



## **Crystallochemical and structural evolution of tourmaline in auriferous quartz veins of the Iskel terrane prospect (western Hoggar, Tamanrasset, South Algeria)**

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A mylonite zone limits the Iskane Terrane tectonic unit (Western Hoggar). This zone is intruded by granitic units belonging to the Taourirt cycle. North-South and North East-South West trending auriferous quartz veins are hosted in the cataclased areas. Visible gold can be observed but gold is also present in sulfides (pyrite, chalcopryrite). Tourmaline is abundant in these veins. Mossbauer spectrometry as well as FTIR spectrometry shows that in some sectors tourmaline underwent an oxidation process posterior to its formation. The general structure of tourmaline studied, shows the coexistence of ferric iron Fe<sup>3+</sup> with ferrous iron Fe<sup>2+</sup> in the Y site. This represents a tourmaline “deprotonated”. This oxidation induced a partial transformation of Fe<sup>2+</sup> in Fe<sup>3+</sup> that is charge compensated by a deshydroxylation of the central OH group. The relationship of the gold deposition with the oxidation of tourmaline is discussed.

Key words: Tourmaline, oxidation, “deprotonation-deshydroxylation”, sulfides, gold.