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Research Details :

Research Title	: <u>CATALYTIC EFFECTS OF DOPANT METAL-OXIDES ON THE REDUCTION OF HEMATITE BY CARBON IN THE GRAPHITE-IRON (III) OXIDE SYSTEM</u> <u>CATALYTIC EFFECTS OF DOPANT METAL-OXIDES ON THE REDUCTION OF HEMATITE BY CARBON IN THE GRAPHITE-IRON (III) OXIDE SYSTEM</u>
Description	: The effects of doping of hematite with Li ⁺ or Cu ²⁺ ions on the reduction of hematite to iron in the graphite-iron (III) oxide system in air have been investigated using isothermal and dynamic TG techniques. Kinetic analysis of dynamic and isothermal data using different theoretical models have been performed. A comparison of the results for the doped and non-doped samples shows that doping does not change the model for reaction interface, but it remarkably affects the kinetics of the reaction. The isothermal results show that doping with Li ₂ O decreases both E and ln A values, while doping with CuO does not affect E, but increases ln A. A significant decrease occurs in the time for half-completion of reaction, especially at the lower temperatures and in the case of doping with CuO. Doping experiments support the two-stage oxygen transfer mechanism for the reduction of iron oxide with carbon.
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