

## Collinsite from the Palermo Mine, N. Groton, NH

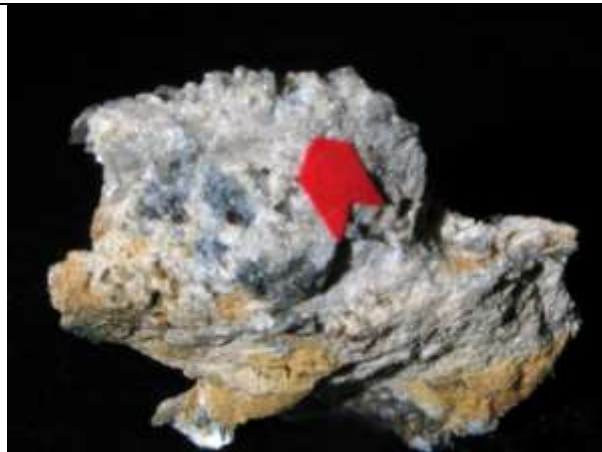
Tom Mortimer

I have included collinsite on my <http://mindatnh.org/> NH species list since its inception in January 2009, but until this past year I had never seen one. Collinsite is not listed in Whitmore and Lawrence's book *The Pegmatite Mines Known as Palermo*, nor in earlier New Hampshire species lists (e.g. Janet Cares, *R&M*, vol. 65, No. 4, 1990). The first publications of NH collinsite occurred in 2006 with Jim Nizamoff's UNO thesis on the Palermo 2 pegmatite and in a GSA abstract (vol. 36, pg. 115) by Nizamoff et. al.

In June 2016, Jim Nizamoff generously gave me a Palermo 2 collinsite specimen for my New Hampshire mineral species display on exhibit at the Discovery Center, Concord, NH.



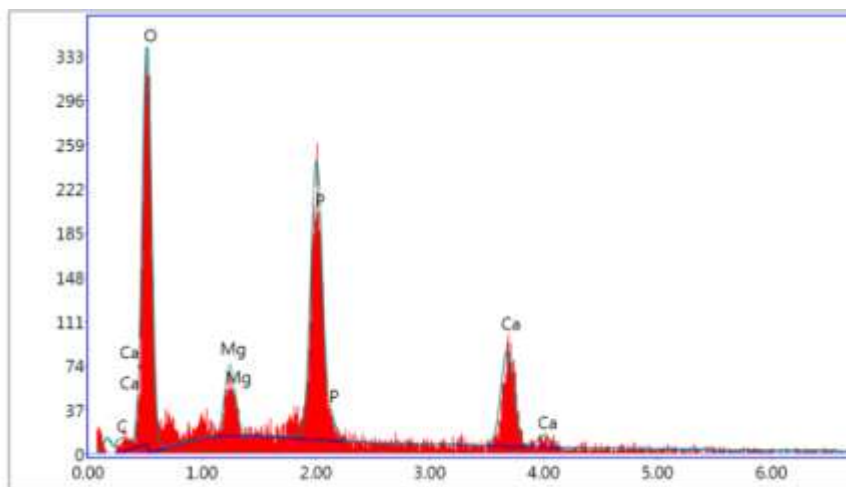
**Collinsite** Palermo #2, N. Groton, NH  
3 mm field of view. White pearlescent blades of collinsite on siderite crystals.



**Collinsite** Palermo #2, N. Groton, NH  
3 cm specimen. Red arrow points to small vug containing collinsite.

Collinsite chemistry is  $\text{Ca}_2(\text{Mg}, \text{Fe}^{2+})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$ . It is a member of the fairfieldite group. The cation analysis in Jim's thesis gave  $(\text{Ca}_{1.86}, \text{Mg}_{0.12})(\text{Mg}_{0.53}, \text{Fe}_{0.42})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$  rounded to two decimal places, based on five oxygen atoms. Apparently some Mg can substitute in the Ca site. This is very close to an ideal collinsite formula.

A polished grain EDS analysis (BC236) on a sample from this specimen is given below. Clearly a calcium magnesium phosphate. No iron (Fe) was detected (@ 6.4 KeV). The chemistry calculated from this analysis suggested  $\text{Ca}_{1.1}(\text{Mg})(\text{PO}_4)_{2.5} \cdot 22\text{H}_2\text{O}$  normalized for one atom of Mg. This is light on the calcium and heavy in the oxygen, however we frequently see excess oxygen with the BC EDS instrument.



Element	Weight %	Atomic %
O K	63.18	77.73
MgK	4.59	3.71
P K	18.94	12.03
CaK	13.30	6.53