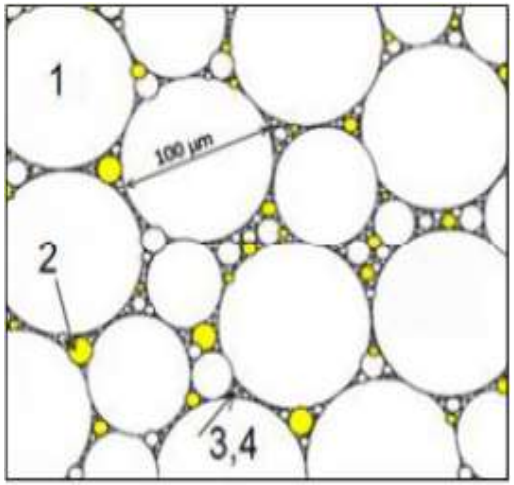

# COAT™

## Thermal Insulating Coating

# What is C-COAT?

C-COAT™
THERMAL INSULATING COATING SYSTEMS

- C-COAT is an acrylic water based coating that is designed for heat blocking on various surfaces.
- It consists of exceptionally fine vacuumed ceramic, glass and acrylic spheres and other fillers to block heat.
- The heat flux is reduced by reflection, convection and significantly slows heat transfer through the coating due to very low thermal conductivity factors.
- As little as 0.5mm thickness will have a dramatic effect on the transfer of heat to/from the substrate.
- 1.0mm thickness of C-COAT has an equivalent thermal insulation to >200mm thickness of glass wool insulation, without the issue of CUI.
- It is suitable to be applied to a various range of substrates.



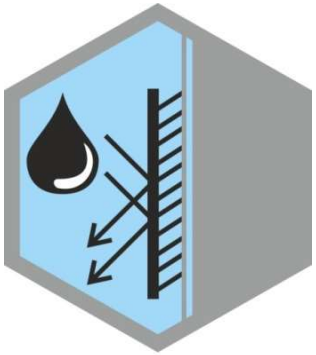

1. Gas filled ceramic, glass/silicate spheres
2. Gas filled acrylic spheres
3. Solid acrylic binder
4. Pigment

# C-COAT Features

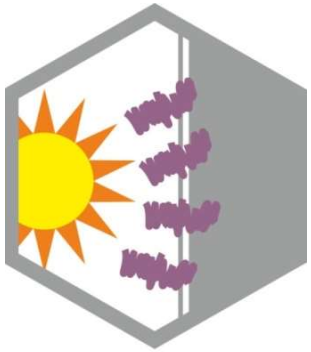
C-COAT™
THERMAL INSULATING COATING SYSTEMS

ENERGY EFFICIENCY

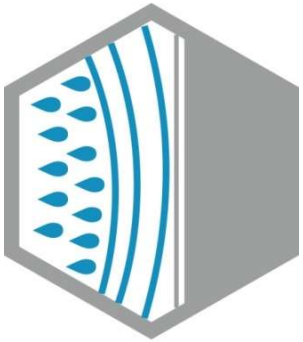
RESPECTS THE ENVIRONMENT



ANTI CORROSION



ULTRAVIOLET RESISTANT



HIGH LEVEL OF WATER PROOFING

WATER RESISTANT

HIGH ADHESION TO METALS

PREVENTS FUNGI AND MOULD

# C-COAT Integrated Solution

- Roof
- Walls
- Windows


THERMAL INSULATING COATING SYSTEMS

Energy loss through the:

A) Sidewalls of a home accounts for nearly 35% of the total energy loss

B) Windows 10%

C) Doors 15%

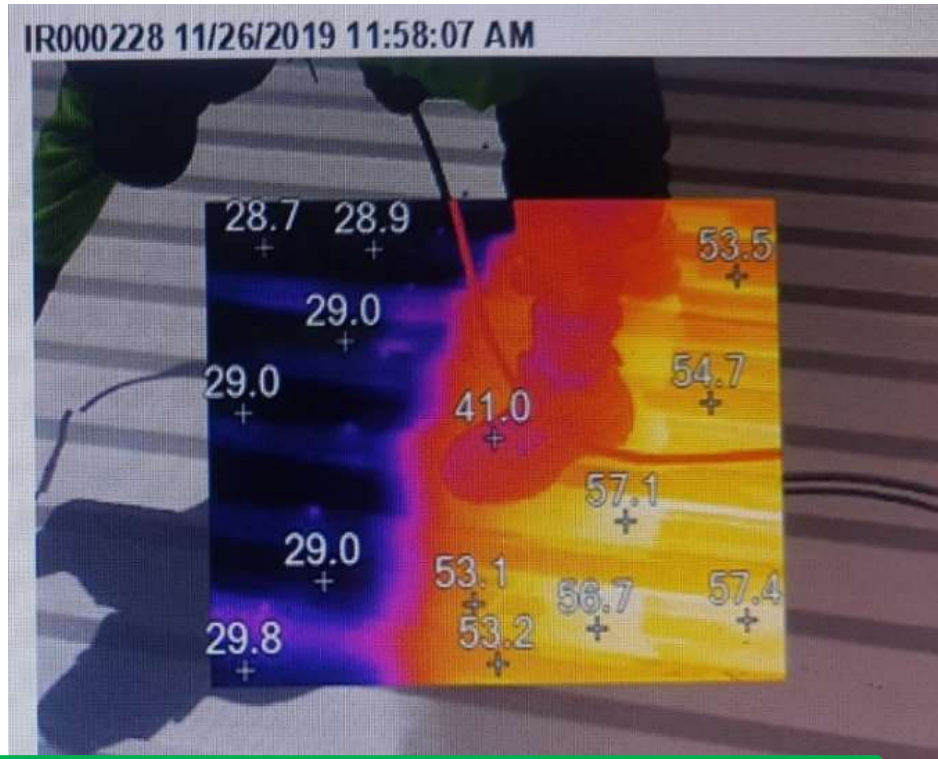
D) Foundation 15%

E) Roof 25%

# C-COAT Advantages

C-COAT™
THERMAL INSULATING
COATING SYSTEMS

1. Saves approximately up to  70% of Energy
2. High Thermal Resistance (equivalent R-value)
3. Seamless application
4. Durability
5. Ability of insulating  the irregular surfaces
6. Improved Air Sealing
7. Reduced risk of Thermal bridging



ENERGY EFFICIENCY



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THERMAL INSULATING COATING SYSTEMS

# C-COAT
# Roof Application

0.5-1.0mm of C-Coat reduces A/C load by 20-25%

RESULTING

up to 30%-40% saving on energy

# C-COAT Window Film
# IR Blocking

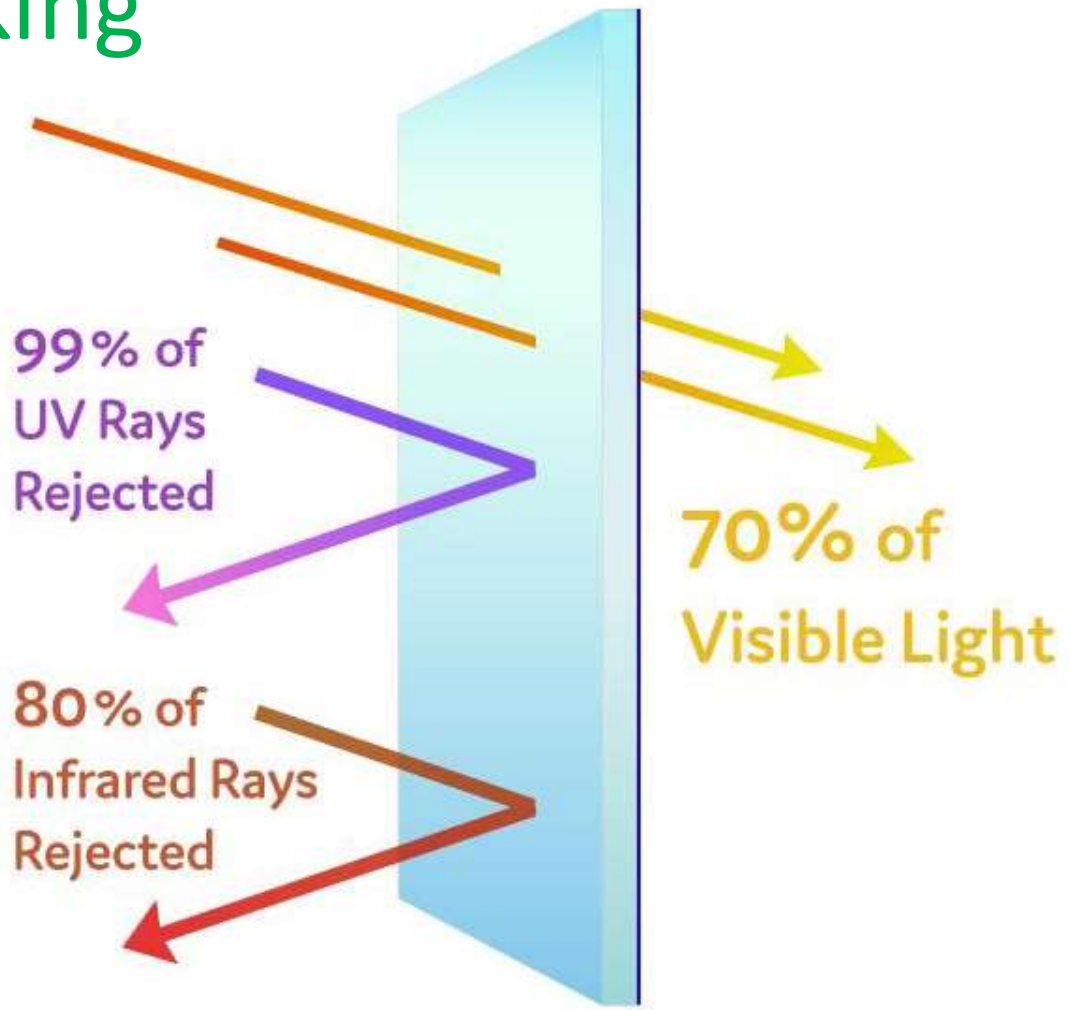
C-COAT™
THERMAL INSULATING
COATING SYSTEMS

C-COAT Integrated Solution

Roof

Wall

Windows



# C-COAT Benefits

- Applied through standard airless, brush or roller
- Can be applied at surface temperatures of 10-90°C without any changes to the product.
- C-COAT Operating range of -40°C to 100°C (200 - 600°C for Industrial applications)
  - **100F - Insulating to 100°C continuous with peaks of 120°C**

  - 250ST - Standard to 200°C continuous with peaks of 250°C for no more than 2hrs.
  - 300HT - HiTemp to 300°C continuous with peaks of 350°C for no more than 2hrs.
  - 600HTP - HiTemp Pro 600 withstand up to 600°C continuous exposure with peaks of 630°C

- Can be tinted - recommended to use a Top Coat if a particular colour is required

- Works to cool the surface and insulating immediately

# Environment, Health and Safety

- Biggest Enviro benefit is the reduction in power usage for heating and cooling.
- Helps prevent heat stroke, dehydration and exhaustion of workers.
- The product has minimal odour and is non-hazardous and is non dangerous goods.
- Clean-up is simple as all you need is water for all C-COAT products
- If overspray occurs it is easily removed without damaging the substrate

Green Building Council of Australia

CETEC
Professional Scientific Solutions

OHS & Environmental Care
Sustainability
Advanced Laboratory/Analytical Services
Technology & Innovation

# VOC Content Test Certificate

Wednesday 29th September 2021

Supplier: Acrylic Technologies Australia Pty Ltd (Unit 4, 128 Station Road, Seven Hills, NSW 2147 AUSTRALIA).

Sample Description: C-Coat Standard T250

Date Tested: September 2021 (Tested by FORAY Laboratories – NATA Accreditation 1231)

Test Method: ASTM D3960-05 Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings. ASTM D3960 as detailed for paints as well as South Coast Air Quality Management District (SCAQMD) Rule 1168.

Test Data:

| **Specification**<br>**Green Building Council of Australia**<br>**Green Star Design & As Built V1.3-13.1.1B**<br>**Green Star Interiors V1.3-12.1.1B** | **C-Coat Standard T250** |
|---|---|
| **Interior Wall and Ceiling Paint limit: ≤16 grams per liter** | **13 grams per Litre as VOC content per material** |
| ***We hereby certify that C-Coat Standard T250 product is below the VOC Content limits of chosen categories specified by Green Building Council of Australia, Green Star Design & As Built, and Green Star Interiors*** | |

Dr. Vyt Garnys
PhD, BSc(Hons) AIMM, ARACI, ISIAQ
ACA, AIRAH, FMA
Managing Director and Principal Consultant

Dr. Tuan Duong
PhD, BE (Chem. Eng.)
Senior Consultant

Dr Srikanth C. Srivatsa
PhD (Chemistry)
Consultant

V2109065



C-COAT™
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# Dubai Central Laboratory
# VOC Test

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| | | | | |
|---|---|---|---|---|
| GOVERNMENT OF DUBAI | Organization/Unit: | إدارة مختبر دبـي المركزي<br>Dubai Central Laboratory Department | الوحدة التنظيمية: | بلـديـة دبـي<br>DUBAI MUNICIPALITY |
| | Document Title: | TEST REPORT<br>VOC CONT.OF ADHESIVES/SEALANTS/VARIOUS MATERIALS | عنوان الوثيقة: | |
| | Doc. Ref. : | DM-DCLD-F-CM-0100 | رقم الوثيقة: | |

**CONSTRUCTION MATERIAL LABORATORY SECTION**

**CHEMICAL ANALYSIS OF CONSTRUCTION MATERIAL UNIT**

| | | | |
|---|---|---|---|
| **Report No:** | 455221 | **Request No:** EMTX-2022-1026360 | |
| **Project No:** | BP-2022-409 | **Report Date:** 24/06/2022 08:55AM | |
| **Project Name:** | TESTING SERVICE FOR URBAN GREEN INSULATION AND FIRE PROTECTION LLC | | |
| **Consultant:** | URBAN GREEN INSULATION AND FIRE PROTECTION L.L.C | | |
| **Contractor:** | URBAN GREEN INSULATION AND FIRE PROTECTION L.L.C | | |
| **Location: *** | AL JADAF DUBAI | | |
| **Source: *** | NOT GIVEN | | |
| **Sample Description: *** | COATING | | |
| **Product Name: *** | C-COAT LIQUID THERMAL INSULATION | | |
| **Sampling Date/Time: *** | 15/06/2022 12:00PM | **Lot/Batch/Coil/Heat No.*** | NG |
| **Receiving Date/Time:** | 17/06/2022 08:07AM | **Lot Size: *** | 1 litre |
| **Sample Size /Quantity:** | 1 litre | **Sender No:** | C-Coat Standard T250 |
| **Material/Mix Type: *** | NA | **Laying Date/Production Date: *** | NA |
| **Nominal Size / Working Block Size (mm) : NA** | | | |

## TEST RESULTS

| PARAMETER | RESULTS |
|---|---|
| VOC Content in g/L | 3 |
| SPECIFICATION LIMIT * | NG |

| | | | |
|---|---|---|---|
| **Sampled By:** | SAIFUDDIN | **Tested By:** | REDASH |
| **Sampled Brought By:** | SAIFUDDIN | **Testing Date:** | 17/06/2022 08:07AM |
| **Sampling Method:** | NOT GIVEN | **Sampling Report No:** | NA |
| **Test Method:** | DMS 0033 : 2016 | **Test Method Variation:** | NIL |
| **Remarks:** | CUSTOMER PERFORMED SAMPLING AND PROVIDED THE SAMPLE; THE RESULTS APPLY ONLY TO THE SAMPLE AS RECEIVED AND TESTED.EXEMPT COMPOUNDS NOT CALCULATED. THIS TEST METHOD IS CHOSEN BY CUSTOMER. THIS ONLY TEST REPORT REPRESENT THE SAMPLE AND NOT FOR PRODUCT CERTI | | |

**Disclaimer : *** Information is supplied by the customer and Laboratory is not responsible for this data.

To verify this document please go to : **https://www.dm.gov.ae/#check-tab5**
Enter Document ID: **EMTX-2022-1026360** and Verification Code: **713313**
or Scan the QR code below.

# Ignis Fire Testing Laboratory

ignis labs

## CERTIFICATE

Material Fire Test Certificate

IGNL-6215-03-02C R01 R00

DATE OF TEST 25.08.2022
ISSUE DATE 05.09.2022
EXPIRY DATE 04.09.2027

AS 1530.3-1999
Simultaneous determination of ignitability, flame propagation, heat release and smoke release

**SPONSOR**
**C-Coat**
4/128 Station Road
Seven Hills, NSW 2147

**TEST BODY**
**Ignis Labs Pty Ltd**
ABN 36 620 256 617
3 Cooper Place
Queanbeyan NSW 2620
Australia
www.ignislabs.com.au
(02) 6111 2909
*Test body is the test location*

IGNIS LABS PTY LTD ignis labs MATERIAL FIRE TESTING Certificate

**Specimen Identification**
C-Coat T250NF

**Specimen Description**
The sponsor described the specimen as white spray-on/paint-on thermal insulating coating. It is composed of an acrylic binder infused with various sized hollow ceramic micro beads. It has a nominal thickness of 3 mm and is white in colour. Its end use is as thermal insulation coating.
The specimens were received as a white painted material applied to a 5 mm fibre cement substrate for testing. They had a total measured thickness of 7.4 mm. The coating had a measured thickness of approximately 1.5 mm at the edge of the specimen.
Ignis Labs was not responsible for the sampling stage. All specimens were sampled and fabricated by the test sponsor. The test results apply to the specimens as received.

**Test Method**
Six (6) samples were tested in accordance with Australian Standard 1530, Method for fire tests on building components and structures, Part 3: Simultaneous determination of ignitability, flame propagation, heat release and smoke release, 1999. The face with white coating was tested. For the test, each sample was clamped to the specimen holder in four places. A woven metal radiant panel was used in lieu of ceramic tiles.

**Observations**
All specimens exhibited equivalent behaviour, and all ignited during the test. Smoke and blistering from the face of the specimens was observed between one and two minutes into the test with ignition starting between three and four minutes into the test.
After testing, the centres of the specimens were blackened and charred.

**Results**

| Parameter | Sym | Unit | Results | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specimen number | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Ignition time | $T_i$ | min | 3.65 | 2.27 | 2.92 | 5.28 | 3.33 | 3.82 | NA | NA | NA |
| Flame propagation time | $T_f$ | s | - | - | - | - | - | - | - | - | - |
| Heat release integral | | kJ/m² | 73.06 | 32.45 | 71.34 | 86.07 | 100.78 | 94.25 | - | - | - |
| Optical density (ignition) | D | /m | 0.05 | 0.02 | 0.02 | 0.06 | 0.07 | 0.10 | - | - | - |
| Optical density (non ignition) | $D_{NI}$ | /m | - | - | - | - | - | - | - | - | - |
| Smoke release (ignition) | $Log_{10}(D)$ | | -1.51 | -1.66 | -1.66 | -1.21 | -1.17 | -1.01 | - | - | - |
| Smoke release (non ignition) | $Log_{10}(D)_N$ | | - | - | - | - | - | - | - | - | - |

**Calculation**

| Parameter | Mean | Standard error | Uncertainty |
|---|---|---|---|
| Ignition time | 3.21 | 0.23 | 0.1039 |
| Flame propagation time | - | - | |
| Heat release integral | 76.33 | 5.96 | 0.0249 |
| Optical density (ignition) | 0.05 | 0.01 | 0.0249 |
| Optical density (non ignition) | - | - | |
| Smoke release | -1.37 | 0.11 | 0.2259 |

**Result**

| Indices | Range | Result | Upper Limit | Lower Limit |
|---|---|---|---|---|
| **Ignitability** | 0-20 | 17 | 17 | 17 |
| **Spread of Flame** | 0-10 | 0 | 0 | 0 |
| **Heat Evolved** | 0-10 | 3 | 3 | 3 |
| **Smoke Developed** | 0-10 | 3 | 4 | 2 |

The results only apply to the specimens mounted as described in this report.

Test Supervisor
Darren Laker

Technical Lead
Jessica Ying

Version: IGNL-QF-042-Issue 02 Revision 08
Disclaimer These test results relate only to the behaviour of the test specimens of the material under the particular conditions of the test, and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use. The information contained in this document is provided for the sole use of the recipient and no reliance should be placed on the information by any other person. In the event that the information is disclosed or furnished to any other person, Ignis Labs Pty Ltd accepts no liability for any loss or damage incurred by that person whatsoever as a result of using the information. The results only apply to the specimen mounted as described in this report. The results of this fire test may be used to identify assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions.




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# Dubai Central Laboratory
# Formaldehyde Test

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| | | | | |
|---|---|---|---|---|
| GOVERNMENT OF DUBAI | Organization/Unit: | إدارة مختبر دبـي المركزي<br>Dubai Central Laboratory Department | الوحدة التنظيمية: | بلـديـة دبـي<br>DUBAI MUNICIPALITY |
| | Document Title: | TEST REPORT<br>FORMALDEHYDE CONTENT OF EMULSION PAINTS BY HPLC | عنوان الوثيقة: | |
| | Doc. Ref. : | DM-DCLD-F-CM-0100 | رقم الوثيقة: | |

**CONSTRUCTION MATERIAL LABORATORY SECTION**

**CHEMICAL ANALYSIS OF CONSTRUCTION MATERIAL UNIT**

| | | | |
|---|---|---|---|
| **Report No:** | 455895 | **Request No:** | EMTX-2022-1026360 |
| **Project No:** | BP-2022-409 | **Report Date:** | 27/06/2022 11:04AM |
| **Project Name:** | TESTING SERVICE FOR URBAN GREEN INSULATION AND FIRE PROTECTION LLC | | |
| **Consultant:** | URBAN GREEN INSULATION AND FIRE PROTECTION L.L.C | | |
| **Contractor:** | URBAN GREEN INSULATION AND FIRE PROTECTION L.L.C | | |
| **Location:** * | AL JADAF DUBAI | | |
| **Source:** * | NOT GIVEN | | |
| **Sample Description:** * | COATING | | |
| **Product Name:** * | C-COAT LIQUID THERMAL INSULATION | | |

| | | | |
|---|---|---|---|
| **Sampling Date/Time:** * | 15/06/2022 12:00PM | **Lot/Batch/Coil/Heat No.*** | NG |
| **Receiving Date/Time:** | 17/06/2022 08:07AM | **Lot Size:** * | 1 litre |
| **Sample Size /Quantity:** | 1 litre | **Sender No:** | C-Coat Standard T250 |
| **Material/Mix Type:** * | NA | **Laying Date/Production Date:** * | NA |

**Nominal Size / Working Block Size (mm) : NA**

## TEST RESULTS

| PARAMETER | RESULTS |
|---|---|
| Average Formaldehyde Concentration ( ppm) | <1 |
| SPECIFICATION LIMIT * | NG |

| | | | |
|---|---|---|---|
| **Sampled By:** | SAIFUDDIN | **Tested By:** | AKALLUVETTY |
| **Sampled Brought By:** | SAIFUDDIN | **Testing Date:** | 17/06/2022 08:07AM |
| **Sampling Method:** | NOT GIVEN | **Sampling Report No:** | NA |
| **Test Method:** | ASTM D5910-05(2019) | **Test Method Variation:** | NIL |
| **Remarks:** | SAMPLING PERFORMED BY CUSTOMER, THIS ONLY TEST REPORT REPRESENT THE SAMPLE AND NOT FOR PRODUCT CERTIFICATION.TEST METHOD IS CHOSEN BY CUSTOMER | | |

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Enter Document ID: **EMTX-2022-1026360** and Verification Code: **713314**
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**** END OF REPORT ****

*This report is computer approved and authorized by Head of Unit and does not require any signature.*

ilac-MRA eiac
LB-TEST-014

PO Box 67, Dubai, UAE - Tel: (+971 4) 3027216 - Email: labs@dm.gov.ae - Website: http://www.dm.gov.ae

# EUROPE Compliance Certifiate

UKcert
Certification & Inspection

## 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**<br>**C-COAT TIP – THERMAL INSULATING PAINTS**<br>**C-COAT ITC – INTUMESCENT COATINGS** |
| **Testing Laboratory** | : | **KARPENKO INSTITUTE OF PHYSICS AND MECHANICAL ENGINEERING** |

**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

This certificate is the property of UK Certification & Inspection Limited and shall be returned immediately on request.
71-75 Shelton Street, Covent Garden, London, WC2H 9JQ, United Kingdom
Website:- www.ukcertifications.org.uk, email:- info@ukcertifications.org.uk
Company No. 11847851

C-COAT™
THERMAL INSULATING COATING SYSTEMS

# Dubai Material Laboratory Thermal Test

ماتيريال لاب
Material Lab

**REPORT ON DETERMINATION OF THERMAL TRANSMISSION PROPERTIES OF C-COAT (BY CALCULATION METHOD)**

Page 01 of 01

| | | | |
|---|---|---|---|
| Client Name | : Urban Green Insulation and Fire Protection L.L.C | Lab Ref No. | : POLQ-2301/1233 |
| Address | : Dubai, U.A.E | Lab. Project No | : OG-1331 |
| Praject Name | : Quality Control Testing | Lab. Report No | : POLR-2301/2414 |
| Sample Description | : C-Coat Thermal Insulation Material | Calibration used | : 1450b |
| Test specimen size (L x W x T) | : 300 x 300 x 50 mm | Set Point Upper Plate | : 32.00°C |
| Coating Thickness | : 1 mm | Set Point Lower Plate | : 38.00°C |
| Sampled by | : Client | Mean Temperature | : 35.00°C |
| Sample brought in by | : Client | Thermal Condutivity of insulation without C-Coat | : 0.03406 W/mK |
| Source of Sample | : NP | Thermal Condutivity of insulation with C-Coat | : 0.03432 W/mK |
| Sampling Method | : Random | Thermal Condutivity of C-Coat | : 0.00026 W/mK |
| Sampling Date | : 04/01/2022 | Date Sample Received | : 04/01/2023 |
| Orientation of Specimen | : Horizontal | Date test Started | : 08/01/2023 |
| Ambient Temperature | : 23 ± 2°C | Date Test Completed | : 09/01/2023 |
| Relative Humidity | : 50 ± 5 % | Report Date | : 11/01/2023 |
| | | Test Location | : Mlab Al Quoz |
| | | Tested by | : IKN |

**Introduction:**
Urban Green Insulation and Fire Protection L.L.C appointed Material Lab for determination of U Value of C-Coat

**Test Method:**
The values of thermal conductivity were converted into thermal resistance by dividing thickness with thermal conductivity of the material.

**Calculation:**
The thermal transmittance (U) Value of the C-Coat .

$$U = \frac{1}{\Sigma R_t} \qquad \Sigma R_t = R_{se} + R_{si} + R_{ti}$$

**Test Data:**

| Item No. | Test Name | Unit | Test Result |
|---|---|---|---|
| 1 | Average Thermal Resistance of C-Coat | $R_{ti}$ $m^2K/W$ | 3.846 |
| 2 | External Surface Resistance | $R_{se}$ $m^2K/W$ | 0.040 |
| 3 | Internal Surface Resistance | $R_{si}$ $m^2K/W$ | 0.130 |
| 4 | Total Thermal Resistance of C-Coat | $\Sigma R_t$ $m^2K/W$ | 4.016 |

**Test Result:**

| | | | |
|---|---|---|---|
| 1 | **R Value of C-Coat** | **($m^2K/W$)** | **4.02** |
| 2 | **U Value of C-Coat** | **($W/m^2K$)** | **0.249** |

Test method : **ASTM C 518-15, EN ISO 6946: 2007**
Test method variation : None
Remarks : None

*Authorized Signatory*
Adil Kablo
Chemical Supervisor

Results relate only to the item tested.
This report shall not be reproduced except in full, without the written approval of the laboratory

R-TC-001
Issue: 01
Issued on: 26/02/16


المكاتب: Offices:
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C-COAT™
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**1.0mm of C-COAT**

# Pilbara Desert WA Thermal Test

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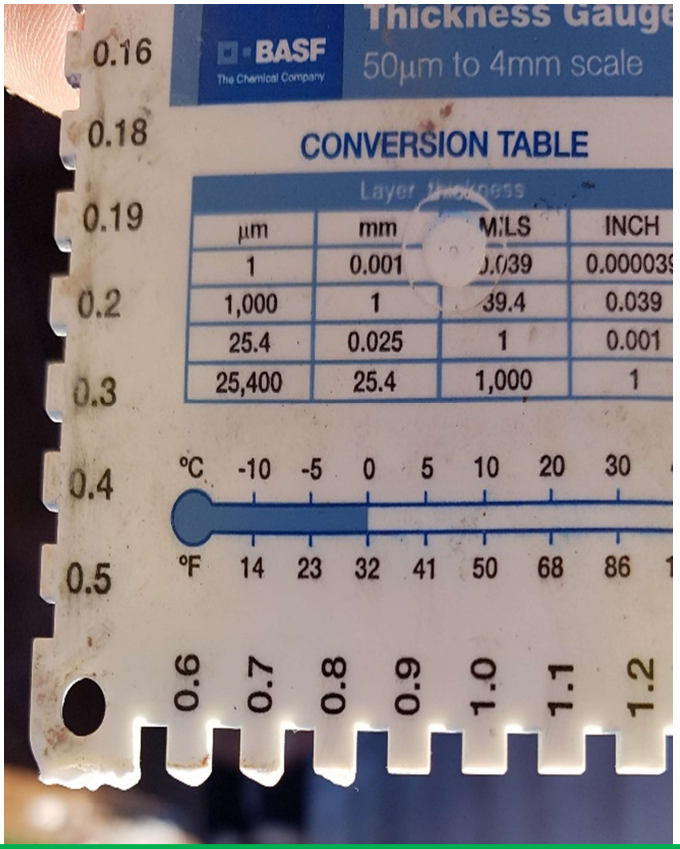
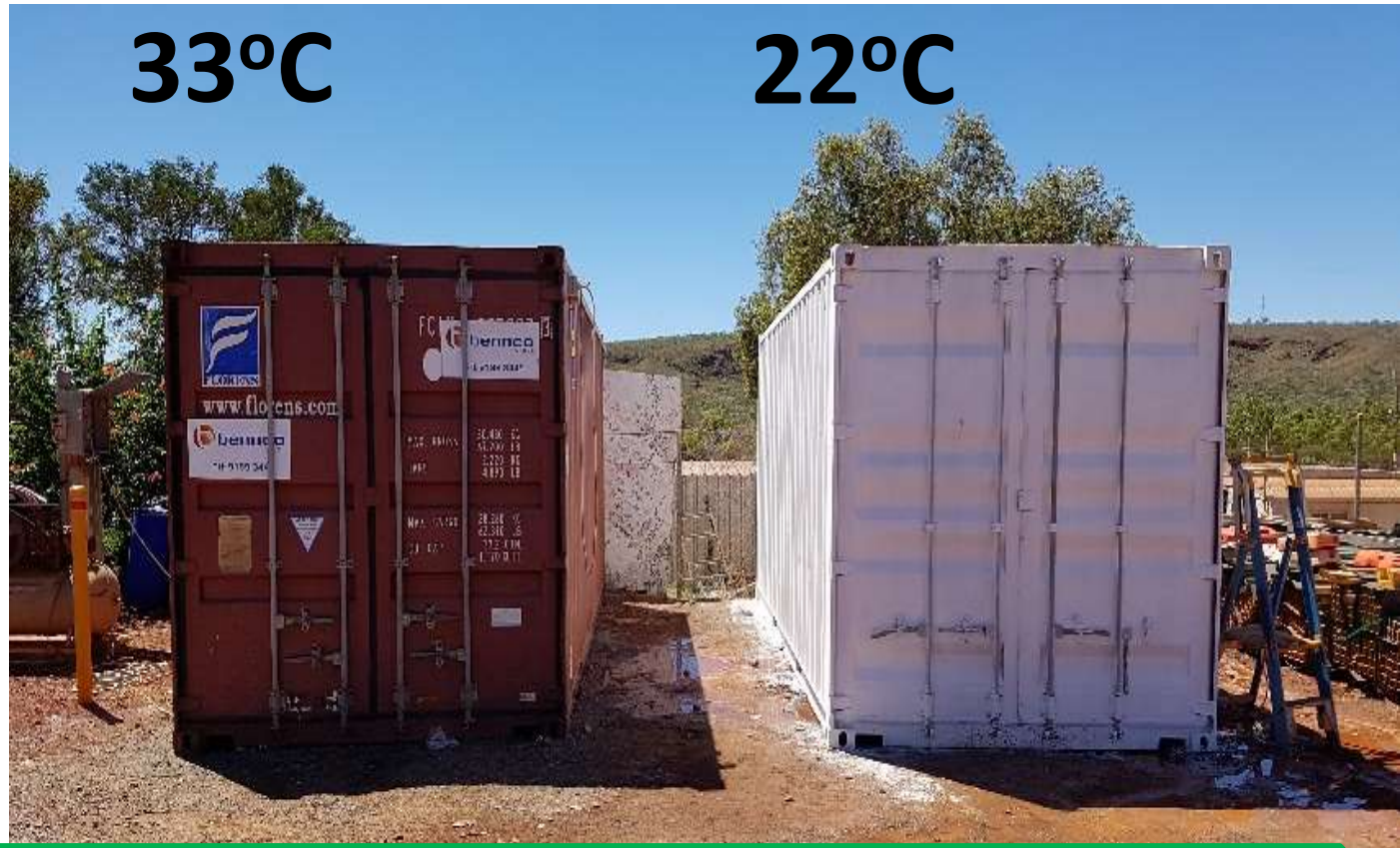
## Site Temp 43°C




Air-conditioner used:
**1.0kw**
Inside Temperature
**33ºC**

Air-conditioner used:
**0.6kw**
Inside Temperature
**22ºC**



# Containers Breakdown of Results

Uncoated Container Internal temp

| Before Test | After Test |
|---|---|
| **36.0** | **33.4** |


**After 1hr running:**

- Uncoated used

1 kWh to drop temp by 2.6°C

- Coated used

0.5 kWh to drop the temp 4.9°C

**80% more cooling!**

**40% less energy!**

Coated Container Internal temp

| Before Test | After Test |
|---|---|
| **29.2** | **24.3** |

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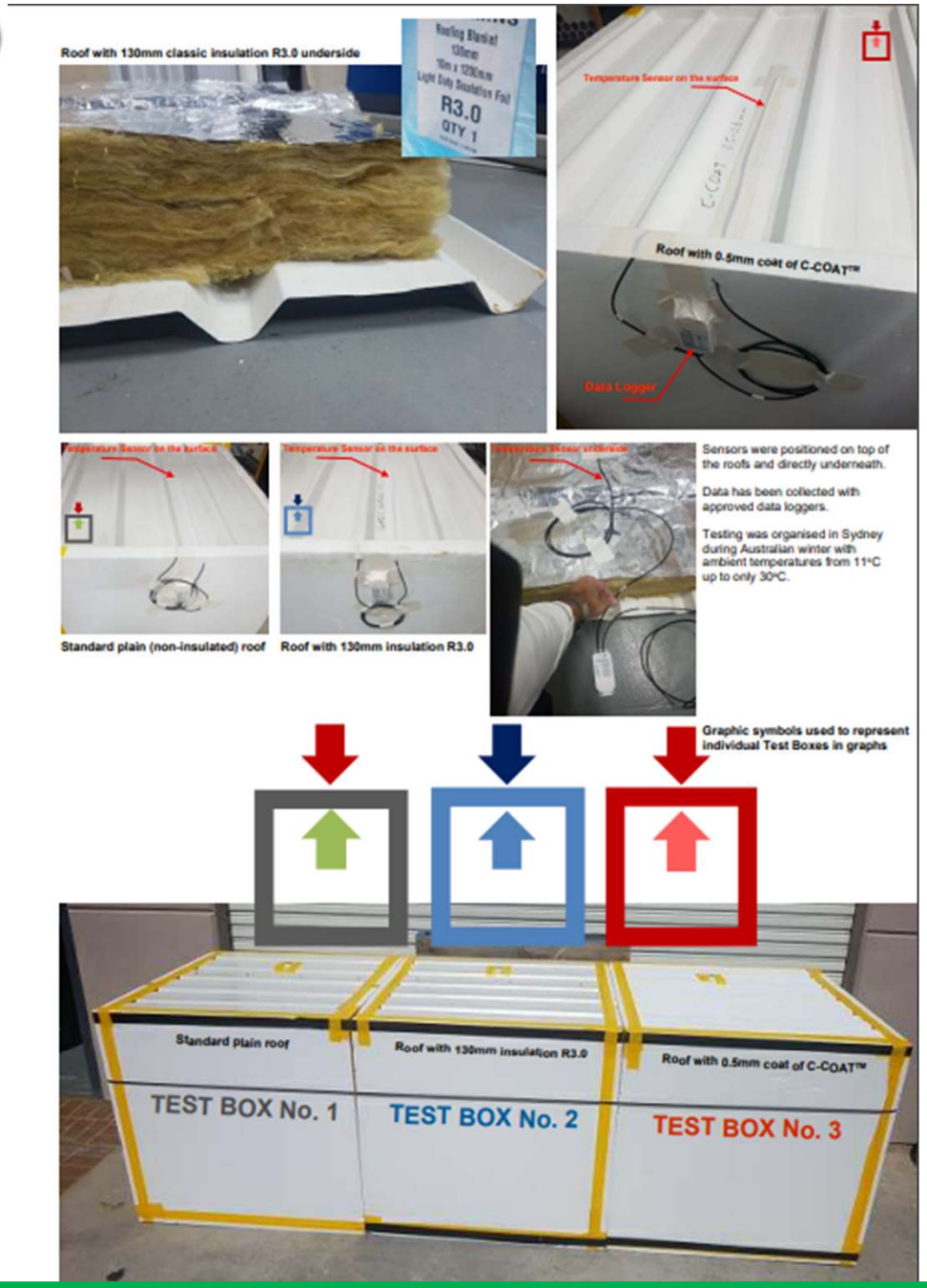
# Thank You!

# Sydney Thermal Test
# White Roof, Insulated and Coated

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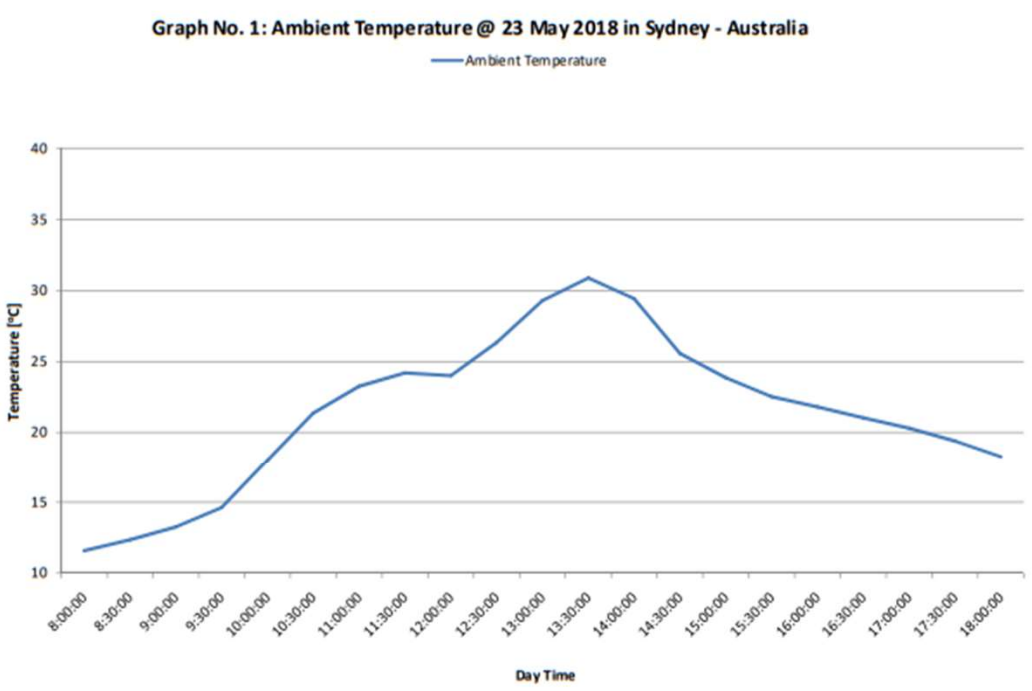
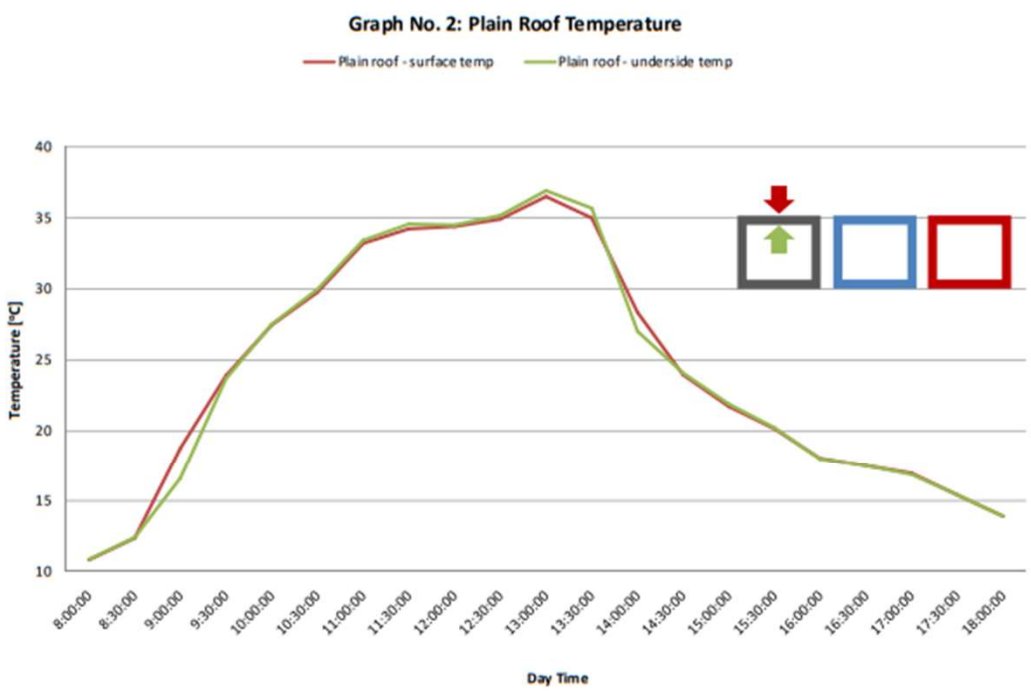
# Graphic Breakdown of Results



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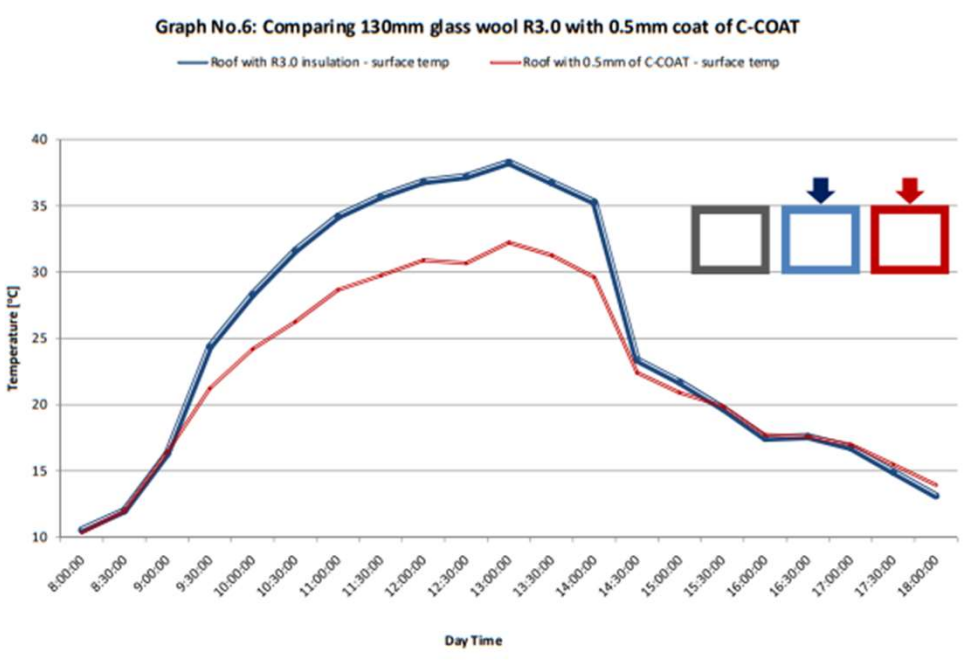


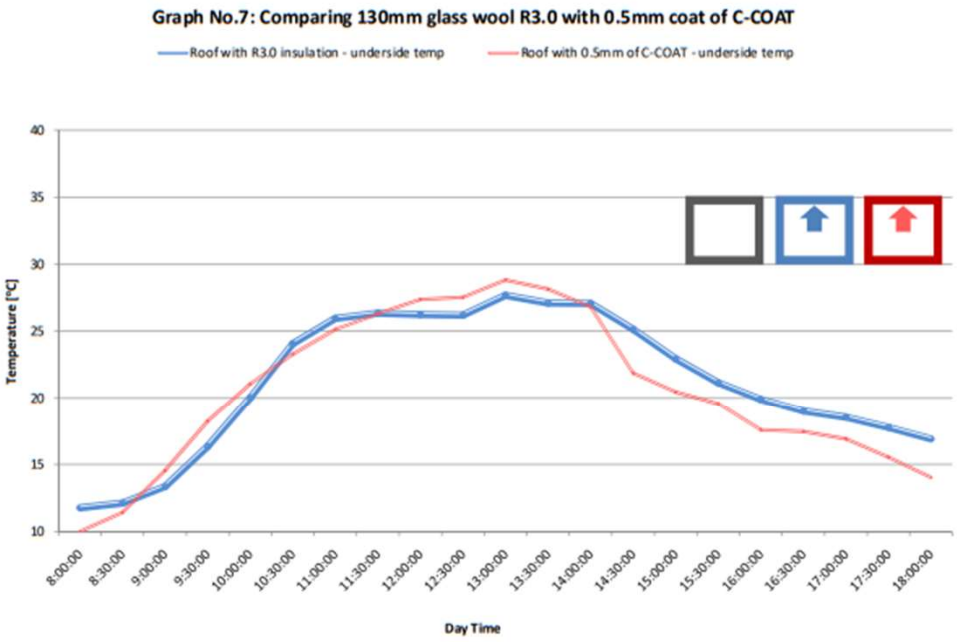


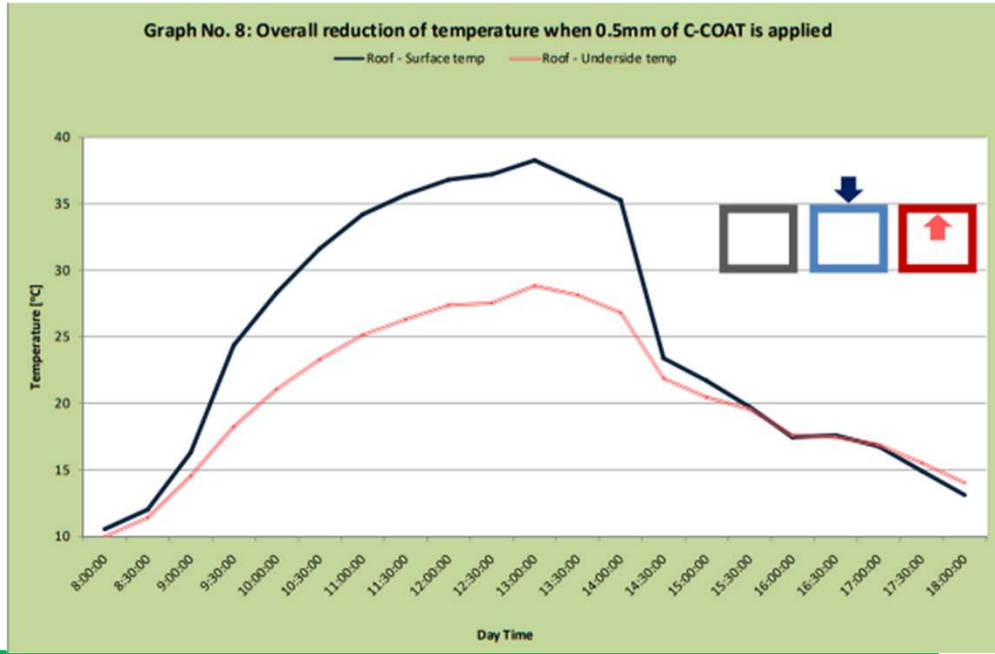

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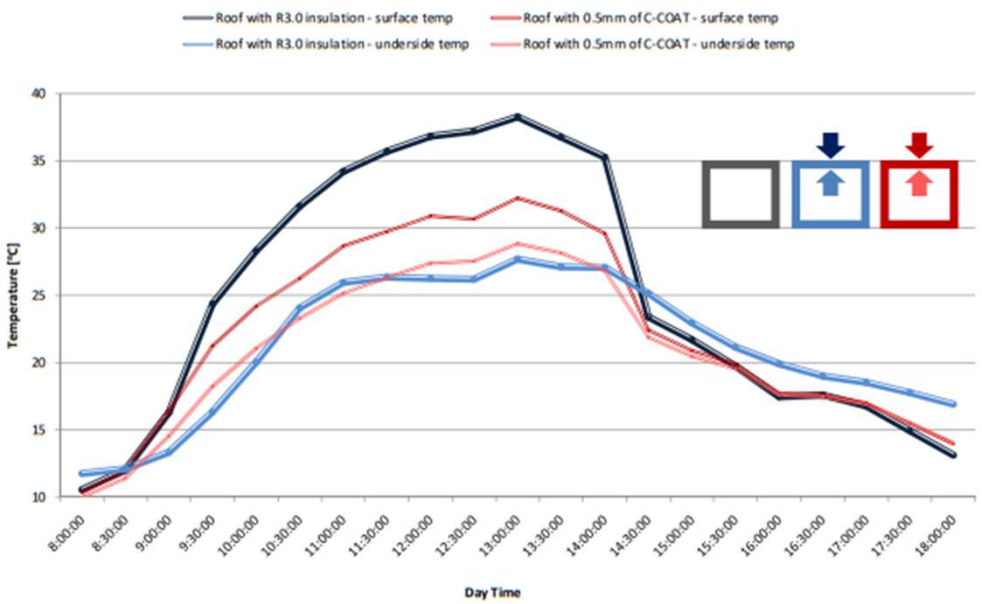
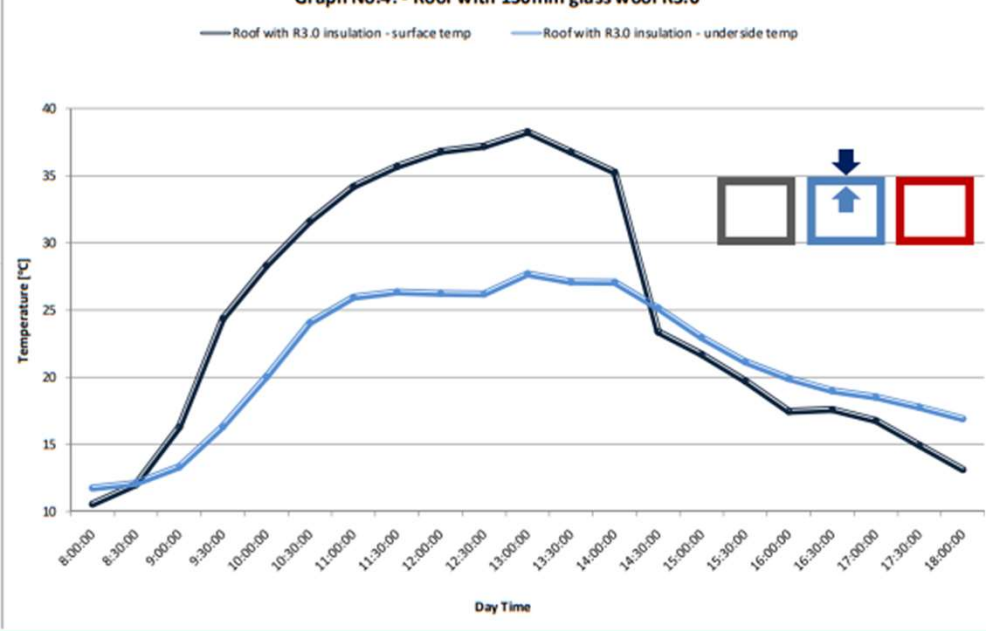
## Graph No.3: Comparing 130mm glass wool R3.0 with 0.5mm coat of C-COAT




## Graph No.4: - Roof with 130mm glass wool R3.0




## Graph No.5: Roof with 0.5mm coat of C-COAT