

ria. The film attachment method was adopted for evaluation of antibacterial activity, and Japan industrial standard Z 2801:2000 was applied as the criterion for evaluate antimicrobial abilities of samples. Silver and Cu showed strong bactericidal effects as expected, and following them Co, Ni and Al were moderately toxic. Physiological effects of metals depended on the specie of bacteria. For example, Ni decreased the total viable count of *E. coli* to 10 cfu/mL in 4 h, while it took 24 h to decrease the total viable count of *S. aureus*. By judgment following to JIS Z 2801:2000, Pt and Pb were effective only for *E. coli*, while V and Zr were only for *S. aureus*. Gold was not toxic even though  $Au^{3+}$  had been reported as strong toxic. Also Mo showed antibacterial effects which can be resulting from decrease in pH of the bacteria suspension.

(cf. *ISIJ Int.*, **48** (2008), 1299)

### Social and Environmental Engineering

#### Reduction in dioxin emissions by the addition of urea as aqueous solution to high-temperature combustion gas

*E.KASAI et al.*

In order to study the effect of urea addition to the

waste gas on the dioxin formation, a series of experiments is carried out using the fly ashes sampled from two different types of solid waste incinerators. A remarkable suppression effect is obtained for the dioxin formation, while no clear change is observed for the obtained organic chlorine. Considering these results, the method of urea addition to the water splayed into the cooling tower of waste gas is proposed as an effective measure to suppress the dioxin formation at the cooling stage of the combustion gases. A verification test is carried out using an actual solid waste incinerator. When the concentration of urea in the splayed water is set to 0.1%, the toxicity concentration of the dioxins in the waste gas is reduced to approximately half that in the case without the addition. Further, the addition of urea does not significantly affect the concentration of NOx in the waste gas.

(cf. *ISIJ Int.*, **48** (2008), 1305)

#### Evaluation of hydrothermal treatment to immobilize hexavalent chromium in wastewater using granulated blast furnace slag

*S.-J.TAE et al.*

The immobilization of hexavalent chromium in wastewater using blast furnace slag as the immobi-

lizing agent was investigated by using hydrothermal treatment. The results showed that immobilization was not attained without a hydrothermal treatment, while hexavalent chromium in solution could be immobilized through the process of hydrothermal treatment with the blast furnace slag at 250°C for 18 h. In particular, the reducing condition was attributed to the presence of sulfur in the blast furnace slag, which indicated that the sulfur could plays key role in the immobilization of hexavalent chromium in the present study. In addition, the leaching test was carried out to evaluate the level of immobilization of hexavalent chromium in the products after the hydrothermal treatment, and it was found that the degree of immobilization was very high. Based on the results obtained in the present study, the immobilization mechanism of the hydrothermal treatment of blast furnace slag in wastewater was elucidated.

(cf. *ISIJ Int.*, **48** (2008), 1311)

### 訂正

「鉄と鋼」Vol. 94 No. 8（平成20年8月）の目次に分野の誤りがありました。  
次の論文の分野は製鉄／Ironmakingではなく、正しくは製鋼／Steelmakingです。

浸漬ノズル近傍を上昇するアルゴン気泡の挙動に関する水モデル実験

Water Model Experiment on the Behavior of an Argon Bubble Rising near the Immersion Nozzle

渡邊 剛・井口 学