

## Millerite - NiS

Hardness: 3 - 3.5. Cleavage: Perfect. Brittle; easily broken from matrix. Avoid sonication. Use care when cleaning. Insoluble in water. Sensitive to hot water. Soluble in HNO<sub>3</sub>. Very slightly soluble in other acids. Stable to alcohol or acetone which should be used in place of water for cleaning as water causes fine crystals to matte. Derusting with tartaric acid has been suggested but this aqueous treatment should likely be avoided. Subject to oxidative decomposition ('pyrite disease' or 'pyrite rot').

### References

Mindat: <https://www.mindat.org/min-2711.html>

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

Gol, D. (2004b) Removing iron oxides. *Le Regne Mineral*, 59 (5), 48-50. In French.

Hardinger, S. (2025) *Mineral Specimen Cleaning and Development for the Amateur*, 339 p.

Rohner, T. (2000) *Properly clean minerals online cleaning book*.

[www.strahlen.org/stepbystep/mineralien-reinigung2.pdf](http://www.strahlen.org/stepbystep/mineralien-reinigung2.pdf). In German.

Sinkankas, J. (1972) *Gemstone & Mineral Data Book*, 346 p. Winchester Press, New York.

Weast, R., Ed. (1982) *CRC Handbook of Chemistry and Physics*, 2380 p., CRC Press, Inc.,  
Cleveland.

Wight, Q. (1993) *The Complete Book of Micromounting*, 281 p. Mineralogical Record, Tucson,  
Arizona.