

CLAIMS

1. A radiant burner for treating an effluent gas stream from a manufacturing process tool, said radiant burner comprising:
- 5 a sintered metal fibre sleeve through which combustion materials pass for combustion proximate to an inner combustion surface of said sintered metal fibre sleeve; and
- 10 an insulating sleeve surrounding said sintered metal fibre sleeve and through which said combustion materials pass.
2. The radiant burner of claim 1, wherein said sintered metal fibre sleeve has at least one of a porosity of 80-90%, an air permeability of 150-300
- 15 cc/min/cm² and a density of 690-1110 kg/m³.
3. The radiant burner of claim 1 or 2, wherein said insulating sleeve is a ceramic fibre blanket.
- 20 4. The radiant burner of any preceding claim, wherein said insulating sleeve has at least one of a density of 100-150 Kg/m³ and a density which provides a 40-60 Pa pressure drop as said combustion materials pass therethrough.
- 25 5. The radiant burner of any preceding claim, wherein said sintered metal fibre sleeve is retained concentrically within said insulating sleeve.
6. The radiant burner of any preceding claim, comprising a support operable to retain said sintered metal fibre sleeve and said insulating
- 30 sleeve.

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7. The radiant burner of any preceding claim, wherein said insulating sleeve is retained concentrically within said support.
8. The radiant burner of any preceding claim, wherein said sintered metal fibre sleeve comprises a pleat extending circumferentially.
9. The radiant burner of any preceding claim, comprising a temperature sensor thermally coupled with said sintered metal fibre sleeve and operable to provide an indication of a temperature of said sintered metal fibre sleeve.
10. The radiant burner of any preceding claim, wherein said temperature sensor is thermally coupled with said sintered metal fibre sleeve on an outer surface.
11. The radiant burner of claim 10, comprising a source operable to supply said combustion materials in one of a plurality of mix ratios selected in response to said temperature.
12. The radiant burner of claim 11, wherein said source is operable to supply said combustion materials in a substantially stoichiometric mix ratio when said temperature of said sintered metal fibre sleeve fails to exceed an operating temperature.
13. The radiant burner of claim 11 or 12, wherein said source is operable to supply said combustion materials in a substantially lean mix ratio when said temperature of said sintered metal fibre sleeve exceeds an operating temperature.
14. A method of operating a radiant burner for treating an effluent gas stream from a manufacturing process tool, said method comprising:

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determining a temperature of an outer surface of a sintered metal fibre sleeve of said radiant burner through which combustion materials pass for combustion proximate to an inner combustion surface of said sintered metal fibre sleeve; and

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supplying said combustion materials in one of a plurality of mix ratios selected in response to said temperature.

10 15. The method of claim 14, wherein said supplying comprises supplying said combustion materials in a substantially stoichiometric mix ratio when said temperature of said sintered metal fibre sleeve fails to exceed an operating temperature.

15 16. The method of claim 14 or 15, wherein said supplying comprises supplying said combustion materials in a substantially lean mix ratio when said temperature of said sintered metal fibre sleeve exceeds an operating temperature.

20 17. The method of any one of claims 14 to 16, wherein said supplying comprises supplying said combustion materials in said substantially stoichiometric mix ratio for a selected time period.

25 18. The method of any one of claims 14 to 17, wherein said supplying comprises supplying said combustion materials in said substantially lean mix ratio upon expiry of said selected time period.

19. A radiant burner as hereinbefore described with reference to the accompanying drawings.

30 20. A method as hereinbefore described with reference to the accompanying drawings.