

## عنوان مقاله:

Interfacial phenomena in TLP bonding of  $Al_2O_3$  using a  $Bi_2O_3$  interlayer

## محل انتشار:

دهمین کنگره سرامیک ایران (سال: 1394)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Bismuth oxide, due to its low melting point was selected as filler for joining alumina to alumina using Transient Liquid Phase (TLP) method. For this purpose a thin layer of bismuth oxide was placed as an interlayer between the ceramic bodies. The growth of interfacial compounds between  $Al_2O_3$  and  $Bi_2O_3$  during transient liquid phase bonding at  $900^\circ C$  and  $1000^\circ C$  for various times was investigated. The mechanical properties of the joined samples were measured using shear testing method. To investigate the microstructure of the joining area, the cross section of the joints were studied using scanning electron microscope (SEM) and X-ray diffraction method. The results showed that increasing the time and temperature resulted in bismuth oxide ( $Bi_2O_3$ ) diffusion into alumina ( $Al_2O_3$ ) and forming interfacial compounds. The highest joint strength of about  $80$  MPa was obtained for the samples joined at  $900^\circ C$  for  $10$  hrs.

## کلمات کلیدی:

Alumina, Bismuth oxide, TLP, Interfacial Compounds

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1902082>

