

Hydrogen Generation Using Different Morphologies of Recycled Aluminum with Alkaline Substance

C. Patiño-Carachure^{*}, I. E. Castro, J. M. Sierra, M. Abatal, S. Martinez-Vargas, S.J. Figueroa-Ramírez.

Facultad de Ingeniería, Universidad Autónoma del Carmen, Campus III,
Fracc. Mundo Maya, C.P. 24115, Ciudad del Carmen, Campeche, México.
^{*}Tel: +52(938)3811018 ext.1702; e-mail: cpatino@pampano.unacar.mx

ABSTRACT

Different morphologies of recycled aluminum were used to produce a hydrogen flow sufficient to supply a fuel cell. The morphologies of recycled aluminum were powders, ingots, and cracked rings containing 1 g for all specimens. Different concentrations of NaOH, Ca(OH)₂, KOH were employed into solution of 100 ml distilled water and sea water. The results indicate that the hydrogen generation is faster to powders during 40 minutes of reaction time employing water distilled. The process of reaction to water sea is slower to produce hydrogen. The specimens threatened by alkaline solutions with sea water were recovered by a layer of saline particles. During the 10-40 minutes the production of hydrogen was 5 ml/min. These results can be manipulate to producing enough hydrogen that can be used in fuel cells.

Keywords: Recycled aluminum, hydrogen generation, alkaline substance.

