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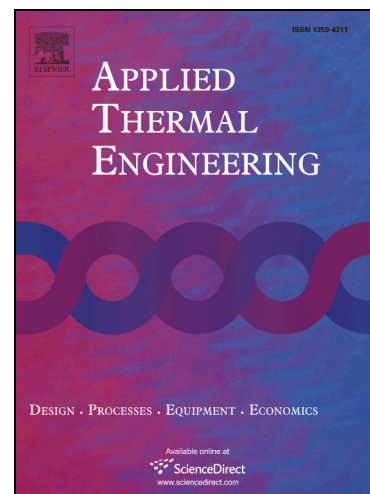
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Artificial Neural Network Modeling for Evaluating the Power Consumption of Silicon Production in Submerged Arc Furnaces

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Abstract

The Pearson correlation coefficient between different quantities of metal oxides and specific power consumption was used here to determine the effect of metal oxide content on the power consumed by an industrial silicon production process. The results showed that the effect of oxide content on power consumption falls into the order $\text{CaO} > \text{Fe}_2\text{O}_3 > \text{Al}_2\text{O}_3$. The interactive effects among the main oxide matter (CaO, Fe₂O₃, and Al₂O₃) and remaining trace oxide matter (MgO, K₂O, TiO₂, Cr₂O₃,

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