Authors comment to Referee#2 :

The value of $\beta'_{CoNioxime2}$ of $10^{15.6}$ we used has been calibrated by Zhang et al. (1990) at pH 7.8, and not at pH 8.7 as indicated by Referee#2. Indeed Zhang et al. determined the value of $\beta'_{CoNioxime2}$ with HEPES buffer (Zhang et al., 1990, page 292) prepared in NH_4OH (page 290). This method was developped by Donat and Bruland (1988).

A rough estimate of $10^{16.18}$ for $\beta'_{CoNioxime2}$ is obtained at the working pH 8.1, using the linear equation between $10^{15.6}$ at pH 7.8 (Zhang et al., 1990) and $10^{18.1}$ at pH 9.1 (Ellwood and van den Berg, 2001). This value can be even higher since we used a 20x and a 500x higher nioxime concentration compared to Zhang et al. (1990) and Ellwood and van den Berg (2001), respectively. Increasing the value of $\beta'_{CoNioxime2}$ from $10^{15.6}$ to $10^{16.18}$ actually increases the value of $logK'_{CoL}$ by a few units of the tenth.

In brief the value of $\beta'_{CoNioxime2}$ we used in the manuscript is actually lower than the value expected at pH 8.1 and the conditional stability constants K'_{CoL} we calculated are thus slightly underestimated. Hence the difference of 1 to 5 orders of magnitude between our higher K'_{CoL} values and those previously published appears, as we said, to be related to differences in the detection window centred on $\alpha'_{CoNioxime2} = \beta'_{CoNioxime2}$ [Nioxime]^2. Here we indeed used $\alpha'_{CoNioxime2} = 10^{15.6}$ $[10^{-4}]^2 = 10^{7.6}$ (reaching $10^{8.2}$ with $\beta'_{CoNioxime2}$ of $10^{16.18}$), a value 3 orders of magnitude higher than that previously employed by Ellwood and van den Berg (2001) and Ellwood et al. (2005): $\alpha'_{CoNioxime2} = 10^{18.1}$ $[0.2*10^{-6}]^2 = 10^{4.7}$.

In no case the issues of this work will change by using a new value of $\beta'_{CoNioxime2}$ calibrated at pH 8.1. Only the absolute values of $logK'_{CoL}$ will increase by a few units of the tenth and the inorganic cobalt concentrations will decrease by a few units of sub-femtomolar.