

CLAIMS

1. A method of fabricating a burner element for an abatement apparatus, comprising:
 - 5 injection moulding a charge comprising metal particles and a flow compound into a mould defining said burner element to produce a moulded burner element; and
 - sintering said moulded burner element.
- 10 2. The method of claim 1, comprising debinding said moulded burner element to allow said flow compound to escape from said moulded burner element prior to sintering.
3. The method of claim 1 or 2, wherein said charge comprises a porogen.
- 15 4. The method of claim 3, comprising debinding said moulded burner element to allow said porogen to escape from said moulded burner element prior to sintering.
- 20 5. The method of claim 3 or 4, wherein said charge comprises around 5% to 10% by volume of said flow compound, around 15% to 20% by volume of said metal particles with the balance being said porogen.
6. The method of any one of claims 3 to 5, wherein said charge comprises
25 said porogen selected to have at least one of a melting temperature which is higher than that of said flow compound and a melting temperature which is less than a sintering temperature of said metal particles.
7. The method of any one of claims 3 to 6, wherein said injection moulding
30 comprises multi-shot injection moulding comprising injection moulding one charge having a metal powder and a flow compound and another charge having said metal particles, said flow compound and said porogen.

8. The method of claim 7, wherein said one charge comprises around 5% to 10% by volume of said flow compound with the balance being said metal powder.
- 5 9. The method of claim 7 or 8, wherein each shot has differing amounts of porogen to provide differing porosities for different structures forming said burner element.
- 10 10. The method of claim 9, wherein said differing amounts of porogen are provided by different shots, each of which has a different ratio of porogen to metal particles and/or by varying a ratio of porogen to metal particles within a shot.
- 15 11. The method of any preceding claim, wherein said metal particles comprise metal fibres.
12. The method of claim 11, wherein said metal powder and said metal fibres have an overlapping sintering temperature range.
- 20 13. The method of any one of claims 7 to 12, wherein said injection moulding of one of said first charge and said second charge generates surface features shaped to enhance mechanical bonding between said first charge and said second charge.
- 25 14. The method of any one of claims 7 to 13, wherein said first charge and said second charge are at least partially separated by a void material defining a void between said first charge and said second charge.
- 30 15. The method of any preceding claim, wherein at least one surface of said mould comprises a removable perforated layer which forms part of said moulded burner element.

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16. The method of any one of claims 7 to 12, wherein at least one of said metal fibres and said metal powder comprise at least one of FeCr alloy and stainless steel.

5 17. The method of any preceding claim, wherein said flow compound comprises at least one of an organic and a polymeric compound.

18. The method of any preceding claim, wherein said porogen comprises at least one of glass beads, an organic compound and a polymeric compound.

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19. The method of any preceding claim, wherein said porogen has a particle size of between around 0.5mm to 2mm, and typically around 1mm and/or is provided in a ratio of between around 75% to 95% porogen with the balance being said metal particles.

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20. The method of any preceding claim, wherein said metal fibres have a diameter of between around 0.05mm to 0.25mm, and typically around 0.1mm and/or wherein said metal powder has a particle size of around 0.0005mm to 0.0025mm, and typically around 0.001mm.