

## **COMPOSITION OF THE GOLD GRAINS FROM THE FAZENDA BRASILEIRO MINE, BAHIA, BRAZIL.**

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The Fazenda Brasileiro gold mine lies in the southern portion of the Paleoproterozoic Rio Itapicuru greenstone belt, situated to the northeastern portion of the São Francisco craton, State of Bahia. Gold mineralization occurs within an E-W striking, 8 km long shear zone, hosted by chlorite-magnetite schist. The deposit contains more than 150 tons of gold, which is being extracted from vein-type orebodies, generated during several episodes of hydrothermal activity. Ninety-five gold grains have been studied from ten polished sections through SEM (University of Wales's lab). The grains have irregular shapes, measuring 3 to 5 mm on average, although particles in excess of 30 mm have been found. Gold occurs (1) as minute inclusions in arsenopyrite; (2) as microfracture fillings in pyrite and arsenopyrite; or (3) attached to the edge of the sulfide crystals. Chalcopyrite, ilmenite, rutile, sphalerite, pyrrhotite, and silicates (sericite, chlorite etc.) are normally associated with gold. Galena and scheelite were identified in almost all the sections. In some arsenopyrite grains it was observed that there is a variation in the As and S contents. This is reflected in the colour of the arsenopyrite, which is lighter where the As/S ratio is higher. In this case it was verified that the gold grains occur within or attached to the borders of the lighter parts of the arsenopyrite. Quantitative SEM analyses of gold crystals showed the Au/Ag ratio varying from 10 to 28,4. This variation probably reflects different phases of gold crystallization during remobilization processes.