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Experimental Study on the Removal of Arsenic in Waste Water from Semiconductor Manufacturing

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ABSTRACT

An effective and economic process for removing arsenic in waste water which is accumulating in the process of etching, cutting and washing in semiconductor industry has been developed in this paper. The proposed technique of arsenic removal is as follows: first pretreatment step is to oxidize arsenite to arsenate by potassium permanganate, second key step is precipitation based on arsenic compound solubility with ferric sulfate and slaked lime under pH adjustment, and the last complementary step is followed by the adsorption of the bentonite with enhanced by activated carbon and organic adsorbent. Experimental results show that under the optimal condition the removal efficiency of arsenic in the waste water is better than 99.99%, or the concentration of arsenic is from its original 100mg/l reduced to less than 10µg/l accordingly.

KEYWORDS

Arsenic, Precipitation, Adsorption, Waste Water, Semiconductor Manufacturing

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