

Oxy-fuel combustion of pulverised coal in a swirl burner

The pulverised coal combustion in a swirl burner is a complex phenomenon. A simplified numerical model, using RANS approach, has been developed in order to predict the combustion processes in a swirl burner with an accuracy comparable to that of Large Eddy Simulations (LES). The effect of different combustion environments such as air, oxy-steam ($\text{O}_2/\text{H}_2\text{O}$) and oxy-recycled flue gas (O_2/CO_2) on gas temperature and NO concentration has been studied. The proposed numerical model may be used for faster and reliable analysis of pulverised coal combustion in a swirl burner; useful for industrial applications.

