

Pyrite–water interactions: Effects of pH and pFe on surface charge[☆]

R. Weerasooriya^{a,b,*}, H.J. Tobschall^a

^a *Institut für Geologie und Mineralogie, Lehrstuhl für Angewandte Geologie, Friedrich-Alexander Universität Nürnberg, Erlangen 91054, Germany*

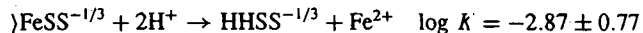
^b *CML Labs, Institute of Fundamental Studies, Kandy 20000, Sri Lanka*

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Abstract

Interfacial properties of pyrite–water suspensions were examined by potentiometric titrations. Initial experiments show that the dissolution of pyrite occurs even under anaerobic conditions. The role played by H^+ , OH^- , Fe^{2+} and S^{2-} as potential determining ions (PDI) on surface charge development was also assessed. The pH_{zpc} of pyrite was experimentally determined at 1.7. When $pH = pH_{zpc}$, the pFe_{zpc} of pyrite was 2.97. A 1-pK diffuse-layer model (1-pK DLM) quantified proton titration data using following reaction stoichiometries:



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