

## عنوان مقاله:

The Effect of Carbon Nanoparticles and Calcined Alumina on Mechanical Properties and Corrosion Resistance Behavior of the Magnesite Carbon Refractories

## محل انتشار:

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## خلاصه مقاله:

Nowadays, magnesite carbon refractories are very important for the iron and steel industries. It is due to their unique properties, such as low wet ability with melt iron and steel. Therefore, it is important to extend the life of the refractory. In this research, the effect of calcined alumina and nano carbon on mechanical strength and corrosion resistance against slag in magnesite carbon refractories was studied. Mechanical strength of cold crushing strength, CCS, was measured. The bulk density, BD, and apparent porosity, AP, were determined, relative to the size and weight measured, using Archimedes method standard and corrosion resistance against the slag shrub procedure. Cylindrical  $50 \times 50$  mm samples were tempered at  $250^\circ\text{C}$  for 3 h. The corrosion resistance of the samples cooked at  $1350^\circ\text{C}$  for 2 h under reducing atmosphere (coke bed) was evaluated. XRD and SEM-EDS analyses were used for characterizations. The results showed that the combination of calcined alumina, magnesite, graphite and nano carbon produced very high strength up to 50% and density up to 12.5%, as well as very good corrosion resistance. Especially, the samples containing alumina showed better corrosion resistance, as compared with other samples, due to spinel phase.

## کلمات کلیدی:

MgO-C refractory, Alumina calcined, Nano carbon, Mechanical properties, Corrosion resistance against slag

## لینک ثابت مقاله در پایگاه سیویلیکا:

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