

Iron (Native Iron) - Fe

Hardness: 4.5. Cleavage: Imperfect/fair. Insoluble in water. Rapidly dissolves in acids, especially HNO_3 . Slowly soluble in acetic acid. Insoluble in concentrated H_2SO_4 but this treatment is said to be "quite unthinkable." Insoluble in alkalis, ethanol or acetone. May oxidize (rust) in moist atmosphere; store in sealed container over desiccant. Avoid wet cleaning methods where possible. "A bright dip for iron minerals" consists of two ounces oxalic acid, 100 mL 30% H_2O_2 (12% H_2O_2 much safer and likely equally effective), 875 mL room temperature water and 25 mL H_2SO_4 (concentration unspecified but probably concentrated H_2SO_4). "Iron of archaeological value can be cleaned of rust by contact with granulated Zn in the presence of (concentration unspecified) NaOH." Alternately, "Iron artifacts may be cleaned chemically by several methods. The objects should first be freed of dirt and loose rust [with] brushes and steel wool. For small objects, or a small quantity, rust may be removed [with] a solution of two parts SnCl_2 to eight parts of water."

References

Mindat: <https://www.mindat.org/min-2047.html>

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