

## عنوان مقاله:

THERMO-MECHANICAL DESIGN OPTIMIZATION OF CORDIERITE-MULLITE BASED KILN FURNITURE

## محل انتشار:

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## خلاصه مقاله:

Abstract: Cordierite-Mullite based kiln furnitures are widely used in fast-firing of ceramic products because of their low thermal expansion which confer them a very good ability to thermal shock resistance. Difference in CTE of constituent phase can develop damage during thermal cycling due to internal stresses. Increase in industrial competitiveness leads to the development of new means for extending refractory life and increasing reliability of industrial tools so investigations regarding the structuralmechanical behaviour of refractory systems are becoming essential. In this paper, Thermo-mechanical design of commercial Cordierite-Mullite based kiln furniture was investigated by using finite element method (FEM) and possible solutions for improvement of working life have been considered. The results indicated that the change of the kiln furniture geometry can decrease the maximum thermomechanical stress in study conditions which can prolong the refractory service life. Obtained results indicate the existence of an optimal thickness for the section under maximum thermo-mechanical stress. Increasing filet radius of ring region from ۳ to ۹ mm .decreases thermo-mechanical stress value from ۱۱۳ to ۹۳ MPa

## کلمات کلیدی:

Keywords: kiln furniture, cordierite-mullite refractory, finite elements analysis

## لینک ثابت مقاله در پایگاه سیویلیکا:

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