



## **The effect of temperature on the adsorption of biomolecules on halloysite clay**

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We report adsorption isotherms for nucleic acid bases, nucleosides and nucleotides on surfaces of halloysite in water obtained by frontal analysis HPLC at temperatures from 298–308K. The raw data were analysed using Langmuir and Freundlich isotherms and the adsorption enthalpy was estimated.

Halloysite adsorbs the different nucleic acid bases, nucleosides and nucleotides selectively. The adsorption appears to decrease with increasing temperature and cytosine is most strongly adsorbed on halloysite. This contrasts with experiments on graphite that show that purines adsorb more strongly than pyrimidines at the graphite/water interface.

Halloysite and other naturally occurring minerals play an important role in concentrating prebiotic molecules from the primitive ocean, protecting them from hydrolysis and participating in further reactions. Selective nucleotide adsorption and temperature dependence may also have been important in controlling the adsorption and release of biomolecules at different stages in the origin of life.