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Preparation ultra fine particles from Ceramic refractory material using CO_2 Laser

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Abstract

Samples of compact magnesia and alumina were evaporated using CO_2-laser .The

Processed powders were characterized by electron microscopy and both scanning and transmission electron microscope. The results indicated that the particle size for both powders have reduced largely to 0.003 nm and 0.07 nm for MgO and Al_2O_3, with increasing in shape sphericity.

Keywords
Cadmium sulphide
Hetrojunction

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تحضير مساحيق فائقة النعومه من مواد سيراميكيه صناعيه باستعمال تقانة ليزر ثاني اوكسيد الكاربون

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الخلاصة

حضرت مساحيق فائقة النعومه لمكبوسات المواد السيراميكيه ،اوكسيد المغنيسيوم واوكسيد الالمنيوم ، حضرت باستعمال تقانة ليزر ثاني اوكسيد الكاربون . درست خصائصها التركيبيه بواسطة الحيود الالكتروني والمجهر الالكتروني الماسح والنافذ. النتائج بينت الاختزال بمقدار الحجم الحبيبي للمساحيق المحضره بحيث اصبحت بمقدار ٠٠٠٣ نانو متر لمسحوق اوكسيد المغنيسيوم و لاوكسيد الالمنيوم٠٠٠٧ ، مع زياده في شكل الكريه للحبيبات

Introduction

The standard methods of making powders involve grinding, wet chemistry and solid- state (1) reactions, which have shortcoming, such as contamination, particle agglomeration, and high energy consumption. In addition the particles produced vary in size when they are packed together and sintered, some of the voids among them are filled in by particle rearrangement and mass transport processes ; but voids usually remain . Laser is used in many applications, i.e. in the laboratory, in industry, and in medicine. The ideal heat source proved to process involves blowing the reaction gases through the beam of a Co_2 – laser to increase the reliability and decrease the resulting porosity which acts as elements of incipient cracks. At which the ceramic