Environmentally Safe Products
313 West Golden Lane
New Oxford, PA 17350
Attn: Mr. Cory Groft

July 10,2002

Dear Mr. Groft,

This letter is a follow-on to previous discussions about the thermal resistance of reflective insulations and radiant barriers. Both of these products rely on highly reflective material usually aluminum foil or coating to provide reduced heat flow or R-value. Aluminum foil generally has a reflectance in the range 0.95 to 0.97 (95% to 97%). The corresponding emittance values are 0.05 to 0.03. The sum of the reflectance and the emittance of a material is one. A laboratory instrument is commonly used to measure emittance. The reflectance is then calculated from the preceding relationship.

The emittance is a measure of the efficiency of a surface is giving off heat. A low emittance surface like 0.03 (or 3%) does not give off or radiant very much heat even when it is hot. The reflectance is a measure of the incoming heat that is reflected with 0.97 meaning 97% of the incoming energy is reflected. The terms are complementary.

We recently measured at your request the emittance of the aluminum foil used in your manufacturing process. The foil was then covered with water and allowed to dry. This wetting/drying process was repeated three times with the emittance measured after the third cycle of wetting and drying. The change in emittance due to the three wetting/drying steps was much less than the experimental uncertainly of the measurement. There was not a significant change in the emittance or the reflectance.

Reflective insulations rely on high reflectance and low emittance for their thermal performance. The wetting/drying cycles described above didn't change the reflectance or emittance. The thermal performance of an assemble subjected to such wetting/drying cycles will remain unchanged.

Sincerely,

David W. Yarbrough

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