

Sulfidation of ferric (oxy)hydroxides and its role for trace element cycling

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Sulfidation of ferric (oxy)hydroxides is a common process in many oxygen depleted environments. Sulfidation denotes a series of geochemical processes in which dissolved sulfide leads to reductive dissolution of ferric (oxy)hydroxides, formation of Fe(II) and subsequent formation of surface S containing compounds (elemental S⁰, polysulfides, sulfides) [1,2]. Through that, sulfide obviously interferes with trace elements adsorbed onto the ferric (oxy)hydroxide's surface or being incorporated into the mineral structure e. g. upon coprecipitation. In this contribution, the importance of sulfidation processes for the P-cycle and for the application of sulfidized zero-valent iron will be discussed. Recent research has revealed that sulfidation is a key process to understand the mechanisms of reduction of oxoanions (Se(VI) by sulfidized zero-valent iron.

References

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[1] Wan M., Schröder C. and Peiffer S. (2017) Fe(III):S(-II) concentration ratio controls the pathway and the kinetics of pyrite formation during sulfidation of ferric hydroxides. *Geochimica et Cosmochimica Acta* **217**, 334–348.