foregoing disclosure. Therefore, it is to be understood that, within the scope of the appended claims, the invention can be practiced otherwise than has been specifically shown and described.

What is claimed is:

1. A method of forming fused ceramic articles comprising:

providing shaped porous green bodies of particulate batch material, said batch material including inorganic source compounds and binder;

forming a homogeneous infiltrating solution which is a sol gel precursor mixture of monomers and oligomers by reacting pre-ceramic organometallic compounds or pre-ceramic metal salts and an organic solvent in the presence of an acid catalyst;

infiltrating said porous green bodies with said infiltrating solution to form infiltrated bodies having pores filled with said infiltrating solution, wherein said pores are filled with said infiltrating solution without applying pressure by submerging said porous bodies in said infiltrating solution for not more than 1 minute;

drying said infiltrated bodies to remove most of said solvent from said infiltrated bodies and then to form a polymer of said pre-ceramic compound in said infiltrated bodies to form dried bodies, wherein said polymer does not form until about 80 volume of said organic solvent evaporates; and

firing said dried bodies at a temperature to form fused ceramic articles including a first ceramic material derived from said inorganic source compounds and a second ceramic material derived from said pre-ceramic compound,

wherein said infiltrating solution employs said pre-ceramic compound in an amount effective to enable said second ceramic material to comprise 2-20% by weight of said fused ceramic article.

2. The method of claim **1**, wherein said porous bodies are submerged in said infiltrating solution for not more than 30 seconds.

3. The method of claim **2**, wherein said porous bodies are submerged in said infiltrating solution for about 10 seconds.

4. The method of claim **1**, wherein said organometallic compounds are selected from the group consisting of metal alkoxides, boron alkoxides, silicon alkoxides and phosphorous alkoxides.

5. The method of claim **4**, wherein said metal salts include at least one of magnesium nitrate, lithium nitrate, calcium nitrate hydrate and yttrium nitrate hydrate.

6. The method of claim **4**, wherein said solvent includes at least one of 2-methoxyethanol, ethanol and n-propyl alcohol.

7. The method of claim **4**, wherein said acid catalyst is an aqueous nitric acid solution containing 60-85 weight % nitric acid.

8. The method of claim **1**, wherein said infiltrating solution employs said pre-ceramic compound in an amount effective to enable said second ceramic material to comprise 5-10% by weight of said fused ceramic article.

9. The method of claim **1**, wherein said firing decreases a volume of said porous green bodies by not more than 30%.

10. The method of claim **1**, wherein said firing decreases a volume of said porous green bodies by not more than 15%.

11. The method of claim **1**, wherein said submersing and drying steps increase a fired material bend strength of said ceramic articles by at least 40% compared to a fired material bend strength of ceramic articles produced without said submerging and drying steps.

12. The method of claim **1**, wherein said submersing and drying steps increase a fired material bend strength of said ceramic articles by at least 300% compared to a fired material bend strength of ceramic articles produced without said submerging and drying steps.

13. The method of claim **1**, wherein said submersing and drying steps decrease a sagging after firing of said ceramic articles by at least 50% compared to sagging of ceramic articles produced without said submerging and drying steps.

14. The method of claim **1**, wherein distortion and linear shrinkage of said ceramic articles are each not more than 5%.

15. The method of claim **1**, wherein said drying step removes said organic solvent in an oven using a gas sweep.

16. The method of claim **1**, wherein during said drying step said polymer is formed in necking regions between contiguous particles and in small pores of said infiltrated bodies.

17. The method of claim **1**, wherein said fused ceramic articles have an increased porosity of between 0% to 26% after said submerging, drying, and firing steps compared the porosity of said shaped porous green bodies.

18. The method of claim **1**, wherein said fused ceramic articles have a fired porosity of at least 50% following said submerging and drying steps.

19. The method of claim **18**, wherein said ceramic articles have an increased fired material bend strength compared to a bend strength of ceramic articles produced without said submerging and drying steps.

20. The method of claim **1**, wherein about 20% pore volume of said green bodies is filled with said polymer after said drying step.

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