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Gillaspie et al.

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(54) **SILICA REMOVAL FROM PREGNANT LEACH SOLUTIONS**

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(51) **Int. Cl.**
C22B 11/00 (2006.01)

(52) **U.S. Cl.** **423/34**

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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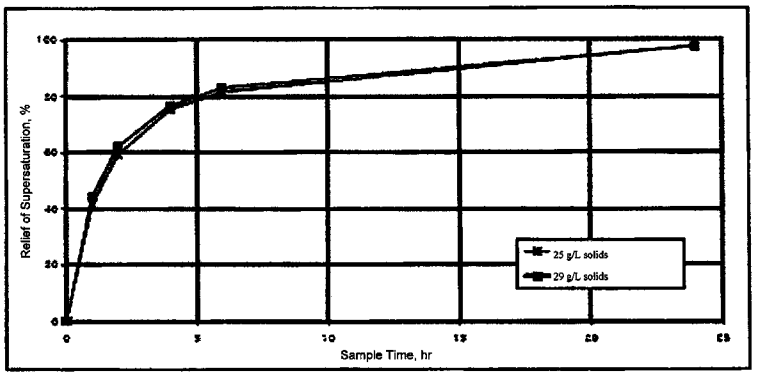
(57) **ABSTRACT**

The present invention relates generally to a process for removing dissolved or colloidal silica from a pregnant leach solution ("PLS"). More particularly, an exemplary embodiment of the present invention relates to a process which mixes PLS with an acid source, preferably lean electrolyte, to induce formation of colloidal silica that can then be collected and removed. Additionally, in an exemplary embodiment of the present invention, at least one silica seeding agent is added to induce formation of colloidal silica, at least one flocculant is added to induce aggregation of the colloidal silica, and a solid-liquid separation process is utilized to remove advantageous amounts or substantially all of the colloidal silica, thereby providing relief from supersaturation of dissolved silica in the metal recovery processes.

13 Claims, 7 Drawing Sheets

RELIEF FROM SUPERSATURATION USING GALACTOSOL-CIBA-SILICA SEEDING AGENT



Note: 45 mg/L Si equilibrium concentration assumed; no PEO treatment