

ABSTRAK

Pada Umumnya tambang bauksit memiliki kandungan Alumina (Al_2O_3) dan Silika (SiO_2) yang dominan. Data dari hasil perencanaan tambang (*plan*) dengan data realisasi tambang (*actual*) harus diperbandingkan kualitas dan kuantitasnya, untuk mengetahui seberapa besar nilai dan persentase dilusi akibat SiO_2 . Diperlukan pengujian laboratorium untuk mengidentifikasi penyebab utama terjadinya perbedaan kadar dan dilusi.

Penelitian ini bertujuan untuk menganalisis persentase dilusi terhadap bijih bauksit, menganalisis perbedaan kadar Al_2O_3 dan SiO_2 antara *plan* dan *actual*, dan menganalisis pengaruh dilusi SiO_2 terhadap kadar Al_2O_3 . Metode penelitian ini meliputi pengelompokan basis data, analisis statistik univariat, analisis hasil validasi silang dan menganalisis potensi dilusi akibat SiO_2 . Data dalam penelitian ini diambil dari 3 blok tambang bauksit PT. DSM terdiri dari blok I, blok II, dan blok III

Hasil penelitian menunjukkan persentase dilusi rata-rata pada blok I, blok II, dan blok III secara berturut-turut yaitu 2,98%, 2,95%, dan 3,11%. Kadar Al_2O_3 mengalami perubahan penurunan kadar dari *plan* ke *actual*. Hal ini disebabkan oleh perubahan bertambahnya kadar SiO_2 dari *plan* ke *actual* dengan persentase perbedaan kadar rata-rata sebesar 15,2%.

Kadar Al_2O_3 mengalami penurunan dari *plan* ke *actual* rata-rata sebesar 0,84% dengan persentase perbedaan kadar Al_2O_3 (Q) rata-rata sebesar 1,71%. Nilai penurunan kadar tersebut masih tergolong rendah dan masih dalam standar nilai perusahaan. Analisis pengaruh dilusi SiO_2 terhadap kadar Al_2O_3 menggunakan metode validasi silang yang menghasilkan nilai koefisien korelasi (r) Al_2O_3 senilai 0,95. Nilai derajat *slope* adalah $43,3^\circ$.

ABSTRACT

In general, bauxite mines contain predominantly Alumina (Al_2O_3) and Silica (SiO_2). Data from the results of mine planning (plan) and mine realization data (actual) must be compared the quality and quantity, to find out how much the value and percentage of dilution due to SiO_2 . Laboratory testing is required to identify the main cause of the difference in grade and dilution.

This study aims to analyze the dilution percentage of bauxite ore, to analyze the differences in Al_2O_3 and SiO_2 grades between plan and actual, and to analyze the effect of SiO_2 dilution on Al_2O_3 grades. This research method includes database grouping, univariate statistical analysis, analysis of cross-validation results and analyzing potential dilution due to SiO_2 . The data in this study were taken from 3 bauxite mining blocks of PT. DSM consists of block I, block II, and block III.

The results showed that the average dilution percentage in block I, block II, and block III were 2.98%, 2.95%, and 3.11%, respectively. Al_2O_3 grades have decreased levels from plan to actual. This is due to the change in the increase in SiO_2 grades from plan to actual with the percentage difference in the average grade of 15.2%.

Al_2O_3 grades decreased from plan to actual by an average of 0.84% with an average percentage difference in Al_2O_3 grades (Q) of 1.71%. The depreciation value is still low and still within the standard company value. Analysis of the effect of SiO_2 dilution on Al_2O_3 grades using the cross validation method which resulted in the correlation coefficient (r) of Al_2O_3 of 0.95. The value of the degree of slope is 43.3° .