Contribution to the study of bauxitic formations from Fongo-Tongo (West Cameroon)

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ABSTRACT

The present study aims at identifying and characterizing some Fongo Tongo bauxite in the western Cameroon, notably their morphological, mineralogical, and geochemical features.

Fongo-Tongo is part of the Bamilélé plateau in West Cameroon highland (>1645 m) on which lateritic bauxites are developed in form of massive flagstones and blocks, continuous duricrust on the top of the interfluves and discontinuous duricrust on the slopes. The lateritic bauxites display many facies and colours: they are massive, vesicular, alveolar, conglomeratic, or enclose nodules with red, reddish to reddish-brown, brown, pink, yellowish or other colour.

Minerals identified upon X-ray diffraction in these lateritic bauxites comprise mainly gibbsite and goethite with quartz, anatase, hematite, maghemite, and kaolinite as trace. From geochemical point of view, alumina (Al_2O_3) content, ranging from 37.4 to 57.5 wt. %, is dominant. Whereas, Fe_2O_3 (<29.5 wt. %), TiO_2 (<7.5 wt. %) and SiO_2 (0.48-3.21 wt. %) contents are low. The samples enclose significant content for some trace and rare earth elements (Zr: 504-2310 ppm, Nb: 104-350 ppm, Sr: 0.7- 345 ppm, V: 8-667 ppm, Ce: 24.9-239 ppm, La: 2.4-144 ppm, and Nd: 3.1-126 ppm). The lateritic bauxite occurring in Kreu, a locality found in the west of Fongo-Tongo has the highest Al_2O_3 (57.5 wt. %) content, and lowest Fe_2O_3 (3.97 wt. %) content. It shows low Zr, Nb, Sr, V, Ce, La, and Nd.

Finally, some bauxite with high alumina and low iron content, silica and titanium deplete have been found in Fongo-Tongo. Thus, the low impurities in bauxites from Fongo-Tongo upgrade their metallogenic importance. Keywords: West-Cameroon, Fongo-Tongo, Bauxites, Mineralogy, Geochemistry.

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