



云南大学学报(自然科学版) » 2007, Vol. 29 » Issue (6): 601-606 DOI:

材料科学

最新目录 | 下期目录 | 过刊浏览 | 高级检索

◀ Previous Articles | Next Articles ▶▶

高密度氧化铟锡(ITO)靶材的制备研究

朱归胜, 徐华蕊

桂林电子科技大学, 信息材料科学与工程系, 广西, 桂林, 541004

Study on the preparation of ITO ceramic target with high density

ZHU Gui-sheng, XU Hua-rui

Guilin University of Electronic Technology, Guilin 541004, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (1642 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 以水热合成的2种不同粒径(70±8)nm和(40±6)nm单分散ITO粉末为原料,对原料粉体粒径分布、冷等静压成型压力、烧结温度和时间等与靶材烧结密度之间的关系进行了研究.当2种粒径原料按7:3质量比混合均匀,成型压力为250MPa,成型坯体经1300℃预烧1.5h和在1400℃烧结1h后可以得到相对密度大于99%的高密度、高纯度ITO靶材.

关键词: 高密度 ITO 靶材 制备

Abstract: The indium tin oxide(ITO) ceramic target with high relative density was prepared by cold iso-static pressing and sinter at air atmosphere process,using the mono-dispersed ITO powders with two different particle size(70±8)nm and(40±6)nm which synthesized by resin-hydrothermal as raw materials.The factors among the particle size-distribution,pressure and sintering temperature etc which affected the density of ITO ceramic target have been investigated.The ITO ceramic target could have get a relative density about 99.28% by means of which are mixed powder with 7:3 weight ratio and molded under 250MPa of CIP pressure and then sintered at the temperature of 1300℃ for 1.5 h and 1400℃ for 1 h.

Key words: relative density indium tin oxide(ITO) target preparation

收稿日期: 2007-01-12;

基金资助:

国家863计划资助项目(2003AA32X140);广西自然科学基金资助项目(桂科能0542011)

通讯作者: 徐华蕊(1972-),男,博士,研究员,博士生导师,Email: huaruixu@gliet.edu.cn. E-mail: huaruixu@gliet.edu.cn

引用本文:

朱归胜,徐华蕊. 高密度氧化铟锡(ITO)靶材的制备研究[J]. 云南大学学报(自然科学版), 2007, 29(6): 601-606.

ZHU Gui-sheng,XU Hua-rui. Study on the preparation of ITO ceramic target with high density[J]. , 2007, 29(6): 601-606.

[1] Kentaro Utsumi,Osamu Matsnaga.Low resisitivity ITO film prepared using the ultrahigh density ITO target[J].Thin solid Films,1998,334: 30-34.

[2] De Wit J H W.Structural aspects and defect chemistry in In₂O₃[J].Journal of Solid State Chemistry,1977,20(2): 143-148.

[3] BATES J L,GRIFFIN C W,MARCHANT D D,et al.Electrical conductivity,seebeck coefficient and structure of In₂O₃-SnO₂,Am Ceram[J].Soc Bull,1986,65(4):673-678.

[4] NADAUD N,LEQUEUX N,NANOT M.Structural studies of tin-doped indium oxide (ITO) and In₄Sn₃O₁₂[J].Journal of Solid State Chemistry,1998,135: 140-148.

[5] XU Hua-rui,ZHOU Huai-ying,ZHU Gui-sheng,et al.Preparation of monodispersed tin-doped indium oxide nanopowders under moderate conditions[J].Materials Letters,2005,59: 19-21.





[6] 朱归胜,徐华蕊,廖春图.单分散纳米氧化铟锡粉末的水热合成[J].无机材料学报,2005,20(2): 479-483.

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章

- ▶ 朱归胜
- ▶ 徐华蕊

- [7] UDAWATTE C P, YANAGISAWA K. Sintering of additive free hydrothermally derived indium tin oxide powders in air[J]. Journal of Solid State Chemistry, 2000, 154: 444-450. 
- [8] NAM J G, H Choi Kim, Song, PARK S C. Synthesis and sintering properties of nanosized In_2O_3 -10wt% SnO_2 powders[J]. Scripta Mater, 2001, 44: 2047-2050. 
- [9] Amith K Murali. A kinetic study of indium nitride formation from indium oxide powders[J]. Materials Science and Engineering, 2002, B96: 111-114.
- [10] Bong-Chull Kim. Densification of nanocrystalline ITO powders in fast firing: effect of specimen mass and sintering atmosphere[J]. Materials Research Bulletin, 2005, 40: 395-404. 
- [11] THEUNISSEN G S A M, WINNUBST A J A, BURGGRAAF A J J. Euro. Sintering. Kinetics and microstructure development of nanoscale Y-TZP ceramics[J]. Ceram Soc, 1993, 11: 315-324. 
- [12] ZHU Hullong, AVERBACK R S. Sintering process of two nano-particles: A study by molecular dynamics simulations[J]. Philos Mag Lett, 1996 (73): 27-30.

没有找到本文相关文献

版权所有 © 《云南大学学报(自然科学版)》编辑部

编辑出版: 云南大学学报编辑部 (昆明市翠湖北路2号, 650091)

电话: 0871-5033829(传真) 5031498 5031662 E-mail: yndxxb@ynu.edu.cn yndxxb@163.com