**WHAT IS CLAIMED IS**:

1. A particulate high-emissivity (high-ε) refractory product having a final particle size distribution ($D_{psf}$), the particulate high-ε refractory product comprising a mixture of the following components:

   (a) a particulate refractory base material having predetermined target particle size distribution ($D_{pst}$), the particulate refractory base material comprising, based on total weight of the particulate high-ε refractory product, a mixture of:
   (a1) 2 to 30 wt% of at least one particulate binder material selected from the group consisting of calcium aluminate cements, hydratable alumina, phosphate-based binders, sodium silicate, colloidal silica and colloidal alumina, and
   (a2) 50 to 95 wt% of at least one particulate refractory raw material filler material which is selected from the group consisting of alumina-silicates, alumina, silicon carbides, zirconia-containing raw materials, magnesium-aluminum spinels, silica fume, calcined flint, fused silica and silica sand; and

   (b) a high-ε inorganic high temperature pigment homogeneously distributed throughout the refractory base material component (a) and selected from the group consisting of metal oxides and metal carbides, the high-ε inorganic high temperature pigment being present in an amount of between 2 wt.% to 20 wt.%, based on total weight of the particulate high-ε refractory product, sufficient to impart an emissivity (ε) to the refractory product when cured of at least 0.80 and (ii) alter the Dpsf of the particulate high-ε refractory product, and

(c) a particle size distribution adjusting component selected from the group consisting of brown fused alumina and white fused alumina, wherein the particle size distribution adjusting component is present in an amount sufficient to adjust the particle size distribution of components (a), (b) and (c) so as to reset the $D_{psf}$ of the particulate high-ε refractory product altered by the high-ε inorganic high temperature pigment component (b) such that the $D_{psf}$ of the particulate high-ε refractory product is the same as the $D_{pst}$ of the particulate refractory base material component (a).

2. The particulate high-ε refractory product according to claim 1, wherein the particulate refractory base material comprises (a3) at least one refractory additive.

3. The particulate high-ε refractory product according to claim 1 or 2, wherein the particle size distribution adjusting component is present in an amount of up to 20 wt.%, based on total weight of the particulate high-ε refractory material product.

4. The particulate high-ε refractory product according to claim 1 or 2, wherein each of the $D_{pst}$ and the $D_{psf}$ of the refractory product has a distribution of particles sizes of:
4 mesh < 2%;
10 mesh = 23% +/- 5%;
20 mesh = 42% +/- 5%;
100 mesh = 58% +/- 5%;
200 mesh = 64% +/- 5%, and

-325 mesh = 32% +/- 5%.

5. The particulate high-ε refractory product according to claim 1 or 2, wherein the particulate binder material is present in the refractory base material in an amount of 2 wt.% to 10 wt.%, based on total weight of the particulate high-ε refractory material product.

6. The particulate high-ε refractory product according to claim 1 or 2, wherein the refractory raw material filler material is present in the refractory base material in an amount of 75 wt.% to 95 wt.%, based on total weight of the particulate high-ε refractory material product.

7. The particulate high-ε refractory product according to claim 1 or 2, wherein the refractory raw material filler material has an average particle size of below 3 mesh.

8. The particulate high-ε refractory product according to claim 1 or 2, wherein the at least one refractory additive is selected from the group consisting of dispersants, coagulants including set time accelerants and set time retardants, flocculants, deflocculants, plasticizers, colorants, foaming agents, water-retaining agents, anti-settling agents and preservatives.

9. The particulate high-ε refractory product according to claim 1 or 2, wherein the at least one refractory additive is present in an amount of up to 15 wt.%, based on the total weight of the particulate high-ε refractory product.

10. The particulate high-ε refractory product according to claim 1 or 2, wherein the high-ε inorganic high temperature pigment is present in an amount sufficient to impart an emissivity to the product when cured of between 0.80 to 0.95.

11. The particulate high-ε refractory product according to claim 10, wherein the high-ε inorganic high temperature pigment is present in an amount sufficient to impart an emissivity to the product when cured of between 0.90 to 0.93.

12. The particulate high-ε refractory product according to claim 1 or 2, wherein the high-ε inorganic high temperature pigment is present in an amount between 3 wt.% to 10 wt.%, such as between 4 wt.% to 6 wt.%, based on the total weight of the particulate high-ε refractory product.

13. A castable refractory wet mix which comprises the particulate high-ε refractory product according to claim 1 or 2 and water.

14. A cured refractory component which is comprised of a cured residue of the castable refractory wet mix according to claim 13.

15. A method of forming the particulate high-ε refractory product according to claim 1, wherein the method comprises:
(i) dry mixing the particulate refractory base material with an amount of a high-ε inorganic high temperature pigment sufficient to impart high-ε properties to the refractory product when cured of at least 0.80; and (ii) adding a particle size distribution adjusting component to

the dry mixture of the refractory base material and the high-ε inorganic high temperature pigment sufficient to adjust a final particle size distribution ($D_{psf}$) of the high-ε refractory product to correspond to a target particle size distribution ($D_{pst}$) of the refractory base material,

wherein the particulate refractory base material comprises, based on total weight of the particulate high-ε refractory product, a mixture of:

(a1) 2 to 30 wt.% of at least one particulate binder material selected from the group consisting of calcium aluminate cements, hydratable alumina, phosphate-based binders, sodium silicate, colloidal silica and colloidal alumina, and

(a2) 50 to 95 wt.% of at least one particulate refractory raw material filler material which is selected from the group consisting of alumina-silicates, alumina, silicon carbides, zirconia-containing raw materials, magnesium-aluminum spinels, silica fume, calcined flint, fused silica and silica sand,

wherein the high-ε inorganic high temperature pigment is selected from the group consisting of metal oxides and metal carbides, and the high-ε inorganic high temperature pigment is present in an amount of between 2 wt.% to 20 wt.%, based on total weight of the particulate high-ε refractory product, and

wherein the particle size distribution adjusting component is selected from the group consisting of brown fused alumina, white fused alumina.

16. A method of forming a castable refractory wet mix which comprises adding water to the particulate high-ε refractory product according to claim 1 or 2.

17. A method of forming an aqueous refractory slurry which comprises dispersing the particulate high-ε refractory product according to claim 1 or 2 in water.

18. A method for forming a refractory insulating foam material comprising:

(i) forming the aqueous refractory slurry according to claim 17; and

(ii) combining the aqueous refractory slurry with an aqueous foaming agent to prepare the refractory insulating foam material.