RADIATION AND THERMAL PERFORMANCE MEASUREMENTS OF A METAL FIBER BURNER

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ABSTRACT. Radiant burners are used in drying, preheating and curing in the materials processing and manufacturing industries. High radiation efficiency is one of the most important performance criteria for these burners. The wide variation in reported radiation efficiencies appears to be partly due to the differences in the measurement techniques. Established techniques are used to measure combined (radiation plus convection) efficiencies, and new techniques are used for apparent burner surface and gas exit temperatures. New experimental data are reported for the thermal performance parameters as a function of the firing rate for a uniform flow methane-air, porous radiant burner/heater, that uses a woven metal fiber material (Fecralloy) as the flame support pad.