Temperature measuring method of aerogel related products

Aerogels have a huge effect on emissivity as it has a block to it and throw heat back into the atmosphere at a very high speed (Block to Emissivity). Figure 1. Due to this effect measuring of temperatures coated with aerogel products needs a special procedure to get more accurate measurements by using very expensive equipment to get the correct measuring results.

However, it can be measured with an Infrared Thermometer with the Alexander Method.

Measuring of a solid aerogel coated substrate, concrete, wood, tile, steel etc.

1. Heat coated substrate in sun or other heat source, heater, flame etc. until required temperature is reached (Figure 1).
2. Remove heat source and wait 30 seconds for the block to emissivity to die down, measure the temperature of the coated substrate (figure 1).

Measuring temperature on aerogel coated glass sheet

1. Put a back plate, preferably white directly behind the glass to be able to get the same heat onto it as the glass we want to measure and therefore stop the laser beam from passing through and measure the first solid substrates temperature it hits behind the glass (Figure 3)
2. Heat coated glass sheet in sun or other heat source, heater, flame etc. until required temperature is reached
3. Remove heat source and wait 30 seconds for the block to emissivity to die down, measure the temperature of the coated substrate (figure 5)

Figure1: Block to Emissivity
*Uncoated Solid Substrate

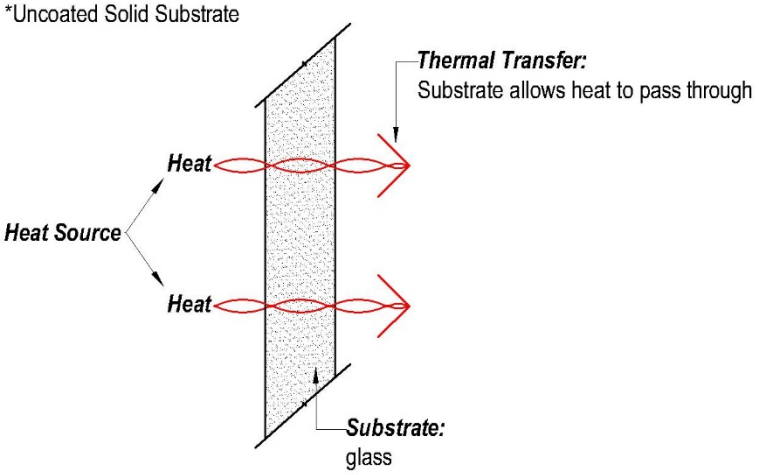

Figure2: Block to Emissivity
*Aerogel Coated Solid Substrate

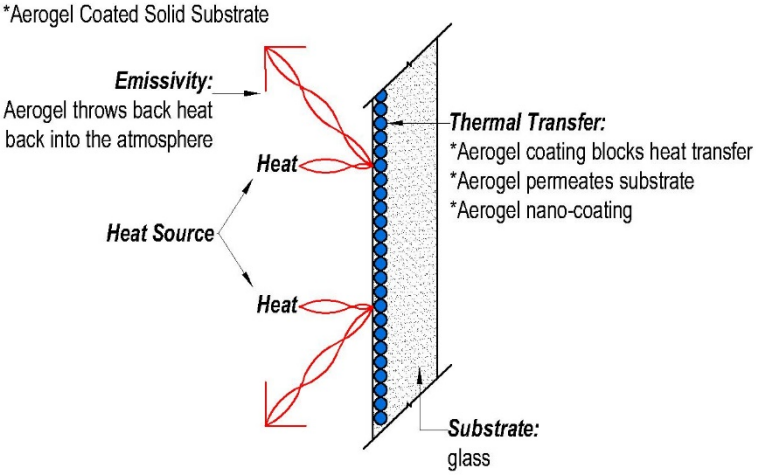

Figure3: Incorrect Reading of Thermal-transfer Measurement

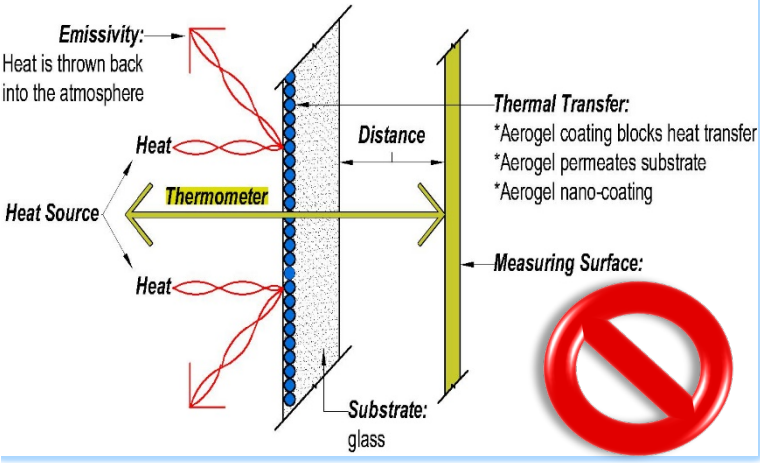

Figure4: Correct Reading of Thermal-transfer Measurement