**Desalination and Water Treatment**

Publication details, including instructions for authors and subscription information: http://www.tandfonline.com/loi/tdwt20

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Published online: 03 Aug 2012.

**To cite this article:** N. Drouiche , H. Lounici , M. Drouiche , N. Mameri & N. Ghaffour (2009) Removal of fluoride from photovoltaic wastewater by electrocoagulation and products characteristics, Desalination and Water Treatment, 7:1-3, 236-241

**To link to this article:** http://dx.doi.org/10.5004/dwt.2009.694

*Desalination and Water Treatment*
www.deswater.com

7 (2009) 236–241

1944-3994 / 1944-3986 

# Removal of fluoride from photovoltaic wastewater by electrocoagulation and products characteristics

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Received 13 July 2008; accepted ion revised form 9 June 2009

**ABStrACt**

Efficient treatment of fluoride-containing wastewater efficiently has been important for environmental engineers in Algeria. An appropriate concentration of fluoride in drinking water is required to prevent dental cavities, but long-term ingestion of water that contains more than a suitable level of fluoride causes bone disease and mottling of the teeth. The CMP wastewater from a UDTS. was characterized by high suspended solids (SS) content, chlorates, hydroxylamine, high turbidity (NTU), chemical oxygen demand (COD) concentration up to 7.00 $mgl^{-1}$ and fluoride concentration up to 1000 $mgl^{-1}$. Currently, the cheapest way to remove fluoride from semiconductor wastewater is to produce calcium fluoride ($CaF_2$) by adding lime or another calcium salt. The aim of this paper is to propose an efficient and low cost treatment of chemical mechanical polishing wastewater process based on electrocoagulation with iron bipolar electrodes. The performance of a pilot scale electrochemical reactor equipped with iron bipolar electrodes and an anode active area surface of about 170 $cm^2$ was studied. In addition, sludge settling after electrocoagulation was characterized.

*Keywords*: Fluoride removal; Physicochemical interaction; Sludge structure; Iron bipolar electrode