

(54) Title of the invention : Ultrafast thermal novel thermal barrier coatings for YSZ coating

<p>(51) International classification :C23C0004110000, C23C0030000000, C23C0014080000, F23R0003000000, C23C0028000000</p> <p>(86) International Application No Filing Date :PCT// :01/01/1900</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number Filing Date :NA :NA</p> <p>(62) Divisional to Application Number Filing Date :NA :NA</p>	<p>(71)Name of Applicant :  <b>1)Dr. S.R. Gibin</b>  Address of Applicant :Assistant Professor, Department of Physics and Research Center, Malankara Catholic College, Mariagiri, Tamilnadu, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India -----    <b>2)Dr. L. Guganathan</b>  <b>3)Dr. P. Anand</b>  <b>4)Dr. K. Umamakeshvari</b>  <b>5)Dr. D. Devika</b>  <b>6)Dr. A. Venkatesan</b>  <b>7)Dr. C. Rajeevgandhi</b>  Name of Applicant : NA  Address of Applicant : NA</p> <p>(72)Name of Inventor :  <b>1)Dr. S.R. Gibin</b>  Address of Applicant :Assistant Professor, Department of Physics and Research Center, Malankara Catholic College, Mariagiri, Tamilnadu, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India -----    <b>2)Dr. L. Guganathan</b>  Address of Applicant :Research Associate, Department of Physics, Annamalai University, Annamalainagar – 608 002, Tamilnadu, India -----    <b>3)Dr. P. Anand</b>  Address of Applicant :Assistant Professor, Sishya Arts and Science College, Vanniyanagaram, Su.Valavetti, Tiruvannamalai (Tirukoilur Bypass Road), Tamil Nadu 606806, India -----    <b>4)Dr. K. Umamakeshvari</b>  Address of Applicant :Assistant Professor, Christopher Arts and Science College (Women), Kalakad Main Road, Surangudi, Nanguneri-627108, Tamilnadu, India -----    <b>5)Dr. D. Devika</b>  Address of Applicant :Assistant Professor, AR Engineering College, Vadakuchipalayam, Kappiyampuliyur (PO), Viluppuram - 605 601, Tamilnadu, India -----    <b>6)Dr. A. Venkatesan</b>  Address of Applicant :Assistant Professor, Annai College of arts and science, kovilacheri, kumbakonam TK, Thanjavur (Dist.), 612503, Tamilnadu, India -----    <b>7)Dr. C. Rajeevgandhi</b>  Address of Applicant :Assistant Professor, Department of Physics, Annai College of Arts and Science, Kovilacheri, Kumbakonam (TK), Thanjavur (Dist.), Tamilnadu, India -----</p>
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(57) Abstract :  
A ceramic material is particularly useful as a thermal insulating or thermal barrier coating on metallic substrates, and it has a wide range of applications. Gadolinia and zirconia are used in the ceramic material, which is preferably combined to form gadolinia-zirconia oxide. The fluorite and pyrochlore structures of the material may be present. While this material exhibits superior properties in the areas of chemical stability, thermal stability, and thermal insulating properties compared to currently used thermal barrier ceramics, it also exhibits resistance to sintering and erosion comparable to that of currently used ceramics. Gadolinia is present in a preferred material in concentrations ranging from 5-60 mol. percent.

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