# Pyrite - $FeS_2$

Hardness: 6 - 6.5. Cleavage: Poor/indistinct. Tolerates sonication but bath may become acidic if some decomposition has occurred. Insoluble in water. Generally inert to acids including saturated citric acid but very slightly attacked by concentrated $HNO_3$. Conflicting reports concerning stability to HCl; some say it may etch pyrite (when concentrated) other state HCl (dilute?) is tolerated. (Use dilute HCl to remove enclosing carbonates but minimize contact time.) Tolerates oxalic acid and tartaric acid. Sensitive to oxidative decomposition ('pyrite disease' or 'pyrite rot') especially when associated with marcasite (Rohner indicates oxygen sensitivity). Water may promote decay is some samples where decomposition has already begun; hence dry cleaning methods are preferred. Tolerates any dithionite recipe; may be brightened (temporarily to permanently) by Iron OUT/EDTA. Store in a sealed container over desiccant to reduce risk of decomposition. Tolerates $NH_4HF_2$ which like Iron OUT/EDTA may brighten the sample. While used to impart an iridescence to pyrite 'suns' bleach may initiate and/or accelerate oxidative decomposition.

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