Baryte - $BaSO_4$

Hardness = 3. Cleavage: Perfect. Soft, brittle. Thermal shock sensitive. Sonication tolerance varies between specimens so when in doubt avoid sonication. Immune to acids except warm concentrated H_2SO_4 which attacks only slowly. Derust with oxalic acid, Jacquard Hydro or overnight immersion in 10% H_3PO_4. Tolerates Iron OUT/EDTA but some luster loss may be noted on high luster specimens due to Ba^{2+} chelation. No luster loss when EDTA omitted; luster retained at pH 5.4 but some loss at pH 10.7. No luster lost when treated with citric acid or citrate at any pH. NH_4HF_2 causes some loss of luster but no loss in mass. Remove clay with HCl. Remove black stains with 12% H_2O_2 with 30% acetic acid or with 5% HCl. Remove bitumen by soaking in a solution of KOH in 99% rubbing alcohol for days or weeks, with intermittent textile gun work. No chemical methods known to remove a baryte encrustation; use mechanical methods instead. Some samples are photosensitive.

References

Mindat: https://www.mindat.org/min-549.html

Handbook of Mineralogy: https://www.handbookofmineralogy.org/pdfs/baryte.pdf

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

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