

ABSTRAK

Nama : Lukman Hadi Surya
Program Studi : Fisika
Judul : Proses Perolehan Magnesium dengan Cara Elektrolisis Bahan Hidromagnesit dan Magnesium Oksida

Proses elektrolisis temperatur tinggi telah diaplikasikan untuk mendapatkan bubuk magnesium dari hidromagnesit dan magnesium oksida sebagai material umpan. Dalam proses elektrolisis, garam $MgCl_2$ hidrat dipanaskan hingga $750\text{ }^{\circ}C - 850\text{ }^{\circ}C$ hingga menjadi lelehan elektrolit. Beda tegangan antara elektroda sebesar $0 - 12\text{ V}$ diberikan untuk mendapatkan bubuk magnesium. Ditemukan bahwa bubuk magnesium terbentuk pada katoda Pt sebagaimana warna dari lelehan garam berubah dari putih menjadi abu-abu seperti warna Mg. Pembentukan Mg juga diindikasikan dengan kenaikan arus pada pembacaan amperemeter. Sayangnya, proses dilakukan pada kondisi udara terbuka dan kemudian bubuk Mg segera teroksidasi menjadi bubuk MgO. Disimpulkan meskipun tidak ada bukti puncak-puncak difraksi dari Mg pada pola XRD dari sampel, bubuk Mg berhasil dihasilkan selama proses.

Kata kunci: elektrolisis, magnesium

ABSTRACT

Name : Lukman Hadi Surya
Study Program: Physics
Topic : Recovery of Magnesium from Hydromagnesite and Magnesium Oxide Through The Electrolysis Process

High temperature electrolysis process has been applied to obtain magnesium powders from hydromagnesite and magnesium oxide as the feed materials. In the electrolysis process, hydrate $MgCl_2$ salts were heated to $750\text{ }^{\circ}\text{C}$ - $850\text{ }^{\circ}\text{C}$ towards molten electrolyte. Voltage between electrodes of 0 – 12 V was then applied for obtaining Mg powders. It was found that Mg powders formed in the Pt cathode as color of molten salts changed from white to grey which is similar to that of Mg. Formation of Mg was also indicated by a current rise as read in amperemeter. Unfortunately, the process was carried out under open atmosphere and thus Mg powders were immediately oxidized to MgO powders. It is concluded that despite no evidence of diffraction peaks for Mg in XRD pattern of the sample, the Mg powders were successfully produced during process.

Keywords: electrolysis, magnesium