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(57) Abstract :

A Method of Preparing Low Temperature Stabilized High Entropy High-κ Oxides ABSTRACT A method of preparing low temperature stabilized, high-κ, high entropy oxide (CoCrFeMnNi)₃O₄ comprising dissolving 110 metal nitrates of Co(NO₃)₂, Cr(NO₃)₂, Fe(NO₃)₃, Mn(NO₃)₃ and Ni(NO₃)₂ of equimolar amounts in distilled water separately to form metal precursor solutions (112A-E), dissolving 120 fuel in distilled water to form a fuel solution 114. Adding 130 all the metal precursor solutions (112A-E) into the fuel solution 114 and kept stirring to form a final precursor solution 116. Heating 140 the final precursor solution 116 via combustion until changing as phase stabilized powder 124. Calcinate 150 the powder 124 in a tubular furnace 126 at various temperatures for a substantial time to obtain calcined powder 128 and pressing 160 to form a pellet 132. The pellet 132 is sintered 170 for a substantial time in the tubular furnace 126 at 1000 °C, wherein the high entropy oxide phase stabilizes at a temperature between 216°C – 400°C. FIG.2

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