

Electrodes for Electrolytic Germane Process

ABSTRACT OF THE DISCLOSURE

5 The invention relates to the electrolysis of aqueous electrolyte solutions containing GeO_2 ; hydroxide and water with metal alloy electrodes, such as, copper or tin rich alloy electrodes with alloying elements such as Sn, Pb, Zn, Cu etc, to generate Germane (GeH_4). Cu-rich alloy electrodes have been demonstrated to increase the GeH_4 current efficiency by almost 20 % compared to Cu metal electrodes. Germanium deposition has
10 been found to be either absent or minimal by using Cu-rich alloy electrodes. Several different methods for maintaining the cell performance or restoring the cell performance after a reduction in current efficiency over time, have been identified. A titration-based method for the analysis of the electrolyte, to obtain the concentration of GeO_2 and the concentration of hydroxide has also been disclosed.

15 Fig. 1