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Diagnostic System for Coke-Oven Wall

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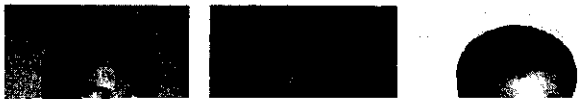
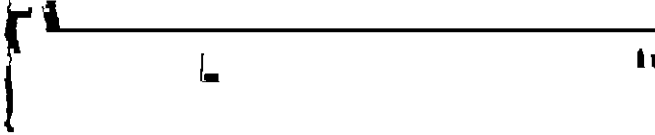
Synopsis :

The authors have developed a coke-oven wall diagnosis system for inspection of the condition of the oven wall in all parts of the coking chamber. The system comprises (1) equipment which automatically photographs the entire wall surface with a camera system introduced into the coking chamber on a moving boom and (2) a function which diagnoses wall damage from the photographic images using image processing technology. The system is also provided with a database and an interactive user interface. This system makes possible accurate, quantitative evaluation of the aging of all areas of the coke-oven wall, including those which it was impossible to inspect in the past, and thus supports more appropriate oven maintenance and operating response.

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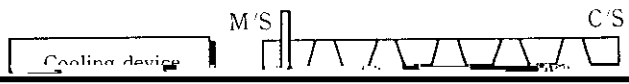
**The body can be viewed from the next page.**

Diagnosis of Coke-oven Wall Condition\*



*Synopsis:*

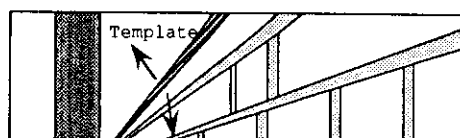
*The authors have developed a coke-oven wall diagnosis system for inspection of the condition of the oven wall.*





processing.

- (2) Adequate discrimination is not possible in a feature space based on texture.
- (3) The density range varies in the joints and brick surface.



threshold is applied, when the average density is high, lower threshold is applied. Because these parts include normal areas and noise from small white points, such areas must be excluded from the carbon surface area. The density level for extracting

#### 4 Conclusions

A coke oven wall diagnostic system was developed to solve problems with the conventional method of visual

the carbon area was obtained using experimental data.

#### (2) Number of Linear Damage Site

Linear damage includes brick joint damage and

inspection used in examining the coke-oven walls. The new system has the following features:

- (1) An oven wall image input device was developed, making it possible to inspect the entire coke-oven

cracks in non-joint areas. Where brick joint damage are concerned, an investigation of the density distri-

wall by introducing a camera into the coking chamber, in spite of the high-temperature environment. The equipment is fabricated with special attention