

DESCRIPTIVE MODEL OF EMERALD VEINS

By Dennis P. Cox

DESCRIPTION Emerald in plagioclase-dolomite veins in black shale.

GENERAL REFERENCES Sinkankas (1981), p. 338-358) 407-435.

GEOLOGICAL ENVIRONMENT

Rock Types Black shale, claystone, siltstone, locally calcareous. Minor sandstone, limestone, conglomerate, and evaporates. Locally coarse dolomite breccia filled by carbonates and oligoclase.

Textures Diabasic dikes present but not prominent.

Age Range Cretaceous and Tertiary.

Depositional Environment Thick epicontinental anoxic marine shale. Evaporates may have provided saline solutions.

Tectonic Setting(s) Major faults. Minor intrusions may have provided heat sources for fluid circulation.

Associated Deposit Types May be associated with Pb-Zn deposits on a regional scale.

DEPOSIT DESCRIPTION

Mineralogy Emerald + greenish beryl + oligoclase + dolomite + calcite + pyrite + fluorite + rutile + quartz. Apatite, parisite, and REE dolomite reported from Muzo.

Texture/Structure Crustified banding, vuggy, coarsely crystalline"

Alteration Shale altered to black hornfels, fossils replaced by oligoclase. Dolomitization.

Ore Controls Major fault at intersections of minor cross faults, sharp-walled veins, and tabular breccia bodies. Veins locally confined to sedimentary strata that overlie or underlie ferruginous beds.

Weathering Plagioclase weathers to pockets of kaolinite.

Geochemical Signature In veins: high Be, Na, Mg; low Li, Ba, K, Mo, Pb relative to shale outside of mineralized areas. At Muzo REE in veins, Cu in underlying beds.

EXAMPLES

Gachala district, CLBA	(Escovar, 1979)
Muzo district, CLBA	(Sinkankas, 1981)