To: **TROVON Sydney - Global HQ & Centre of Excellence**

JOHN MARINOS
Chief Executive Officer
Unit 2 56-58 Jedda Road Prestons, NSW, 2170 Australia

Re: **C-COAT Thermal Insulating coating product Test results for A/C metal roof casing**

Dear John,

Introduction:

C-COAT Insulation Australia Pty ltd is the worldwide leading supplier of cutting-edge thermal insulating Coating systems with a vision to make the world a better place by supplying revenue-positive systems to reduce energy usage and protect the environment.
This Australian-owned formulation, originally developed for the space industry and fine-tuned over several years, is created and produced by our innovative R&D team of professionals including engineers, physicists, technologists, chemists and our dedicated support staff.
C-Coat products are ideal for use in residential, commercial and a range of industrial settings such as process and petrochemical plants, gas and hot liquids pipelines, transport, marine, mining, aerospace and defence.
C-Coat systems are traditionally applied with airless spray equipment but are also easy to apply with a brush, roller or spatula.
Designed for use on residential and commercial buildings on interior and exterior walls and roofs to supplement or replace traditional insulation methods. Saves on heating and cooling costs, reduces building maintenance. by improving the insulating capacity of the building envelope, C-COAT reduces your energy bills and complements results proposed by solar and wind power systems.
C-COAT has a unique ability to produce a 'safe-to-touch' finish when applied over hot metal surfaces, which helps prevent skin burn injuries.
The product is compatible with classic insulation materials where refreshed, enhanced performance or reduced thickness of classic insulation is required.
C-COAT is a revolutionary new and modern generation of water-based energy-saving thermal insulating Coating system, water resistant, blocks condensation, protects against rust, decreases vibration and noise, is non-expanding, UV stable and comes with fire-resistant options.
C-COAT is water-based, free of solvents, allergy free, prevents build-up of mould or fungi and is an environmentally friendly material.

Project description:

The locomotive A/C unit mounted on the roof can't perform to its specification due to hot desert temperatures of about 60°C or more causing unit cycling inefficiently.

DULUX Primer:

DULUX Top Coat:

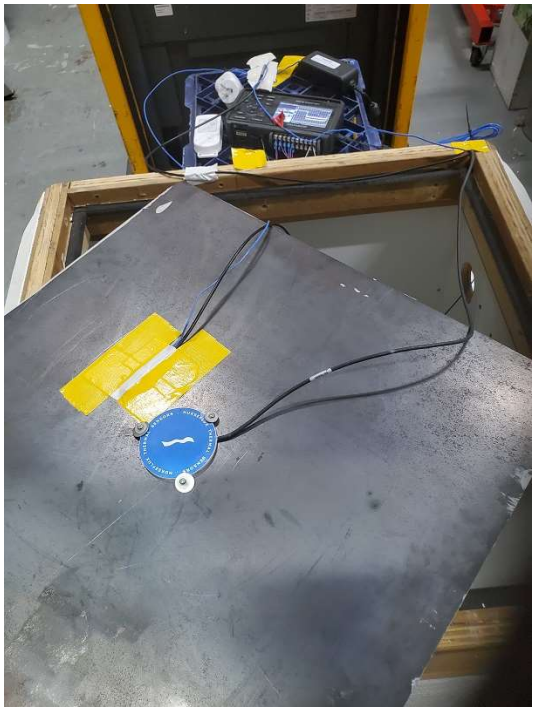
Test Chamber:

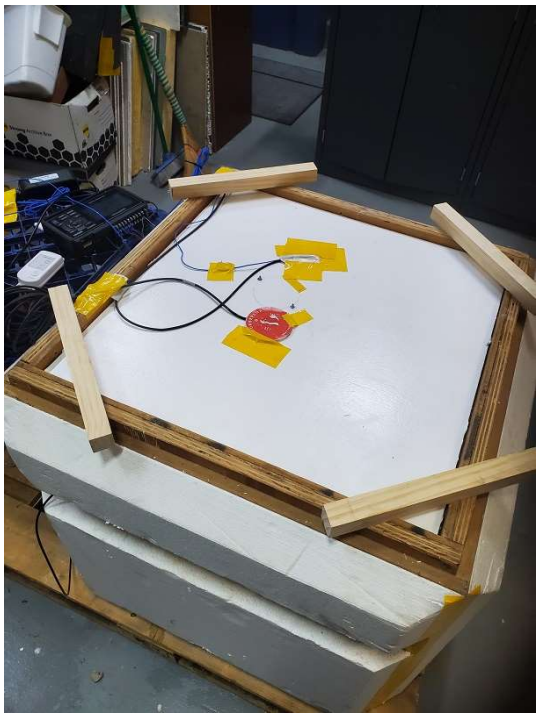
The test chamber is designed to accept substrate samples where top side is fitted with a permanent source of heat (4 x halogen light fittings of 500W each).

The heat temperature is controlled by ON/OFF switch set to cut out halogen lights at 60°C +/- 1°C

We tested samples with and without C-Coat and compared the results as per graphs bellow.

Sensor Positioning:





Data Logger with Heat Flux sensors and Temperature probes has been employed for data collection

BLUE HF Sensor used to capture HF below (Under) the test samples

RED HF Sensor has been used to capture HF entering (Top)

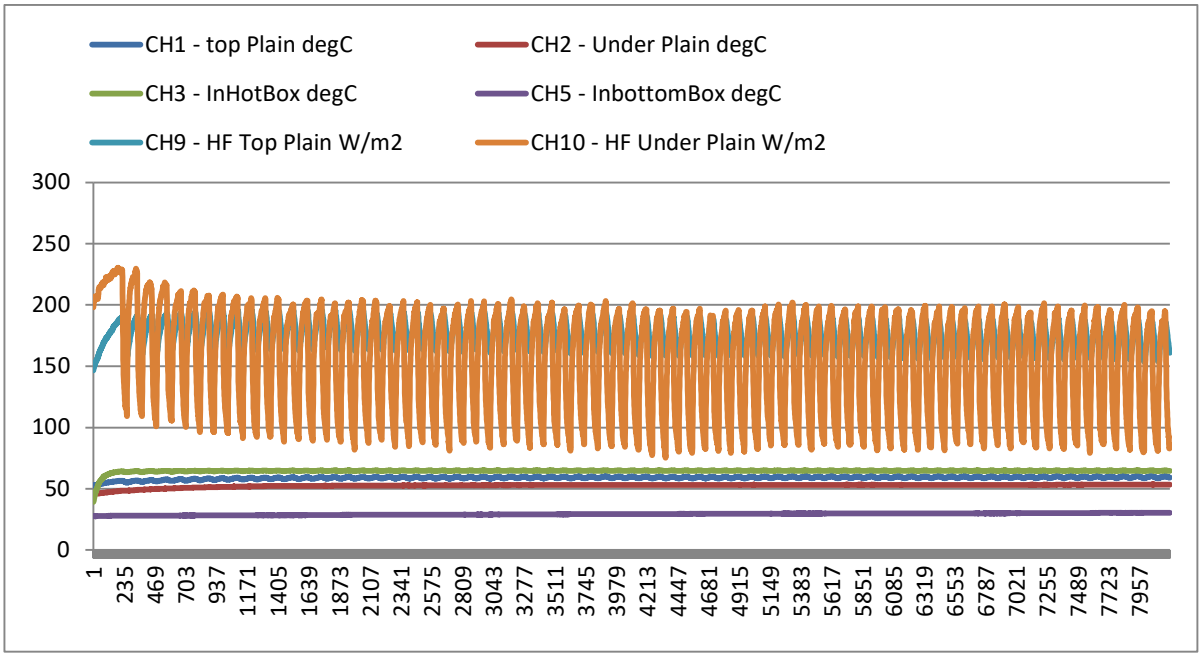
Temperature probe measuring [°C] close to heat source (InHotBox degC)

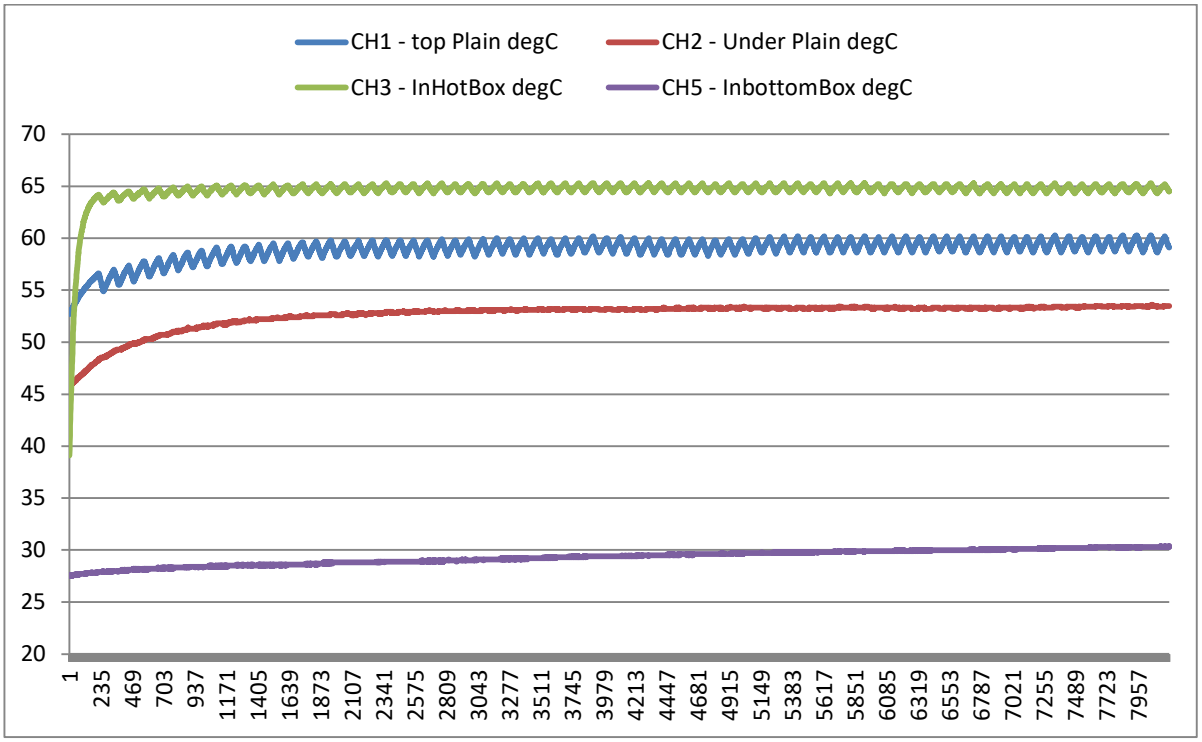
Temperature probe measuring [°C] on top side of sample (Top degC)

Temperature probe measuring [°C] under side of sample (Under degC)

Temperature probe measuring [°C] inside of lower chamber (InBottomBox degC)

Test Result for a Metal Plate #4.0mm with Primer and Top Coat ONLY





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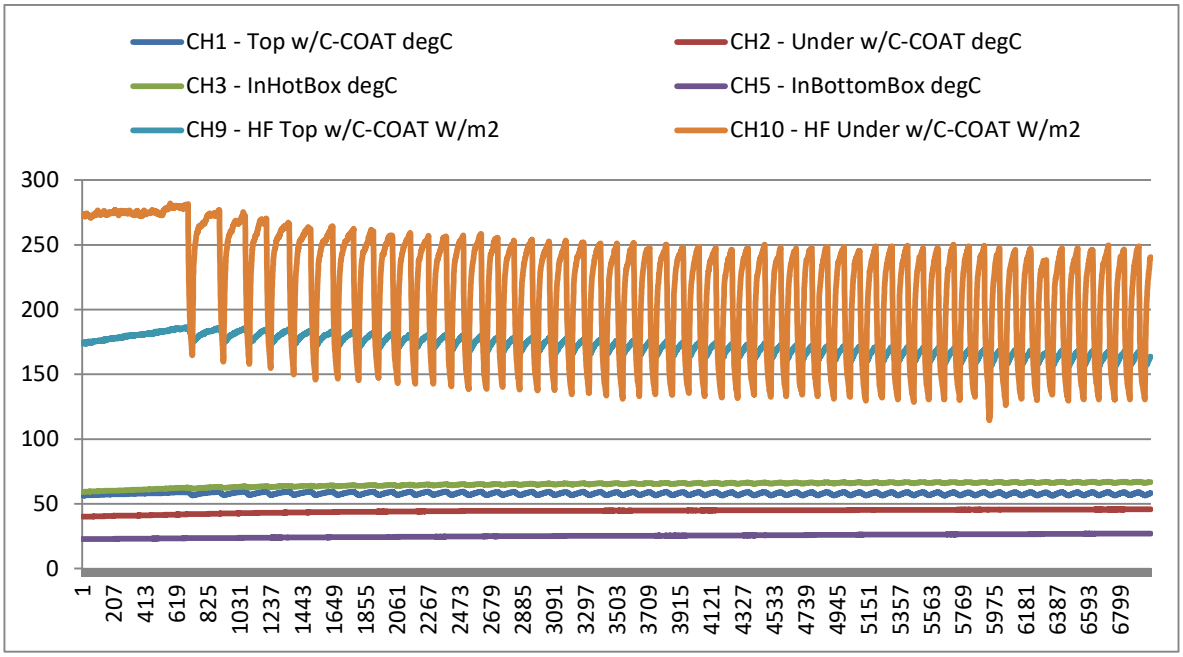
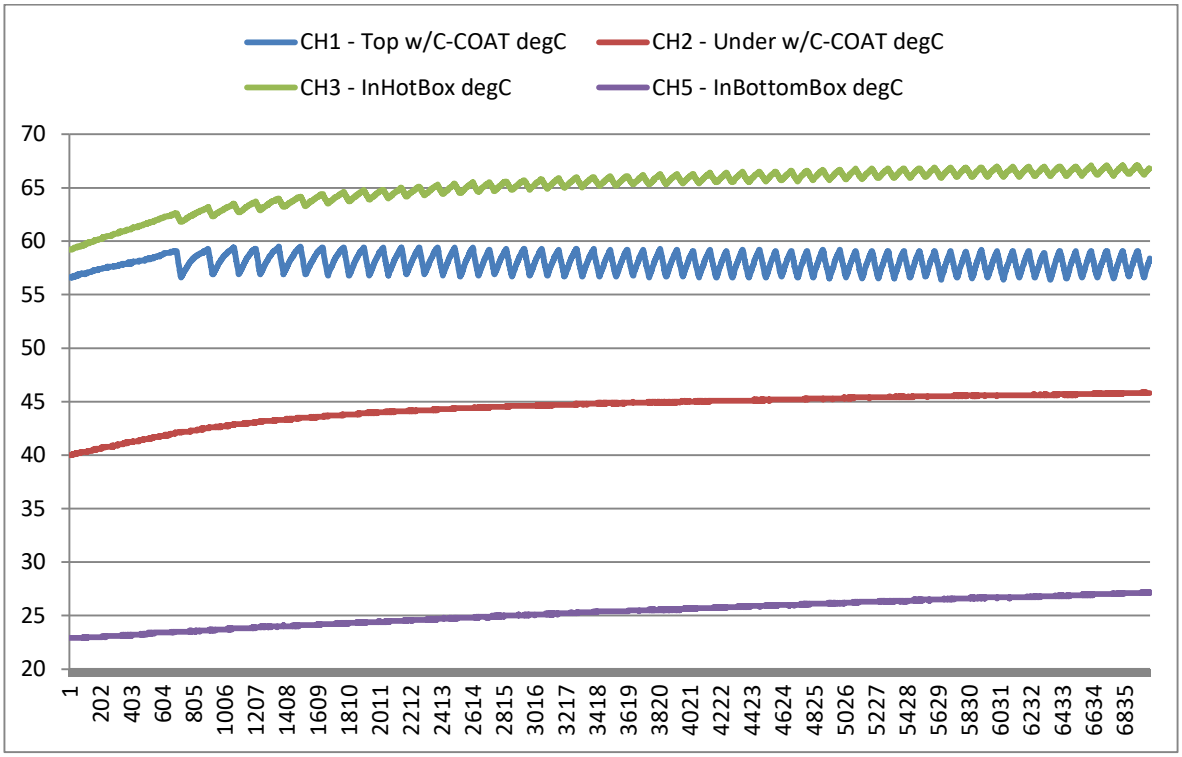
Test Result for a Metal Plate #4.0mm with Primer, 1.0mmC-COAT and Top Coat





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Conclusion and comments:

The tests performed are confirming ability of C-COAT to be used as a solution for this application.

Test results for a Metal plate simulating the current set up are showing that:
A) After heating the surface it appears that Exit Flux is even higher than Entrance meaning not blocking heat and even making it hotter.
B) The surface temperature of 59-60°C produces about 54°C below the plate so a minimal reduction (5-6°C) has been observed which will be reduced even further over time.
C) The Metal plate (4.0mm) sample including primer and top coat only have a thickness of 4.5mm

Test results for the same Metal Plate coated with C-COAT Thermal Insulating coating are showing:
A) After heating the surface the Heat Flux of about 240 W/m2 is reduced to about 160 W/m2 which is observed reduction of about 34%
B) The surface temperature of about 57°C went down to about 45°C producing a reduction of 12°C
C) The Metal plate (4.0mm) sample including primer, C-COAT and top coat have a thickness of 5.5-6.0mm

NOTE: The thickness of C-COAT was made minimal, to about 1.0mm, to see the results with the thinnest layer.
NOTE: It would be our recommendation to apply not more than 1.5mm for this application.

Support Documents as follows on request:

1. Declaration of Conformity C-COAT Insulation Australia Pty Ltd
2. CE Certificate - UKCert
3. VOC Content Test Certificate - Green Building Council of Australia
4. VOC Test Report – Dubai Central Laboratory Department
5. Formaldehyde Content - Dubai Central Laboratory Department
6. Testing Program 2021 report – The National Academy of Science of Ukraine
7. Solar reflective Index - Material Lab Testing Services L.L.C. Dubai
8. R-Value – Material Lab Testing Services L.L.C. Dubai
9. TDS 250ST – C-COAT Technical Data Sheet
10. SDS – C-COAT Safety Data Sheet

We sincerely hope that you will find supplied evidence sufficient to continue to the next level of implementation

Kind regards,
For C-COAT Insulation Australia Pty Ltd

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Serge Popovich - Director