

ABSTRAK

KRISTALISASI SENG SULFAT (ZnSO_4) DARI LARUTAN PELINDIAN BUATAN MENGGUNAKAN METODE ANTI PELARUT (*ANTI-SOLVENT*)

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Dalam penelitian ini, dilakukan proses proses perolehan seng sulfat (ZnSO_4) dari hasil larutan pelindian buatan menggunakan metode kristalisasi anti pelarut (*anti solvent crystallization*). Pengaruh beberapa parameter yaitu konsentrasi awal seng dalam larutan hasil pelindian, penambahan reagen anti pelarut (metanol, etanol dan aseton) dan pengaruh ion sejenis terhadap efisiensi kristalisasi seng sulfat akan dipelajari menggunakan metode *batch*. Hasil penelitian menunjukkan bahwa persen perolehan akan meningkat dengan meningkatnya konsentrasi seng awal, persen perolehan tertinggi diperoleh pada konsentrasi awal seng 1 M yaitu 96,96%. Penambahan reagen anti pelarut menunjukkan hasil yang positif yaitu perolehan meningkat dengan meningkatnya rasio volume reagen:larutan pelindian, persen perolehan tertinggi diperoleh pada rasio volume 1:9 sebesar 99,52% (etanol) dan 103,22% (aseton). Penambahan ammonium sulfat sebagai ion sejenis mempengaruhi peningkatan persen perolehan dengan nilai tertinggi yaitu sebesar 99,99%. Sedangkan penambahan asam sulfat menghasilkan persen perolehan yang jauh lebih rendah (10,41%) dibandingkan dengan penambahan ammonium sulfat. Hasil karakterisasi SEM menegaskan bahwa seng dalam larutan pelindian buatan berhasil dikristalisasi sebagai seng sulfat.

Kata kunci: Seng Sulfat, Kristalisasi, Pelindian, Anti Pelarut, Perolehan Kembali.

ABSTRACT

CRYSTALLIZATION OF ZINC SULFATE (ZnSO_4) FROM LEACHING SOLUTIONS USING ANTI-SOLVENT METHOD

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In this study, the process of obtaining zinc sulfate (ZnSO_4) from the results of artificial leaching solution was carried out using the anti-solvent crystallization method. The effect of several parameters, namely the initial concentration of zinc in the leaching solution, the addition of anti-solvent reagents (methanol, ethanol and acetone), and the effect of similar ions on the efficiency of zinc sulfate crystallization will be studied using the batch method. The results showed that the percent gain will increase with increasing initial zinc concentration, the highest percent recovery is obtained at the initial zinc concentration of 1 M which is 96.96%. The addition of anti-solvent reagents showed positive results, namely the gain increased with increasing volume ratio of reagent:leaching solution, the highest percent recovery was obtained at a volume ratio of 1:9 of 99.52% (ethanol) and 103.22% (acetone). The addition of ammonium sulfate as a similar ion affects the increase in percent recovery with the highest value of 99.99%. While the addition of sulfuric acid resulted in a much lower percent recovery (10.41%) compared to the addition of ammonium sulfate. The SEM characterization results confirmed that zinc in artificial leaching solutions was successfully crystallized as zinc sulfate.

Keywords: Zinc Sulfate, Crystallization, Leaching, Anti-Solvent, Recovery.