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Oxide and silicate phases crystallized in converter slag

Oksidne in silikatne faze kristalizacije v jeklarski žlindri

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Abstract

The article presents one of the stages in testing of converter slag. It has been established that the analyzed waste material is prospective and provides various possibilities of application. This results from its mineralogical and chemical composition. The presence of high concentrations of Ca, low content of S and heavy metals guarantee the preservation of the alkaline properties of the slag and thus ensure the limited migration of metals. Apart from glaze, which prevails in the slag, the presence of phase compounds has also been demonstrated: wustite and its solid solutions with periclase, merwinite, mullite and considerable amounts of dicalcium silicates – larnite, bredigite and calcio-olivine were found.

Key words: converter slag, mineralogy, phase composition, heavy metals.

Povzetek

V članku je predstavljena ena od faz testiranja jeklarske žlindre. Ugotovljeno je bilo, da je analiziran odpadni material perspektiven in zagotavlja različne možnosti uporabe. Ta predpostavka izhaja iz mineraloške in kemijske sestave vzorca. Prisotnost visokih koncentracij kalcija Ca, nizka vsebnost žvepla S in težkih kovin so dovolj veliko jamstvo pred alkalnimi lastnostmi žlindre in zagotavljajo omejeno možnost migracije kovin. Ločeno od stekla, ki v žlindri prevladuje, je v članku prikazana fazna sestava: wustita in njegovih raztopin z periklazom, merwinitom, mullitom in znatnimi količinami dikalcijevih silikatov – larnit, bredigit in kalcijev-olivin so bil prav tako odkriti.

Ključne besede: jeklarska žlindra, mineralogija, fazna sestava, težke kovine.