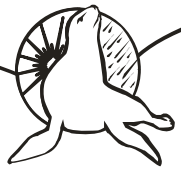

e-mail correspondence between Steve McGuinness of Advanced Coating Systems and Dr. Tom Petrie of the Oak Ridge National Testing Laboratories.

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[T.W. Petrie] Steve, my comments are inserted below where appropriate.

Thanks for your interest in our research.

T.W. Petrie
Sr. Research Engineer
Oak Ridge National Laboratories

At 12/8/2006 11:24 AM -0500, you wrote:

Hi Tom,

I read a brief biography on you on www.ornl.gov/sci/roofs+walls/staff/index.htm website. With your experience at the Oak Ridge Laboratory, in particular in reflective roof systems, you are more then qualified to help answer this question.

Below is a statement taken from the website of a company that promotes their ceramic elastomeric coatings as offering an R-value of R-22.

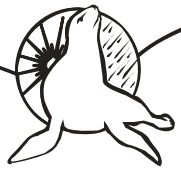
Is it possible for a 5 mil coating to offer an R-value of R-22?

STEADY STATE HAT FLUX MEASUREMENTS - THERMAL TRANSMISSION PROPERTIES ASTM D-177/ ASTM C-1045
-- Roof Coating (at 5-mil thickness): K-value = .0454, R-value 22
-- NOTE: Some specialists say the ASTM formula of R-value in this test "R = 1/.K" is oversimplified and does not take enough information into consideration

[T.W. Petrie] R-value is the thickness divided by the k-value or thermal conductivity. Care must be taken to use proper units. If the k-value is 0.0454 Btu/(h-ft-F), which is a reasonable value for a ceramic coating, and the thickness is 5 mil = 0.005 in. = 0.0004167 ft then the R-value is 0.0004167/0.0454 = 0.009 h-ft²-F/Btu. In the U.S. these are the units that are implied when R-value is given. An R-value of 0.009 is correct for a thin coating.

I sent an e-mail to the President of the company that has made this claim and this was his reply:

[president of said company] There is great controversy over ceramic coatings and R-Value. We do have Cal Coast testing facilities reports, who's testing shows our coatings, Roof Coat, Exterior Wall Coating, and Interior Wall Coating all have just over R-20 insulating value. We do not use these tests because of the controversy. We rely instead on the US Department of Energy and



EPA three year test program on roofing panels at their prestigious Oak Ridge Labs, TN, where they did a 3 year test program, measuring and recording heat flux every hour, every day for the 3 year period. They were studying the benefits of reflective coatings in reducing heat flux during hot days (actually any time the outside temperature was above 60 degrees F.) The 3 year period was used to determine the effect of aging on the coatings. There were 26 coatings in the test program from American manufacturers. At the end of the test period, our [redacted] "ceramic filled" coatings was reducing heat flux through the test panels by 66% (which was about 40% more effective than any other product in the test after the aging period).

I deliberately left out name of the company and its President [in my e-mail to you] so as not put you in a situation where you may breach a confidentiality agreement with a current or past customer.

[T.W. Petrie] I am familiar with the [redacted] website and the claims that [redacted] makes on it. What he states in his reply to you about the purpose of our tests of his and similar products and the results is true. His coating did perform well. His claim that it has an R-value of 20 wherever it is used is not a conclusion we made.

I read the report referenced above. The report stated, "the annual heat flux was reduced form about 13,500 BTU per square foot on the bitumen roof panel, compared to the same panel coating with "X coating" at 4,500 BTU. (145,317 BTU per square Meter to 48,439). Is it possible to calculate a "equivalent" R-value based on the statement taken from the Oak Ridge report?

[T.W. Petrie] You have the words exactly right.

In your option, is it possible for a coating to have an appreciable amount of R-value?

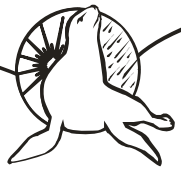
[T.W. Petrie] See the formula above. The thermal conductivity is what these materials have by nature. If you want more R-value you need to increase the thickness. As [redacted] states, thickness needs to be 1 ft for 1/0.0454 to be R-22. Sure it is possible for a coating to be a foot thick, but it is not practical, realistic, economic, ...

[T.W. Petrie] The crux of the problem is the desire to compare the benefit of a radiation control coating directly to the benefit of mass insulation, which is prevention of thermal conduction across it.

[T.W. Petrie] People understand the concept of the R-value of mass insulation. It is a property of the insulation and its thickness. The higher the R-value, the better the insulation.

[T.W. Petrie] The trouble arises when an equivalent R-value is used to describe the prevention of thermal radiation from penetrating a surface. A radiation control coating does have a property called its solar reflectance. The higher the reflectance, the better the coating.

[T.W. Petrie] No way can solar reflectance be converted into an equivalent R-value without a bunch of qualifying assumptions. These assumptions are needed to set conditions for the heat



flow with solar radiation control and the heat flow by conduction through the mass insulation. Just because a coating behaves like a certain R-value of mass insulation under one set of conditions does not mean it will in other conditions. You cannot put R-value on a can of coating like you can put R-value on the label of a bag of insulation.

[T.W. Petrie] Our cool roof calculators go as far as I care to go in this debate. They state how much additional mass insulation is needed for annual performance with a black roof to equal that with the base amount of insulation and solar radiation control. The users of our calculators can see how many conditions they have to set to get this comparison.

I look forward to your reply.

Best regards,

Steve McGuinness

[T.W. Petrie] Hope it helps.

The company name in question and its president's name have been deliberately dedicated from this report.