Tourmaline is a resilient, much-informative accessory mineral common in a large variety of lithologies; the incorporation of many elements is a proxy for identification of diversified geotectonic environments. A rare and important situation is the occurrence of the mineral in oceanic crust, because valuable information is uncoded in ophiolites. Chemical and isotopic complexity and stability of the mineral in most geological processes lead to understanding the sequence of processes. The Bossorocatourmalinite is here described for the first time from the Arroio Lajeadinho Formation, São Gabriel Terrane. The fragment of lithosphere obducted onto the Campestre island arc. The long-lived process (950-660 Ma) also formed the Cambaí Complex of juvenile granitic rocks. This work aims to characterize the Bossorocatourmalinite with techniques ranging from detailed fieldwork, optical petrography, electron microprobe analyses, boron isotopes and U-Pb-Hf-isotopes of zircon included in tourmaline, to characterize the oceanic evolution of the rock and its environment. Analyses were undertaken at Departamento de Geologia, Universidade Federal de Ouro Preto, Minas Gerais. In the field, a massive tourmalinite is 1 x 1 x 1 m, enclosed in metaserpentinite (olivine + talc, jackstraw texture, low amphibolite facies) and close (50 m) to amphibolite and listvenite. Tourmaline crystals are fibrous up to 4 cm in length. Under the optical microscope, tourmaline is gray and only displays zoning in a narrow light rim. Intense cataclasis fractured and broke the crystals, generating vugs. Chlorite is present in two generations – Chl 1 in large crystals and Chl 2 in masses of small crystals partly filling vugs. Chl 1 is in apparent equilibrium with tourmaline, but was deformed during cataclasism. Chl 2 seems in equilibrium with light tourmaline rim. Zircon occurs in tourmaline mostly in strings of small (5-10 μm) crystals but reaching 50 μm. EPMA analyses characterized dravite composition (n = 110 analyses) dominated by Si, Al, Fe, Mg, with low contents of Na and Ca, and negligible Fe$^{3+}$, Ti, Cr, Mn, K, F, Cl and Li. Three zones of different gray tones are observed in backscattered electron images (BSE) – Tur 1, Tur 2, Tur 3; Tur 1 may have zones Tur 1a, Tur 1b. These differences were also observed in compositions, because elemental variations in Tur 1, Tur 2 and Tur 3 zones observed in BSE images and compositional maps find correspondence in $\delta^{11}$B distribution. Based on 48 isotopic determinations, Tur 1 has $\delta^{11}$B = +1 to +2.2 (peak at +1.8), Tur 2 has $\delta^{11}$B = -1 to +0.4 (peak at 0), Tur 3 has $\delta^{11}$B = -8.2 to -9.2, (peak at -8.5). U-Pb zircon ages from tourmalinite indicate hydrothermal crystallization at 920 Ma and partial recrystallization near 700 Ma. We interpret the results as indicating that the Bossorocatourmalinite formed in oceanic crust environment at 920 Ma, mid-ocean ridge environment (initial fragmentation of Rodinia), later accreted to the Campestre juvenile volcanic arc near 700 Ma. Most significant is the oceanic crystallization of Tur 1 and Tur 2 contrasting with partial recrystallization in shear zone in the continent.

**KEYWORDS**: BORON ISOTOPES, MINERAL CHEMISTRY, BOSSOROCA OPHIOLITE.