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Characterization of impurities present on Tihimatine (Hoggar) Quartz, Algeria**S. Anas Boussaa^{a,b}, A. Kheloufi^a, N. Boutarek Zaourar^b**

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Abstract

Many of today's advanced materials depend on quartz as a raw material. Quartz usually contains abundant inclusions, both solid and liquid, and due to the number of these inclusions and their small size, complete separation is most difficult. Typical properties of raw quartz that must be characterized are: Size and Chemical composition of inclusions, their spatial distribution, localization of isomorphic substitutional elements (e.g. Al, Fe). The aim of this study has been to test experimental methods for investigating some inclusions (impurities) present in the Tihimatine quartz from El Hoggar region deposits (southern Algeria) using X Ray Fluorescence, scanning electron microscopy,

optical Microscopy with reflected and transmitted lights, infra-red spectrometer, Raman spectrometer. Despite the high concentration of SiO₂ in studied quartz reaching 98%, several harmful inclusions were found and identified as hematite, anatase, muscovite, graphite, it contains: Fe, Ti, Al, K, Ca. Some fluid inclusions were found. We detect the presence of carbon dioxide and water using raman spectroscopy. The repartition of solid impurities is aleatory and not homogeneous with maximum size of 10 µm. Concerning the fluid impurities, their diameter vary between 5 to 20 µm and their repartition is aleatory.
Key words: Silica, Quartz, Tihimatine, Hoggar, Inclusions, Characterization.

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