

10. The performance of the product described in points 1 and 2 complies with the performance statement indicates in point 9. The manufacturer indicated in point 4 is exclusively responsible for the release of this performance statement in accordance to European Certification - CE, ISO9001 and ISO29001.



C-COAT Thickenss d (mm)	R- value (m^2K/W)	
	Thermal Performance [TP]	TP + Reflection
0.5	1.0	2.0
1	2.0	3.0
1.5	3.0	4.0
2	3.5	5.0
2.5	4.0	5.5
3	4.5	6.0

NOTE 1: Data presented is supported by Thermal Resistance Tests
NOTE 2: Some figures are rounded
NOTE 3: Data presented is conservative and up to 25% lower than the actual project tested.
(See Thermal Test over Metal Roof data below)

Signed:

Date: 3rd April 2026.

C-COAT Insulation Australia Pty Ltd
Director: Serge Popovich

Certificate of Compliance

CE

We hereby declare that the technical files of all the items in each product group complies with the requirements of the Council Directive on General Product Safety Directive (GPSD)

Certificate No: - 3737

Manufacturer	:	**C-COAT INSULATION AUSTRALIA PTY LTD**
Address	:	**U4/128 STATION RD, SEVEN HILLS, NSW 2147 AUSTRALIA**
Products	:	**C-COAT TIC – THERMAL INSULATING COATINGS**
Testing Laboratory	:	**KARPENKO INSTITUTE OF PHYSICS AND MECHANICAL ENGINEERING - Equivalent* Thermal Conductivity: 0.0003 W/mK**

C-COAT Equivalent* Thermal Conductivity is the calculated value from the sum of: Conductive, Convective, Radiative and Reflective thermal resistances.

Complies with the requirements applicable to it

The quality system file has been assessed, approved and is subject to continuous surveillance according to the Council Directive on General Product Safety Directive (GPSD) (2001/95/EC)

This certificate is issued under the following conditions:

1. It applies only to the quality system maintained in the manufacture of above referenced models and it does not substitute the design or type-examination procedures, if requested.
2. The certificate remains valid until the manufacturing conditions or the quality systems are changed.
3. The certificate validity is conditioned by positive results or surveillance audits.

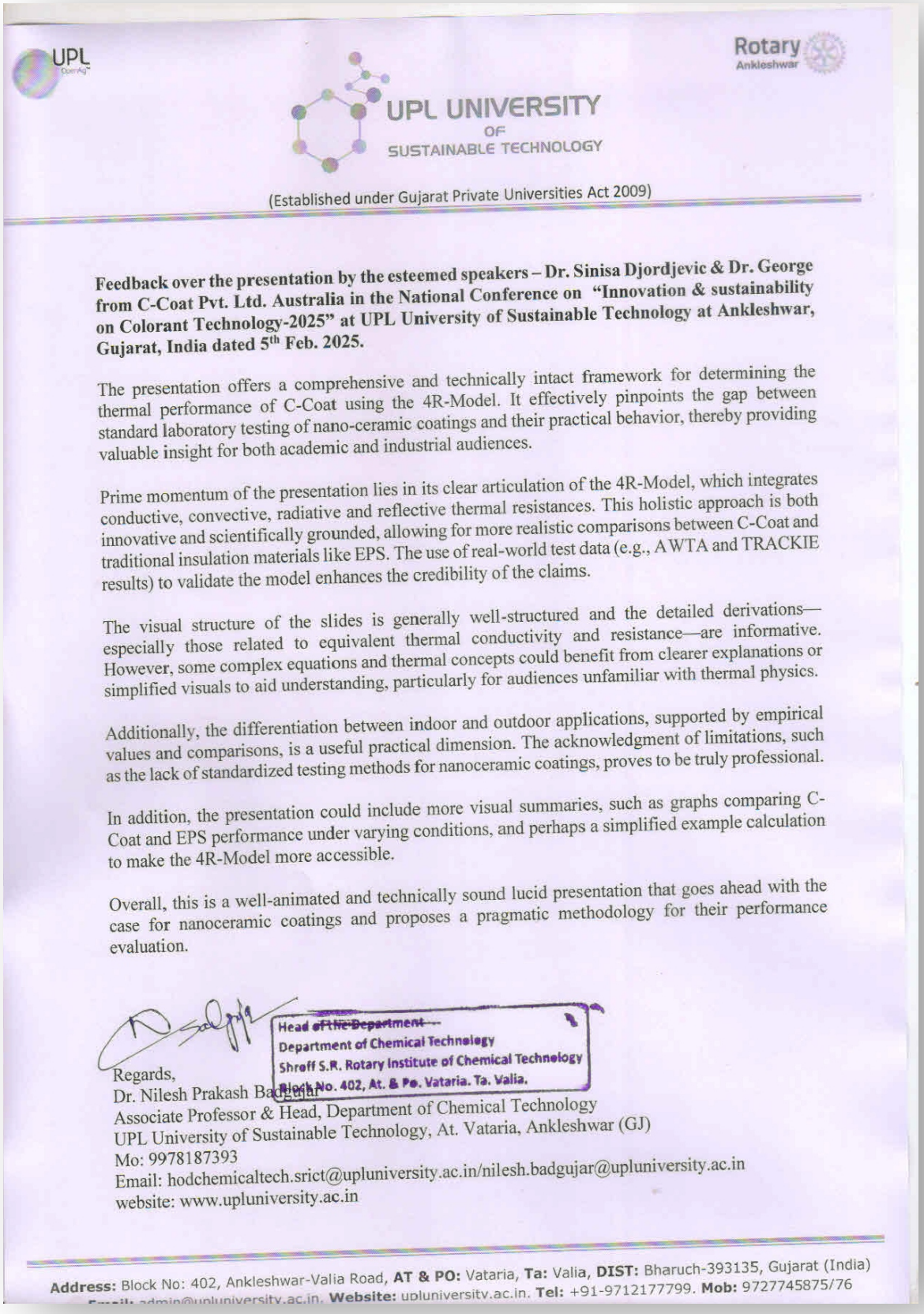
The CE mark as shown above can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of conformity and compliance with all relevant EC Directives. The statement is based on a single evaluation of test report of one sample of above mentioned product. It does not imply an assessment of the whole production.

Validity of this certificate can be verified at www.ukcertifications.org.uk/verify

Date of Certification	9th December 2022
1st Surveillance Audit Due	8th December 2023
2nd Surveillance Audit Due	8th December 2024
Certificate Expiry (subject to the company maintaining its system to the required standard)	8th December 2025

Authorised Signatory

UK Certification & Inspection Ltd.



UPL

Rotary Ankleshwar

UPL UNIVERSITY OF SUSTAINABLE TECHNOLOGY

(Established under Gujarat Private Universities Act 2009)

Feedback over the presentation by the esteemed speakers – Dr. Sinisa Djordjevic & Dr. George from C-Coat Pvt. Ltd. Australia in the National Conference on "Innovation & sustainability on Colorant Technology-2025" at UPL University of Sustainable Technology at Ankleshwar, Gujarat, India dated 5th Feb. 2025.

The presentation offers a comprehensive and technically intact framework for determining the thermal performance of C-Coat using the 4R-Model. It effectively pinpoints the gap between standard laboratory testing of nano-ceramic coatings and their practical behavior, thereby providing valuable insight for both academic and industrial audiences.

Prime momentum of the presentation lies in its clear articulation of the 4R-Model, which integrates conductive, convective, radiative and reflective thermal resistances. This holistic approach is both innovative and scientifically grounded, allowing for more realistic comparisons between C-Coat and traditional insulation materials like EPS. The use of real-world test data (e.g., AWTA and TRACKIE results) to validate the model enhances the credibility of the claims.

The visual structure of the slides is generally well-structured and the detailed derivations—especially those related to equivalent thermal conductivity and resistance—are informative. However, some complex equations and thermal concepts could benefit from clearer explanations or simplified visuals to aid understanding, particularly for audiences unfamiliar with thermal physics.

Additionally, the differentiation between indoor and outdoor applications, supported by empirical values and comparisons, is a useful practical dimension. The acknowledgment of limitations, such as the lack of standardized testing methods for nanoceramic coatings, proves to be truly professional.

In addition, the presentation could include more visual summaries, such as graphs comparing C-Coat and EPS performance under varying conditions, and perhaps a simplified example calculation to make the 4R-Model more accessible.

Overall, this is a well-animated and technically sound lucid presentation that goes ahead with the case for nanoceramic coatings and proposes a pragmatic methodology for their performance evaluation.

Head of the Department
Department of Chemical Technology
Shroff S.R. Rotary Institute of Chemical Technology
Block No. 402, At. & Po. Vataria. Ta. Valia.

Regards,
Dr. Nilesh Prakash Badgujar
Associate Professor & Head, Department of Chemical Technology
UPL University of Sustainable Technology, At. Vataria, Ankleshwar (GJ)
Mo: 9978187393
Email: hodchemicaltech.srict@upluniversity.ac.in/nilesh.badgujar@upluniversity.ac.in
website: www.upluniversity.ac.in

Address: Block No: 402, Ankleshwar-Valia Road, **AT & PO:** Vataria, **Ta:** Valia, **DIST:** Bharuch-393135, Gujarat (India)
Email: admin@upluniversity.ac.in, **Website:** upluniversity.ac.in, **Tel:** +91-9712177799, **Mob:** 9727745875/76

11 September 2023
Date of Issue

IGNIS ADVISORY NOTE

Evaluation No. IGNL-7248-99L Issue 01 Revision 00 [2023]

C-COAT Energy Calculations

Ignis Labs has been engaged to review the energy calculations completed by Dr Sinisa Djordjevic in his letter dated 30 June 2023.

The calculations consider the results provided by Wimpey Labs LLC tests as follows for the substrate:

Thermal resistance: $R_s = \Delta T/H = 20/13.850 = \mathbf{1.4440}$ m²K/W

Thermal conductivity: $\lambda_s = d_s/R_s = 0.050975/1.4441 = \mathbf{0.0353}$ W/mK

Testing was undertaken with the C-Coat and substrate by Wimpey Labs LLC with the following results.

Thermal resistance: $R = \Delta T/H = 20/13.800 = \mathbf{1.4493}$ m²K/W

Thermal conductivity: $\lambda = d/R = 0.05145/1.4493 = \mathbf{0.0355}$ W/mK

The resultant values of thermal resistance and conductivity for the C-Coat are as follows:

Thermal resistance (conduction): $R_{cond} = d_c/\lambda_c = \mathbf{0.0053}$ m²K/W

Thermal conductivity (conduction): $\lambda_{cond} = d_c/R_c = 0.000475/0.0053 = \mathbf{0.0896}$ W/mK

Dr Djordjevic has completed calculations for total thermal resistance based on ASTM C518-21 and ISO 6946:2017. The calculations are considered sound where consideration for solar reflectance index is included for a total effective result. The calculations provide the following results.

$R_{C\text{-}COAT} = R_{cond} + R_{conv} + R_{SRI} = 0.0053 + 0.21 + 1.053 = \mathbf{1.268}$ m²K/W

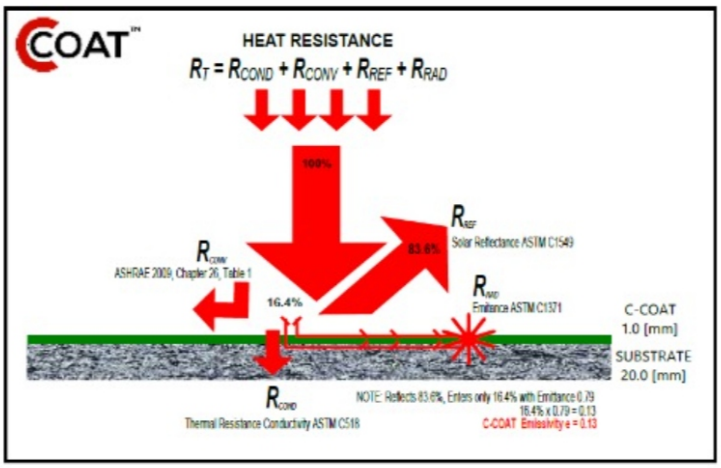
For the above thickness $d_c = \mathbf{0.000475}$ (m) the corrected total thermal conductivity of C-Coat is:

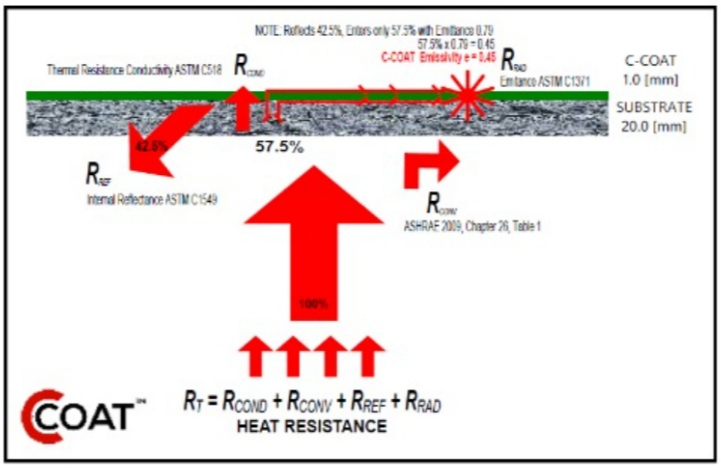
$\lambda_{C\text{-}COAT} = d_c/R_{C\text{-}COAT} = 0.000475 / 1.268 = \mathbf{0.00037}$ W/mK

Benjamin Hughes-Brown FIEAust CPEng NER APEC Engineer IntPE(Aus)
Chartered Professional Engineer
CPEng, NER (Fire Safety / Mech) 2590091, RPEQ 11498, BDC-1875, PRE0000303, DEP0000317, PE0001872
MFireSafety (UWS), BEng (UTS), GradDipBushFire (UWS), DipEngPrac (UTS), DipEng (CIT)

3 Cooper Place Queanbeyan NSW 2620
PO Box 5174 Braddon ACT 2612
t: (02) 6111 2909 | mail@ignislabs.com.au | www.ignislabs.com.au | ABN: 36 620 256 617

THERMAL INSULATING COATING





Heat Flux: $H_T = \Delta T/R_{Total}$ C-COAT™

$R^*_{Total\text{-}outdoor} = R_{COND}+R_{CONV}+R_{REF\text{-}outdoor}+R_{RAD\text{-}outdoor}$

$R^*_{Total\text{-}indoor} = R_{COND}+R_{CONV}+R_{REF\text{-}indoor}+R_{RAD\text{-}indoor}$

$\lambda_{eq} = d/R_{T\text{-}outdoor} = 0.00037$ [W/mK] for d = 1.0 mm

$\lambda_{eq} = d/R_{T\text{-}indoor} = 0.00055$ [W/mK] for d = 1.0 mm

"Equivalent" R3.0** - OUTDOOR - 1.0 [mm]
"Equivalent" R2.0 - INDOOR - 1.0 [mm]

*Thermal Insulating Coatings rely on total resistance and for practical reasons we use the term "equivalent" as not only conductivity is included.

**High reflectivity resistance in the outdoor application has higher R value

C-COAT INSULATION AUSTRALIA PTY LTD
ABN 40 633 636 610

Unit 4 | 128 Station Road | Seven Hills NSW 2147 | Australia
P +61 9674 3005 | F +61 2 9674 8005 | E info@c-coat.com.au