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Refractory bricks worked out with raw materials from Burkina Faso: effect of the nature of grog and the alumina contents in the mineral binder

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The purpose of this work is to study the influence of the nature of the grog and the binder on the properties of refractory bricks worked out through clays from Burkina Faso. Then,
two natural clays and sand were characterized to work out refractory bricks. The characterization by Chemical analysis and X-ray diffraction indicates that these clays, called SAB and TIK, present the same mineral phases but with various contents. Sample TIK has an alumina content higher than SAB. One of these clays, SAB, was extruded then was sintered at 1300 ℃ with a bearing of 1 hour to produce grog. Bricks were worked out by pressing of mixtures of raw clays and grog, also of raw clays and sand. Then they were under 2 hours sintering at four different temperatures (1250, 1300, 1350 and 1400 ℃). The analyses showed that from 1350 ℃, brick obtained by the mixture of SAB and grog, presents good physicochemical, mineralogical and
thermal properties with a temperature of initial softening higher than 1387 ℃.

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