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Geological Analysis of Graphite Deposits in Capim Grosso (BA), Brazil

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Natural graphite is an ore that has several industrial uses, from refractories to the manufacture of electric batteries and graphene. The purpose of this work is the geological and economic analysis of graphite rocks found in the surroundings of Capim Grosso (BA), Brazil. The municipality of Capim Grosso is located in the center-east portion of the State of Bahia; inserted in the geological context of the São Francisco craton. The São Francisco craton is a geological unit of great mineral importance in the Brazilian territory, being the target of prospecting for various mineral inputs. The shear zone known as the Salvador-Curaçá Orogen has lithologies belonging to the Tanque Novo-Ipirá Complex, known for the occurrence of mineralized graphite. In the area, both gneisses and mafic and ultramafic rocks rich in graphite of the flake type were recognized. The study was carried out through field work, opening trenches and carrying out rotary diamond drill holes and chemical analysis of samples. The mineralization occurs within an alteration zone subject to a sinistral shear zone. Chemical analyses reveal graphite carbon contents of an average of 14%, with anomalies reaching 41%. The results show that the analyzed lithology presents high levels of graphite, with ample capacity for mineral exploration. The study area also presents the presence of sulphides inserted in the alteration zone, indicating the possible presence of secondary minerals. The analyses also reveal Ni, Cu, Cr, and V anomalies. In addition, preliminary studies suggest that the rocks present at the site could be used as soil remineralizers. The prospective methods of trenches and drilling proved to be efficient, revealing the economic potential of the studied area.