Santabarbaraite

$Fe^{3+}_3(PO_4)_2(OH)_3 \cdot 5H_2O$

AMORPHOUS

Locality: Valdarno Superiore (Upper Arno River Valley), Santa Barbara mining district, Tuscany, Italy. Beneath the Wannon Falls, about 7 km west of Hamilton, Victoria, Australia.

Occurrence: In clays at both localities. It is associated with metavivianite at the type locality.

General appearance: At the type locality, as concretionary nodules (up to 6 cm in diameter) with cavities filled by aggregates (up to 3 mm across) of submillimetric pseudocrystals with the morphology of vivianite. Some of the aggregates show a core of metavivianite. At Wannon Falls, it occurs as pseudomorphs after vivianite crystals up to 9 cm across.

Physical, chemical and crystallographic properties: *Luster*: vitreous to greasy. *Diaphaneity*: translucent. *Color*: brown or light brown in hand specimens, but yellow-amber under the microscope. *Streak*: yellow-amber. *Luminescence*: nonfluorescent. *Hardness*: was not determined. *Tenacity*: brittle. *Cleavage*: nothing distinct, but shows a good parting parallel to the original perfect cleavage of vivianite. *Fracture*: not given. *Density*: 2.42 g/cm^3 (meas.). **Crystallography**: Amorphous. Morphology: No forms were observed. Twinning: none observed. **X-ray powder-diffraction data**: None. **Optical data**: Isotropic, *n* 1.695. **Chemical analytical data**: Mean of thirty sets of electron-microprobe data (with H_2O by TGA): MgO 0.61, Mn_2O_3 2.23, Fe_2O_3 43.97, P_2O_5 29.48, H_2O 23.90, Total 100.19 wt.%. Empirical formula: $(Fe_{2.71}Mn_{0.14}Mg_{0.07})_{\Sigma 2.92}(PO_4)_{2.05}(OH)_{2.54} \cdot 5.26H_2O$. **Relationship to other species**: None apparent.

Name: After the mining district of the type locality and for the Christian martyr Santa Barbara, the patron saint of miners. who was born in Nicomedia, now Jzmid (Turkey) in the IVth century AD.

Comments: IMA No. 2000–052A.

PRATESI, G., CIPRIANI, C., GIULI, G. & BIRCH, W.D. (2003): Santabarbaraite: a new amorphous phosphate mineral. *European Journal of Mineralogy* **15**, 185-192.