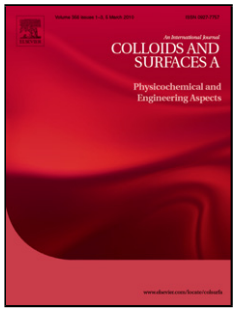

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Role of Al(III) and Cr(III) on the formation and oxidation of the Fe(II-III) hydroxysulfate Green Rust

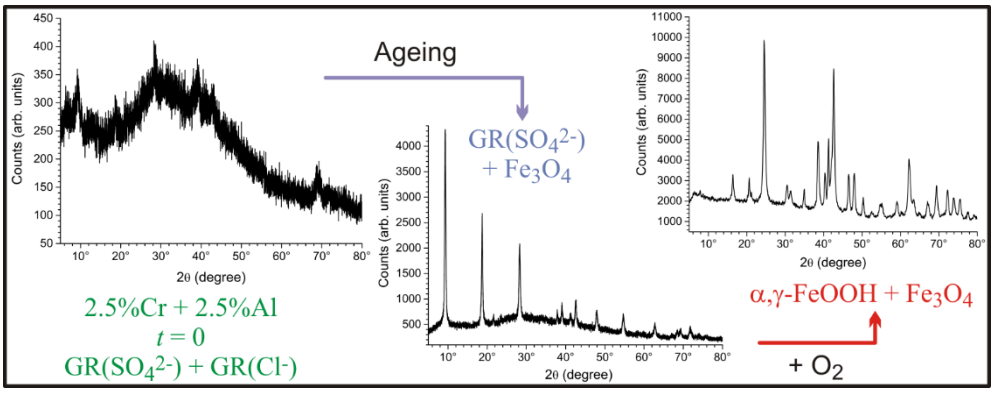
Ph. Refait [1,*], R. Sabot[1] and M. Jeannin[1]

(1) Laboratoire des Sciences de l'Ingénieur pour l'Environnement (LaSIE), UMR CNRS 7356, Université de La Rochelle, Bât. Marie Curie, Av. Michel Crépeau, 17042 La Rochelle cedex 01, France.

* Corresponding author:

Tel.: (33) 5 46 45 82 27 / Fax: (33) 5 46 45 82 41 / E-mail address: *prefait@univ-lr.fr*

Graphical abstract



Abstract. Aqueous $GR(SO_4^{2-})$ suspensions were prepared by mixing Fe(II) - Fe(III) based solutions with NaOH solutions in the presence of both Cl^- and SO_4^{2-} ions. So as to study the effects of Al(III) and Cr(III) on the formation and oxidation of $GR(SO_4^{2-})$, 5 at.% of Fe were replaced by Cr(III), Al(III) or Cr(III)+Al(III). The presence of Al(III) and Cr(III) during the precipitation process induced a decrease of crystallinity of the obtained solid phase. One week of ageing in suspension at room temperature led in any case to a significant increase of crystallinity of $GR(SO_4^{2-})$ but Al(III) and Cr(III) induced the formation of a small amount of