

# Thermoluminescence of brazilian amazonite

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Feldspars are used for dosimetry purposes, such as, dating, retrospectively dosimetry and detection of irradiated food. Amazonite ( $\text{KSi}_3\text{AlO}_8$ ) is a variety of microcline, which is constituted by a rigid 3D-framework ( $\text{Si}_3\text{AlO}_8$ ) with cavities formed by 8 oxygens, ions  $\text{K}^+$  are localized within and practically free in these cavities, only subject to the electric crystal field [1]. According to the literature, the coloration in amazonite is due to the electronic transitions of  $\text{Pb}^+$  and  $\text{Pb}^{3+}$  in  $\text{K}^+$  sites [2]. These transitions and impurities can act as a trapping center and can participate in the luminescence process. Therefore, this work aims to analyze the mineral chemical composition and characterize the thermoluminescent (TL) properties, a phenomenon where occurs the emission of light from an insulator or semiconductor when it is heated upon exposure to ionizing radiation. Scanning electron microscopy with energy dispersive spectroscopy (SEM/EDS)- X-ray fluorescence (XRF) and X-Ray diffraction (XRD) were carried out for mineral characterization. The TL measurements were performed in a commercial reader Risø (model DA-20); sample was irradiated by a  $^{90}\text{Sr}/^{90}\text{Y}$  beta source (10mGy/s). Preliminary results showed up that amazonite present a peak centered at around 420K (5K/s). TL investigations, such as dose-response, repeatability, reproducibility and parameters kinetic were also carried out.

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