

ABSTRAKSI

Limbah *sludge krom* yang dihasilkan dari industri penyamakan kulit tergolong jenis limbah berbahaya dan beracun (limbah B3) sehingga perlu pengelolaan secara khusus. Penelitian ini bertujuan untuk mengetahui tingkat logam berat yang terimmobilisasi dalam glasir yang telah ditambahkan limbah *sludge krom* dan bahan-bahan aditif. Di samping itu juga untuk mengetahui kualitas keausan glasir dan persentase penambahan limbah *sludge krom* yang optimum dalam pembentukan glasir dari aspek teknis (keausan) dan aspek kesehatan dan lingkungan.

Metode penelitian yang digunakan adalah solidifikasi limbah *sludge krom* sebagai glasir dengan penambahan variasi limbah *sludge krom* 10%, 20%, 30%, dan 40% dalam bahan glasir, selanjutnya diberi air secukupnya dan dicelupkan kedalam keramik limbah katalis yang berukuran 10cmx10cmx0.5cm. Glasir yang telah di buat dikeringkan dan dibakar dengan suhu 1150°C selama 6 jam, masing-masing variasi percobaan dibuat 5 sampel glasir. Terhadap benda uji glasir yang diperoleh, dilakukan uji keausan dan uji lindi dengan metode TCLP.

Dari hasil penelitian, Nilai kuat keausan glasir tertinggi didapat pada penambahan konsentrasi limbah *sludge krom* 40% yaitu sebesar 0.0278 gr/2 cm² dan nilai kuat keausan terendah terjadi pada glasir tanpa limbah *sludge krom* yaitu sebesar 0.0461 gr/2 cm². Hal ini masih dibawah nilai keausan keramik (Mulia 0.1204 gr/2 Cm², Diamond 0.0877 gr/2 cm², KIA 0.0515 gr/2 cm², Roman 0.0462 gr/2 cm² dan Milan 0.0417 gr/2 cm²) sebagai pembandingan. Pemeriksaan pelindian logam berat Cr pada padatan keramik glasir dengan metode *Toxicity Charateristic Leaching Procedure* (TCLP) pada penambahan 10%, 20%, 30% dan 40% limbah *sludge krom* masih berada dibawah baku mutu yang ditentukan berdasarkan PP 85 tahun 1999. Oleh karena itu persentase penambahan limbah *sludge krom* yang optimum dalam pembentukan glasir dari aspek teknis (Keausan) dan aspek kesehatan dan lingkungan yaitu 10% dengan nilai keausan sebesar 0.0411 gr/2 cm² dan nilai lindi logam berat Cr sebesar 0,14 mg/L. Sehingga dapat disimpulkan bahwa limbah *sludge krom* dapat dimanfaatkan baik dari aspek teknis (keausan) maupun kesehatan dan lingkungan.

ABSTRACT

Wastes of sludge chrome resulted from leather tanning industries classified as kinds of dangerous and poisonous waste (waste B3) so it is needed a special management. The present study has purposes at knowing of heavy metal rate immobilized on glazer had been added with the waste sludge chrome and some additive materials. In addition the study also wants to know quality of glazier wearing out and addition percentage of waste sludge chrome optimally in forming glazer from technical aspect (wearing out), health and environmental aspects.

The one of processing methods used was solidification of waste sludge chrome as glazer by adding a variation of waste sludge chrome 10%, 20%, 30% and 40% in glazer material then given enough water and immersed into a catalyst waste ceramics having a size of 10cmx10cmx0.5cm- Glazer had been made then dried and burnt at the temperature 1150°C during 6 hours; each trial variation was made as 5 glazier samples. To glazer test material obtained, it was done a wearing-out test and alkali test using a TCLP method.

From the results, valued of the highest glazier wearing out strength obtained by adding concentration of waste sludge chrome 40% that is 0.0278 gr/2 cm² and the lowest wearing out strength value happened on glazer without waste sludge chrome as big as 0.0461 gr/2 cm². These are still under the value of ceramics wearing out (Mulia 0.1204 gr/2 cm²; Diamond 0.0877 gr/2 cm², KIA 0.0515 gr/2 cm², Roman 0.0462 gr/2 cm², and Milan 0.0417 gr/2 cm²) as comparisons. Alkali examination of the heavy metal Cr upon the glazer ceramics compact using a TCLP (Toxicity Characteristic Leaching Procedure) method on addition 10%, 0%, 30% and 40% waste sludge chrome were still under the quality standard determined based on the Governmental Rule of 1999. Thus, the optimal addition percentage of waste sludge chrome formed the glazer from a technical aspect (wearing out), health and environmental aspects as big as 10% with its wearing out value as big as 0.0411 gr/2 cm² and an alkali value of heavy metal Cr as big as 0.14 mg/K. So, it can be concluded that the waste of sludge chrome can be used both from its technical aspect (wearing out) or its health and environmental aspects.