

Development of Pulverized Coal Burner with Intense Mixing Coal/Blast under Large Gas Velocity in Blast Furnace Tuyere

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Synopsis :

Improvement in the combustion efficiency of pulverized coal (PC) burner. Simulations of the PC flow in the tuyere indicate that the injection burner would enhance the dispersion and heating of the pulverized coal at the downstream of the burner. Combustion tests in a furnace with a coke bed then showed that combustion efficiency was improved by approximately 10% with the high-turbulence burner. Temperature measurements and gas sampling were carried out to examine the effectiveness of the high-turbulence burner at a tuyere of Chiba Works No. 5 blast furnace. The temperature drop in the main coal stream decreased by 100 K with the high-turbulence burner due to effective mixing of the coal and hot blast. A carbon dioxide concentration of 0.06% was also detected, suggesting fast ignition. Measurements confirmed that better dispersion and faster ignition were obtained with the high-turbulence burner.

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# 高炉送風エネルギーを利用した 高乱流微粉炭バーナーの開発\*

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### 要旨

微粉炭燃焼性改善による吹込み量増加と安定操業を目的として、数学モデルや燃焼実験によって、微粉炭と送風の混合を促進する高乱流微粉炭吹込みバーナーを開発し、その効果を確認した。(1) 数



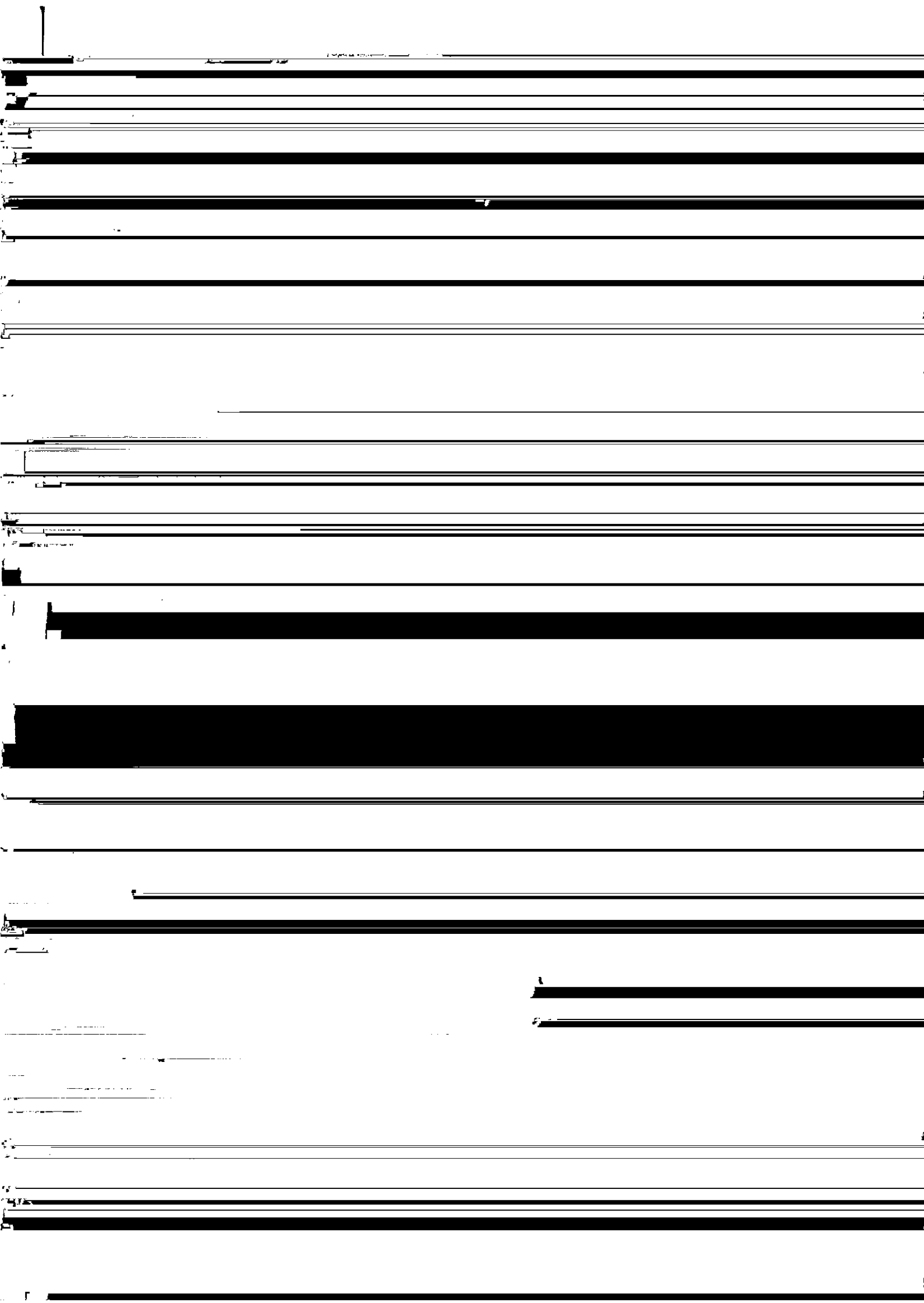
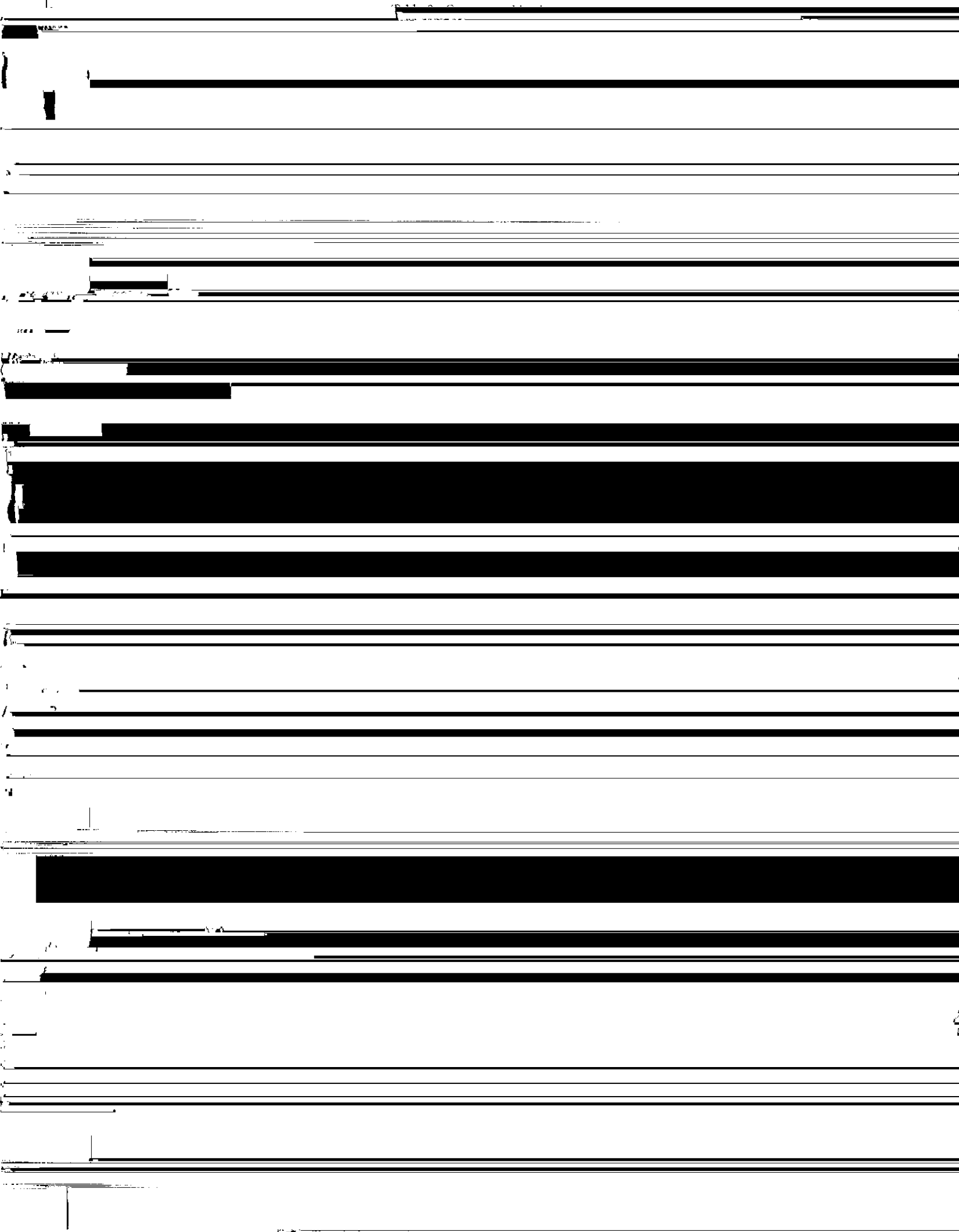


Table 5 Chemical compositions of pulverized coal injected in tuyere

(mass %, dry base)

Element	Value
C	80.0
H	6.0
N	1.0
O	13.0
S	0.0
As	0.0
Fe	0.0
Ca	0.0
Mg	0.0
Si	0.0
Al	0.0
Na	0.0
K	0.0
Cl	0.0
Br	0.0
I	0.0
B	0.0
P	0.0
Other	0.0



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