Corrigendum to "Sorption of americium / europium onto magnetite under saline conditions: Batch experiments, surface complexation modelling and X-ray absorption spectroscopy study" [J. Colloid Interface Sci. 561 (2020) 708–718]

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The authors regret that in the original article the surface complexation model was not correctly reported in Table 1.

Following a request by Dr. Marsac (CNRS, Geochimie Rennes) concerning the modelling of Am/Eu-adsorption to magnetite, we have realized that a clarification and a correction is required. We are grateful for Dr. Marsac's request, since it allowed us to discover inconsistencies between the published model (the acid-base parameters of magnetite) and the actually used one. Moreover, we think that his request motivates a clarification concerning the use of the parameter set. We start by this clarification.

Clarification: The model published in JCIS [1] cannot be directly used in any code [2]. The code originally used to evaluate the model does not automatically correct the stability constants of multidentate surface complexes for solid/liquid ratios [2]. More importantly, in the present case, we have used different coefficients for the mass-law equations (i.e. the coefficient is 1 although two surface hydroxyls react; this is similar to treating oxalate in aqueous solutions) and the mole balances (i.e. the coefficient is 2, since two surface hydroxyls are occupied in the bidentate) for the bidentate surface complexes, which makes it virtually impossible to directly use the parameters with codes like PhreeqC even after corrections for solid/liquid ratios.

Correction: The constants in Table 1 of the original paper were not correctly reported. The values reported in the original paper had been copied directly from the original work of Vayssières [3]. The actually used values are given in this corrigendum in Table 1 below as log K values for each reaction. Using the values as given by Vayssières [3] it was not possible to reproduce the points of zero charge in the plots reported by Vayssières [3]. Therefore, the signs of the constants were adjusted such that the points of zero charge agreed when using the respective surface species. For the triply co-ordinated site the protonation of the hydroxo group ($Fe_3\ OH^{0.25}$) that had originally been considered by Vayssières [1] was omitted.

The authors would like to apologise for any inconvenience caused.

Table 1
Used log K values for each coordination in two terminations of magnetite.

Octahedral termination		
Coordination of oxo/hydroxo groups	Reaction	log K
doubly	$Fe_2\ OH^{0.16} \rightleftharpoons Fe_2\ O^{1.16} + H^+$	16.4
doubly	$Fe_2\ OH^{0.16} + H^+ \rightleftharpoons Fe_2\ OH_2^{0.84}$	2.5
triply	$Fe_3\ O^{0.75} + H^+ \rightleftharpoons Fe_3\ OH^{0.25}$	7.6
Mixed octahedral and tetrahedral termination		
Coordination of oxo/hydroxo groups	Reaction	log K
doubly	$Fe_2\ OH^{0.17} \rightleftharpoons Fe_2\ O^{0.83} + H^+$	9.3
doubly	$Fe_2\ OH^{0.17} + H^+ \rightleftharpoons Fe_2\ OH_2^{1.17}$	5.1
singly	$Fe_1\ OH^{0.25} \rightleftharpoons Fe_1\ O^{1.25} + H^+$	17.5
Singly	$Fe_1\ OH^{0.25} + H^+ \rightleftharpoons Fe_1\ OH_2^{0.75}$	3.6

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