10.6 Influencing factors
Main factors
Temperature Time Particle size
Other factors→ crystal structure, grain boundary, particles pieup, sintering atmosphere, sintering agent
1. Activity of particles (higher surface energy) Mechanical breaking particles Chemical activity
2. Additives Effects: 1) form solid solution Sinter Al203 with a little Cr203 or Ti02
(Ti02 additive at the sintering of Al203)
Text Box 3
Relative diffuse coefficient
Picture 4
2. Crystal transfer crystal transfer → volume change → difficult sintering
TextBox 5
Some additives
TextBox 4
Stop this!!
3) Restrain grain growth Grain growth → densify sintering body Too coarse grains → bad properties (Nano materials)
4) Generate liquid phase Why need liquid phase? Help the mass transfer of sintering How to get liquid phase? Additives What is the liquid phase? Low melting point additive Eutectic solution
3. Influence of Atmosphere Normal Atmosphere: Air, N2, Ar, H2, vacuum Function: Protect from O2 Reduction or Oxidation Special function
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U (a) Physical function Diffusion of gas atoms or molecules in pores during sintering
Rectangle 2
(2) Chemical function Reaction between gas and sintering body Oxidation Reduction Oxidation: Increase concentration of cation vacancy Reduction: Increase concentration of anion vacancy
Density of MgO by different sintering
Sintering
PPT9
Wingdings Verdana hao 1_hao 10.6 Influencing factors 幻灯片 2 幻灯片 3 幻灯片 4 幻灯片 5 TiO2 additive at the sintering of Al2O3 幻灯片 7 幻灯片 8 幻灯片 9 幻灯片 10 幻灯片 11 幻灯片 12 幻灯片 13 Density of MgO by different sintering 已用的字体 主题 幻灯片标题 Version Aiguo Aiguo
全屏显示(4:3) Times New Roman 宋体 Arial 楷体_GB2312
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