

## **GEOLOGY AND MINERALS OF THE KAOLIN BEARING DEPOSITS IN METZTITLAN BIOSPHERE RESERVE AREA.**

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Found at around 200 kilometres north-east of Mexico City is Metztitlan Area, recently proposed by mexican government as biosphere reserve due to the diversified, some unique, desertic vegetation. Several outcrops with total kaolin reserves estimated to be more than 25 million tonnes, representing richness for the region. Within a radius up to 45 km to the E and SE, there are other kaolin deposits, namely the well known of Huayacocotla and Zacualtipan areas. All are secondary, partially altered, deposits after rhyolites, with high silica ratio, averaging up to 6, as chemical analysis show. They belong to Middle Tertiary volcanism. But Metztitlan outcrops represent different recent alteration conditions: desert, with almost no vegetation, against a high-mountain rainy forest of the other areas. Plus they are isolated from the main bodies in outcrops of more than a kilometre long, surrounded by earlier tertiary volcanism, with some overlying alluviums. Another distinguishing feature is that in the lower levels of the kaolin, as seen along Tepatetipa-Metztitlan road, the mineralization turns to brown, purple and red clays. A characterisation of the mineralogy under x-ray diffraction and ESM show that there are also sodium jarosite and calcite, while in Zacualtipan appear alunite, although close-related to the jarosite, and quartz and cristobalite, proving that different minerals not reported in the later deposits are present. The accessibility is hard, but after the prohibition that represent the biosphere reserve declaration, the exploitation of this richness compete unfavourable and appear to be forbidden.