

The Experimental Study on Reducing and Carbonizing Titanium-Containing Slag by Iron-Containing Coke

Authors : Yadong Liu

Abstract : The experimental study on reduction carbonization of coke containing iron respectively with the particle size of <0.3mm, 0.3-0.6mm and 0.6-0.9mm and synthetic sea sand ore smelting reduction titanium-bearing slag as material were studied under the conditions of holding 6h at most at 1500°C. The effects of coke containing iron particle size and heat preservation time on the formation of TiC and the size of TiC crystal were studied by XRD, SEM and EDS. The results show that it is not good for the formation, concentration and growth of TiC crystal when the particle size of coke containing iron is too small or too large. The suitable particle size is 0.3~0.6mm. The heat preservation time of 2h basically ensures that all the component TiO₂ in the slag are reduced and carbonized and converted to TiC. The size of TiC crystal will increase with the prolongation of heat preservation time. The thickness of the TiC layer can reach 20μm when the heat preservation time is 6h.

Keywords : coke containing iron, formation and concentration and growth of TiC, reduction and carbonization, titanium-bearing slag

Conference Title : ICTTA 2019 : International Conference on Titanium and Titanium Alloys

Conference Location : Tokyo, Japan

Conference Dates : September 09-10, 2019