

Combustion Characteristics of Oxygen Heaters Applying Partial Oxidation of Fuel Gas

조길원*, 조한창, 박흥수
포항산업과학연구원
(kwcho@rist.re.kr*)

This study has been carried out to develop oxygen preheating technology for enhancing coal injection into the blast furnace. An experimental apparatus enabling partial combustion to heat oxygen of higher than 1,300°C was prepared. Several burner models were fabricated to test the preheating performance and to derive design guidelines required for oxygen preheater. It was found that the oxygen temperature issuing from the preheating burner is dependent on the air ratio. The preheating temperature was reduced with the increase in oxygen flowrate. The temperature distribution on the burner was highly affected by the design and operating parameters of the burner. It was confirmed that the oxygen preheating burner should be designed to endure the high flame temperature of the oxy-flame. An efficient mixing of fuel and oxygen is required to avoid peak temperature and resultant burner failure. A systematic study is needed to apply hot oxygen injection into blast furnace.