

# Phosphovanadylite



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**Crystal Data:** Cubic. *Point Group:*  $\bar{4}3m$ . Pseudocubes, to 50  $\mu\text{m}$ , in aggregates and crusts.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = 2.16(3)$   $D(\text{calc.}) = [2.13]$

**Optical Properties:** Transparent. *Color:* Pale greenish blue; greenish black on oxidation after long exposure to air. *Streak:* Very pale greenish blue. *Luster:* Vitreous.

*Optical Class:* Isotropic.  $n = 1.566(4)$

**Cell Data:** *Space Group:*  $I\bar{4}3m$ .  $a = 15.470(4)$   $Z = 6$

**X-ray Powder Pattern:** Enoch Valley mine, Idaho, USA.

3.164 (100), 2.582 (37), 2.445 (36), 7.73 (34), 10.8 (29), 2.738 (29), 2.827 (28)

## Chemistry:

	(1)
$\text{P}_2\text{O}_5$	22.7
$\text{V}_2\text{O}_4$	45.6
$\text{Al}_2\text{O}_3$	3.7
ZnO	0.4
CdO	0.1
CaO	1.8
BaO	9.2
$\text{Na}_2\text{O}$	0.2
$\text{K}_2\text{O}$	0.9
F	0.03
$\text{H}_2\text{O}$	n.d.
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Total	

(1) Enoch Valley mine, Idaho, USA; by electron microprobe, partial analysis,  $\text{H}_2\text{O}$  and  $(\text{OH})^{1-}$  from structure analysis; corresponds to  $(\text{Ba}_{0.38}\text{Ca}_{0.20}\text{K}_{0.06}\text{Na}_{0.02})_{\Sigma=0.66}(\text{V}_{3.44}\text{Al}_{0.46})_{\Sigma=3.90}\text{P}_2[\text{O}_{10.34}\text{OH}_{5.66}]_{\Sigma=16.00} \cdot 12\text{H}_2\text{O}$ .

**Occurrence:** A rare mineral coating organic-rich phosphatic mudstone in the Phosphoria Formation.

**Association:** Sincosite.

**Distribution:** From the Enoch Valley phosphate mine, Soda Springs, Caribou Co., Idaho, USA.

**Name:** For *phosphorus* and *vanadyl* vanadium in the composition.

**Type Material:** n.d.

**References:** (1) Medrano, M.D., H.T. Evans, Jr., H.-R. Wenk, and D.Z. Piper (1998) Phosphovanadylite: a new vanadium phosphate mineral with a zeolite-type structure. *Amer. Mineral.*, 83, 889–895.