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Date: May 11, 2009
MTI Project No.: CX06E9A
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TECHNICAL SERVICE REPORT

NASACOAT S.A. de C.V.

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Project ID: CX06E9A

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Accreditations



ISO 17025



Associations



Abstract:	Analysis of eight samples for Solar Reflectance per ASTM C1549 and for Emittance per ASTM C1371.
Samples:	4 film samples labeled as: Power Skin 5 Lot 2009031801, Power Skin 3 Lot 2009031802, Power Skin 10 Lot 2009031301 (MTi-090529 – 531), and Sun Glare KAO Lot 2009032001 (MTi-090533) and 4 coated panels labeled as: Sun Glare KAO Lot 2009032001 (MTi-090534), Power Skin 10 Lot 2009031301 (MTi-090536), Power Skin 3 Lot 2009031802, and Power Skin 5 Lot 2009031801 (MTi-090538 – 539) all received on 4-14-09.
Test Results:	
Sample ID	Reflectance, %
Sun Glare KAO Lot 2009032001	83.3%
Power Skin 10 Lot 2009031301	88.3%
Power Skin 3 Lot 2009031802	82.3%
Power Skin 5 Lot 2009031801	82.6%
Sample ID	Emittance
Sun Glare KAO Lot 2009032001	0.86
Power Skin 10 Lot 2009031301	0.86
Power Skin 3 Lot 2009031802	0.87
Power Skin 5 Lot 2009031801	0.88



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If you should have any questions or require any additional information, please call us at 330/896-5900.

Tested by,

Reviewed by,

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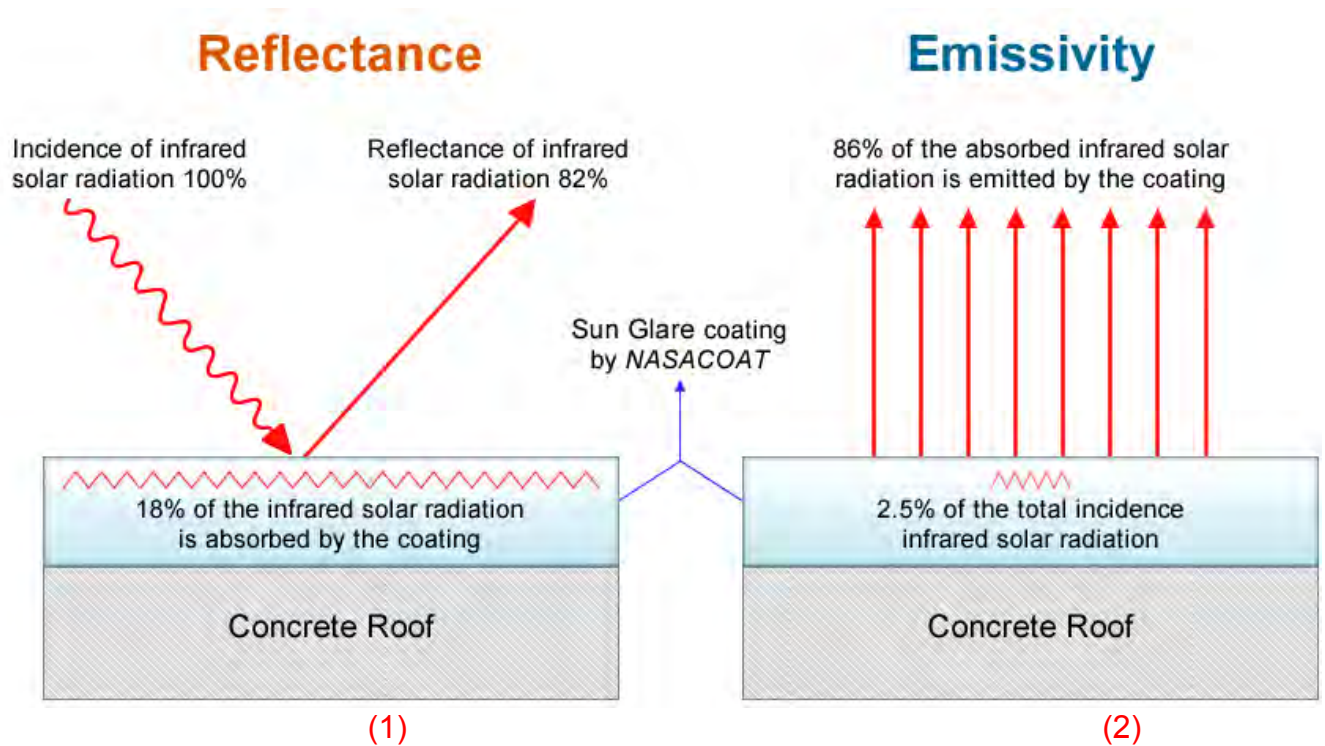
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Solar Reflectance and Thermal Emissivity

Due to the effect of solar reflectance, part of the heat that is absorbed/penetrated within NASACOAT's coating is **18%** of **100%** of the total infrared solar radiation that it was exposed. (See left image)

The 18% of the heat that was absorbed/penetrated within NASACOAT's coating by solar reflectance, **86%** is emitted by thermal emissivity effect. (See right image)

Finally, only **> 2.5 % <** of the **total heat that Sun Glare was exposed** to is present within the coating! (See right image)



(Sun Glare's coating film has a thickness of no more than 0.30 mm)



Explanation

Reflectance is defined when a surface (in this case roof or wall) is exposed to infrared rays = heat and these are reflected back to the side where they originated (exterior)

As shown on the figure above, 100% of the solar radiation (infrared rays) that impact the roof, **82% is reflected back towards the same side where they originated** and only the remaining 18% penetrates within Sun Glare's coating, NASACOAT product. (1)

Due to the effect of thermal emissivity produced by NASACOAT coatings, the heat penetrated in the coating (18%), 86% is **emitted back to the same side (space) it was originated**, and the remaining 14% is absorbed in the material, equivalent to **2.5% in its totality**. (2)

Thermal emissivity consists in the **capacity of coatings to expel/emit outside (exterior) the heat penetrated within them**.

Important note

Many manufacturers declare only values of visible light reflectance. This, in reality, does **NOT make sense if its purpose is as Thermal Insulator by REFLECTION**.

The values of light reflectance are always very high. In fact, any white object reflects back almost the totality of the light it receives.

These tests are done because they are very cheap to perform due to the low cost of the measuring apparatuses for light reflectance (approximately US \$100.00)

Also, this allows manufacturers to put on theirs their high values, although **it is false to use them as thermal insulator parameters**.

The real measurement for solar reflectance should be **performed by infrared rays**, applying the international norm ASTM C 1549. These measurements are expensive because it requires the use of very sophisticated apparatuses that cost over US \$40,000.00

This means that the significant value of reflectance to determine thermal insulation is in its totality the **spectrum of infrared rays!**