

## TDLS센스 기반 가열로 산소농도제어에 관한 연구

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There has been some studies to improve the combustion control of a furnace to be in state of low NOx and scale. In general, although a reheating furnace has oxygen monitoring system, the accuracy and robustness of a previous oxygen sensor (direct-reading Zr sensor system) is unreliable.

In this project, we studied the more accurate and reliable sensing method for oxygen, evaluate the stability of TDLS (Tuneable Diode Laser Spectroscopy) and make a feedback control system to get a stable response. The developed oxygen monitoring system is installed at no. 1 reheating furnace on hot roll at POSCO and the Zr sensor system shows too sensitive because it measures oxygen concentration on a spot unlike TDLS sensor which is successfully applied at 13m-width reheating furnace to measures the line average along the open path line. We can get stable and acceptable results as the deviation in 0.15vol% O<sub>2</sub> range in case of general control region. In future we will study the level-up automatic oxygen control to more stable & lower air pollution, to reduce the scale loss and to obtain good surface quality in reheating furnace by measuring the fuel gas compositions in advance.