Viridine, Piemontite and Epidote Group Minerals from Thassos Island, Northern Greece

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Viridine (Mn-andalusite) is a rare variety of andalusite whose deep emerald-green colour is attributed to the Jahn-Teller distortion caused by the presence of Mn³⁺ in its structure [1]. Viridine from Thassos Island, northern Greece (Fig. 1), is of particularly high gem-quality and is associated with piemontite and other Mn-bearing silicates of the epidote group. Their conditions of formation and the source of Mn is the primary focus of this study.

Figure 1: Location of Thassos Island, northern Greece [2].

The main viridine occurrence is in the Trikorfo area, ~3.2 km E of the nearest township, Theologos. Viridine occurs as large subhedral-euhedral crystals to crystallised masses. Initial studies [3] of the epidote minerals identified dark brick-red piemontite (usually associated with the viridine, Fig. 2) and rose-pink Mn-rich epidote and Mn-bearing zoisite (commonly known as ‘thulite’).

Kyanite in a range of colours occurs within the actinolite schists [3]. It is also found intergrown with viridine at the main locality, indicating that during formation, an inversion pressure and temperature conditions may have occurred [4], resulting in metastable coexistence of the two phases [1]. Recently developed pXRD [5] and pXRF techniques will be used to identify mineral assemblages, phase relations and geochemistry, in order to trace the source of Mn during metamorphism.

Figure 2: Viridine with piemontite, main locality.
References:
