

MTEC1733/62

Report of Sample Analysis

Issued Date : 4 June 2019

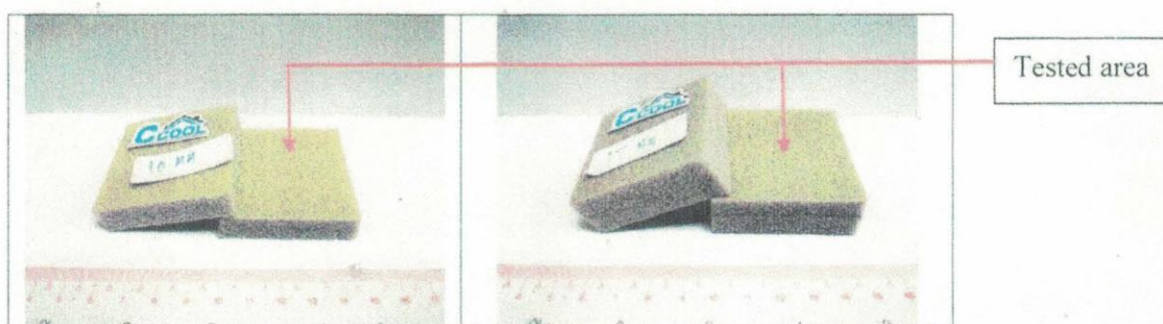
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Date received : 30 May 2019

Date analyzed : 30 May – 4 June 2019

Samples : Two samples of “C cool Cross-linked Polyethylene Insulation”,
as specified and shown in the pictures below.



Objective : To determine the thermal conductivity of the sample.

Instrument used : Hot Disk Thermal Constant Analyser (Hot Disk AB)

Condition : Room temperature
Disk type: Kapton Insulation
(Sensor No. C5501, Radius = 6.403 mm.)

MTEC1733/62

1/3

Results and Interpretation:

Thermal conductivities of the samples are reported in the table below.

Samples	Condition Used		Thermal Properties	Measurement Results	Average	S.D.
	Output of Power (W)	Measuring Time (s)				
1. "C cool 10 mm."	0.005	40	Thermal Conductivity (W / m K)	0.0182 0.0182 0.0185	0.0183	0.0002
			Thermal Diffusivity (mm ² / s)	0.7956 0.8896 0.9409	0.8754	0.0737
			Specific Heat (MJ/m ³ K)	0.0229 0.0205 0.0197	0.0210	0.0017
2. "C cool 17 mm."	0.005	40	Thermal Conductivity (W / m K)	0.0248 0.0241 0.0238	0.0242	0.0005
			Thermal Diffusivity (mm ² / s)	0.4037 0.4647 0.5040	0.4575	0.0505
			Specific Heat (MJ/m ³ K)	0.0614 0.0519 0.0472	0.0535	0.0072

Remarks:

1. Thermal conductivity is a measure of the ability to transmit heat through the material.
2. Thermal diffusivity is a measure of transient heat flow and is defined as the thermal conductivity divided by the product of specific heat times density.
3. Specific heat is the quantity of heat needed to raise the temperature of a unit mass of the substance 1 degree of temperature.
4. Hot Disk Thermal Constant Analyser (Hot Disk AB)

Reproducibility - Thermal Conductivity ±2%
 - Thermal Diffusivity ±5%
 - Specific Heat ±7%

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