HSC® COATING – Heat Calculation

Thank you for your mail with the copy of the ASTM C 177. It is very useful. We use kcal or Watt in Japan, so I converted the test result to our standard. I hope my calculation is correct.

The test result says "Thermal Conductivity," but the unit used is BTU-in/h-**sq.ft**.-degF, so I think it is the "heat transfer coefficient (U-Value)."

307 mils = 7.8mm (0.0078m)
0.64 h-sq.f.-degF/BTU x 0.2048161 = 0.131 sq.m.-h-degC
Thermal Conductivity (K) = 0.0078 / 0.131 = **0.0595 kcal/m-h-degC**

Checking calculation:

Hello J.E.,

Exceedingly complicated calculation but the final result is correct.

It is 0.06 kcal/m-h-degC or 0.07 W/m-degC.

The measurement units and the wording used by V-tec are correct. It is thermal conductivity. Independent of thickness.

Best Regards,

Claudio

Cleave Books
Conversion Calculator for Units of
THERMAL CONDUCTIVITY

Type in size ...	select units ...	then press	Else
0.483	Btu in./ft² hour °F	Convert It!	Clear All

Values are shown to ... 3 significant figures.

Adjust significant figures OR click on [Clear All]

0.000 983	**watts / in. °F**	**watts / cm °K**	0.000 697
0.011 8	**watts / ft. °F**	**watts / m °K**	0.069 7
0.483	**Btu in. / ft.² hour °F**	**joules / cm sec. °K**	0.000 697
0.003 35	**Btu / in. hour °F**	**calories / cm sec. °K**	0.000 166
0.000 011 2	**Btu / ft. sec. °F**	**kcal / cm min. °K**	0.000 009 98
0.040 3	**Btu / ft. hour °F**	**kcal / m hour °K**	0.059 9

°K can be replaced by **°C** in all of the above since those degrees are the same size.
in. is the abbreviation for inch(es), and **ft** for foot (or feet).
kcal is kilocalories.
The values of the **Btu** and **calorie** are those of the International Table.
Very large and very small numbers appear in e-Format and are not spaced.
Unvalued zeros on all numbers have been suppressed.

Caution
NO guarantee as to the accuracy of these values is given.
And they should be checked against some other source.

A note on **Format and Accuracy** *is available.*
There are also some **Background Notes on Thermal Conductivity**

Go to the **Dictionary of Units** OR the **Calculator Menu**

©FT2004
Vers on 1.4