

# Infrared Emission Spectroscopy

## of Meta-Chamber Infrared Emission Pad

### Measurement Report and Data Analysis

#### Abstract:

FIR spectroscopy is a powerful tool for studying the Radiation properties of Infrared Radiating materials, especially the new fiberglass/carbon products used in the alternative health industry. Fourier Transform spectroscopy with the Michelson interferometer has clear advantages over conventional spectroscopy and is a very powerful technique for measuring infrared radiation. The large resolving power of the interferometer is a result of its Jacquinot and Fellgett properties. Bruker IFS-120 HR Infrared spectroscopy was used for these infrared measurements to determine if carbon and ceramic combined contribute to more infrared production.

Fiberglass/carbon sample pads were tested and measured at different temperatures, as set by the MetaChamber temperature control box. Samples from groups A and B were measured in both far-infrared and mid-infrared ranges. The pads used in sample group A were topped with a black ceramic coated cloth that is claimed to aid in infrared production. All samples were measured at several different temperatures, set by MetaChamber temperature control box.

Infrared radiation spectroscopy measured results:

1. All of the test sample pads showed temperature dependent Infrared Radiation.
2. Infrared radiation production was proportional to the temperature of the sample.
3. Most of the infrared radiation energy was found between 250 -1000  $\text{cm}^{-1}$
4. The main radiation intensity peak is in the far-infrared range of wavenumber 600 $\text{cm}^{-1}$
5. There are weak mid-infrared emissions from the samples as shown in group B figures.
6. The sample pad in group A with the ceramic cloth showed no obvious contribution to the infrared radiation as compared to the samples without the cloth.

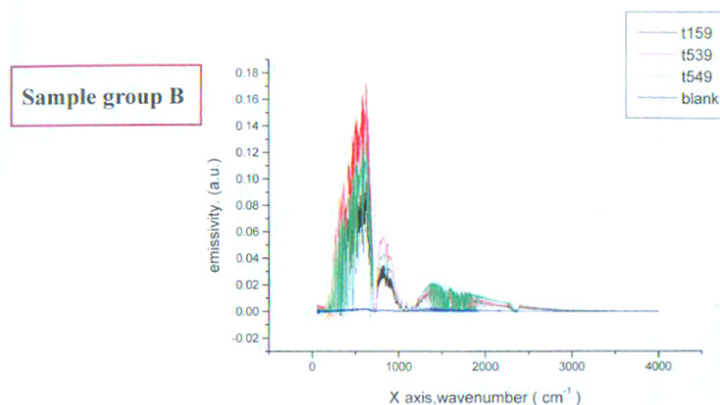


Fig. 5C. Far and Mid Infrared measurement of sample T5-4(A), T5-3(B), T1-5 at temperature mode 9.

\*Graph showing emissivity of carbon sample with ceramic (green) vs. without (red)