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# The Location of Iron-55, Strontium-85 and Iodide-125 Sorbed by Kaolinite and Dickite Particles

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**Abstract:** The autoradiographic method at the electron microscope level has been applied successfully to locate the position of sorbed ions and compounds associated with kaolinite and dickite particles. For suitable isotopes, the limit of resolution was about 0.2  $\mu\text{m}$  and would be conceivably less in the most favorable conditions.

Judged by the location of iodide-125 and strontium-85, the majority of positive sites and also the most reactive negative sites were situated at the edges of the clay particles. These conclusions were supported by normal electron microscope examination of mixtures of clay with charged gold and silver iodide sols.

Iron (III) ions, which have been shown to react with kaolinite by chemisorption mechanisms in 0.15 M systems and by both ion exchange and chemisorption in 0.01 M systems, were, in either case, located at edge-sites on the clay. When intentionally precipitated onto dickite, iron (III) hydroxides were distributed evenly over the clay surfaces. However, precipitation was probably initiated at the particle edges.

Minor exceptions to the above conclusions appeared to be caused by basal surface features such as fracture or stress lines, outgrowths or cavities, and if the clays had not been cleaned, by strongly associated impurities such as iron hydroxides.

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