TOURMALINE AND AQUAMARINE DEPOSITS FROM BRAZIL

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Brazil is one of the world's largest producers of aquamarine and gem-quality tourmaline. These gemstones are found in granitic pegmatites from the Oriental Pegmatitic Province (OPP) (States of Minas Gerais, Bahia, and Espírito Santo) and the Northeastern Pegmatitic Province (NPP) (States of Ceará, Paraíba, and Rio Grande do Norte). Aquamarine occurs in only slightly differentiated pegmatite bodies associated with mica (muscovite and biotite), K-feldspar, and quartz. Tourmaline (verdelite, indicolite and rubellite) mainly occurs in pockets of heterogeneous, rare element-bearing pegmatites containing lepidolite, albite, tantalite and rose beryl. More than 500 gemstone-bearing pegmatites are found in the OPP. In Minas Gerais the most important tourmaline mines are located near São José da Safira (Morro do Cruzeiro and Chiar mines), Coronel Murta (Barra do Salinas mine) and Conselheiro Pena (Itatiaia and Jonas mines). Aquamarine is mainly extracted from pegmatites near Coronel Murta and Santa Maria do Itabira (Minas Gerais), Pancas (Espírito Santo) and Medeiros Neto (Bahia). In the NPP there are more than 50 elbaite-bearing pegmatites, as the brilliant blue copper-bearing tourmalines from São José da Batalha (Paraíba). Aquamarines from Tenente Ananias (Rio Grande do Norte) are famous for its excellent color. Geochemical data have shown that the Brazilian aquamarines are formed in iron-bearing systems, being iron its main cromophore. From the 13 tourmaline-forming molecules, Brazilian gem tourmalines are always rich in the elbaite molecule.