GREEN DIAMONDS FROM THE SOPA-BRUMADINHO FORMATION CONGLOMERATES.

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At the Campo do Sampaio mine located near Diamantina, Minas Gerais, diamonds showing dark green surface stains are recovered from the clayey matrix -supported Sopa-Brumadinho formation conglomerates. These conglomerates are now interpreted as the base of the Espinhaço Super Group and the lower formations are possibly related to the Minas Super Group. As an exceptionally rare phenomenon, light green colour inside the diamond bodies may survive the cutting process. Both body and skin colours are due to crystal damage caused by radiation emanating from U and Th sources like the zircons embedded in the clayey matrix respectively fluids percolating through rock porosity systems. Exposure to radioactive fluids is evidenced by the green cellular patterns on the diamond surfaces but in particular by the shallow green coats on inside walls of the typically deep corrosion channels. The honeycomb patterns reflect the size and shape of the mineral grains neighbouring the diamond. The zircons are resorbed, exhibit dark brown to violet body colour and originate from gabbro pebbles of the Caeté-Mirim volcanic suite (2.05 Gy). The non-porous (hydrothermally silicified) sandy matrix conglomerates contain larger but brown-skinned diamonds. Brownish surface (and body) colour diamonds are sometimes found in metasediments where the plastic deformation and accompanying thermal regime imposed by the Brasiliano tectonic event was more intense and annealed green (GR1) colour centres from an earlier irradiation cycle.