

ABSTRACT

Disclosed in the present invention is a chemical mechanical polishing composition, which is used for achieving different polishing rate SiN/TEOS selectivity ratios. Specifically, a preferred trivalent transition metal ion compound iron(III) nitrate nonahydrate is added to a cerium oxide polishing solution, so that the polishing rate of SiN can be effectively improved at different pressures (1.5 psi, 2.0 psi and 3.0 psi) and within a concentration range (1-100 ppm) and a pH range (4.0-9.0), and a wide operation window is achieved. Moreover, different SiN/TEOS selectivity ratios can be achieved by adjusting the amount of iron(III) nitrate nonahydrate added. In addition, at a pressure of 3.0 psi, lanthanum(III) nitrate hexahydrate and cerium(III) nitrate hexahydrate can also effectively improve the polishing rate of SiN within a concentration range (20-100 ppm) and the pH range (4.0-9.0).

(No suitable figure)