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Ultra-Low NOx Combustion Technology of Liquid Fuel Burner

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Abstract : A new concept of in-furnace partial oxidation combustion is successfully applied in this research. The burner is designed such that liquid fuel is prevaporized in the furnace then injected into a fuel rich combustion zone so that a partial oxidation reaction occurs. The effects of equivalence ratio, thermal load, injection distance and fuel distribution ratio on the NOx and CO are experimentally investigated. This newly developed burner showed very low NOx emission level, about 15 ppm when light oil is used as a fuel.

Keywords : burner, low NOx, liquid fuel, partial oxidation
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