

## Vanadinite - $\text{Pb}_5(\text{VO}_4)_3\text{Cl}$

Hardness: 2.5 - 3. Cleavage: None observed. Brittle. Poisonous. Tolerates sonication. Slowly to rapidly attacked by acids, with mineral acids ( $\text{H}_3\text{PO}_4$ ,  $\text{HNO}_3$ ,  $\text{HCl}$ ) more aggressive than organic acids. Attack by organic acids Tolerates dilute organic acids for calcite removal; 30% formic acid mentioned specifically. Tolerates any dithionite recipe. Stable to bleach. Quickly discolored in  $\text{NH}_4\text{HF}_2$ . Tolerates 12%  $\text{H}_2\text{O}_2$ /30% acetic acid mixture.

### References

Mindat: <https://www.mindat.org/min-4139.html>

Handbook of Mineralogy: <https://www.handbookofmineralogy.org/pdfs/vanadinite.pdf>

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