
Hydrothermal Kaolinization in Michoacan, Mexico

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Abstract: Active kaolinization of middle Tertiary obsidian and rhyolitic breccia in the San Andres range is effected by sulfurous hot waters and hydrous vapors emitted as springs, fumaroles, and geysers. The alteration preserves original rock textures and forms conspicuous aureoles around the hydrothermal vents, which shift about with slumping of the saturated clay. Systematic exploration by 87 test pits with maximum depth of 45 ft permitted inspection of the kaolin in place, and furnished bulk samples for laboratory work. Besides kaolinite, the clay contains unevenly distributed cristobalite and alunite, and traces of mercury. The natural brightness of the pure kaolinite approaches 90 if unstained by weathering, but little of it is pure. The yield of paper-coating fraction is small, and the composition and behavior in slurries are nonuniform. Most of the kaolinized material in the hydrothermal deposits is soft. Some, however, is hard and rock-like. Similar material occurs in clastic sediments of late Tertiary age, suggesting that the hydrothermal activity began at least as early as the Pliocene.

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