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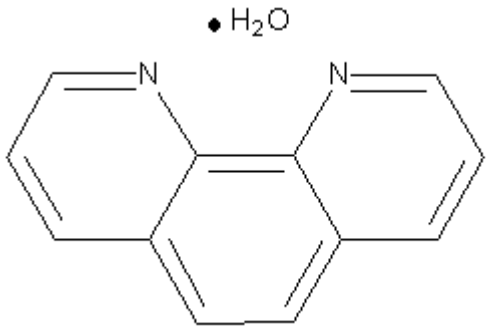
ProductInformation

1,10-PHENATHROLINE MONOHYDRATE
(ACS Reagent)

Product Number **P 9375**
Storage Temperature RT

CAS #: 5144-89-8
Synonyms: o-phenanthroline; 4,5-phenanthroline

Product Description



1,10-Phenanthroline monohydrate is a white powder with melting point 93-94°C.[1] It has a shelf-life of two years if stored dry; Sigma packages it under inert gas to protect it from moisture and adsorption of carbon dioxide from the air.[2] It is reported to have a λ_{max} = 265 nm with an extinction coefficient EmM = 31.5 (solvent not stated).[3]

1,10-Phenanthroline forms a complex with ferrous (iron II, Fe^{++}) ion; it can be used as an indicator in oxidation-reduction systems, in titrating ferrous salts.[1] The product forms a complex with Fe^{++}, but not with Fe^{+++}. NH_2OH can be added to the solution to reduce the Fe^{+++} to Fe^{++} for analysis of iron. The complex between iron (II) and 1,10-phenanthroline can be quantitated by its absorption at 510 nm.[4] The ACS reagent P1294 is tested for suitability as a redox indicator and suitability for determining iron.[5] The compound also chelates other metal ions, and has been used to remove or bind metals in metallo-enzymes, inhibiting their activity.[6] The effective concentration to use as a metallo-protease inhibitor or metal-activated proteases inhibitor is 1-10 mM. Due to the product's strong UV absorbance, it may interfere with spectrophotometric assays.[7]

Preparation Instructions

The product is reported to be soluble one part in about 300 parts water, 70 parts benzene; soluble in alcohol or acetone.[1] It is tested at Sigma at 100 mg/ml in ethanol, giving a clear solution. A stock solution in ethanol or methanol (200 mM) is stable for months at -20°C.[7] A diluted aqueous solution is stable for days.[7]

References

1. Merck Index, 11th Ed., 7169 (1989).
2. Sigma Procedure or data.
3. *J. Biol Chem.*, 235, 64-69 (1960).
4. McCarty, R.E., *Analytical Biochem.*, 205, 371-372 (1992).
5. *Reagent Chemicals*, 8th Ed., American Chem. Soc. (1993), p.512-513 [Sigma Product Z24,271-3].
6. Dawson, et al., *Data for Biochemical Research,* 3rd ed., 407 (1987).
7. Beynon, R.J., & J.S. Bond, *Proteolytic Enzymes: A Practical Approach,* p. 245 [Sigma product P4926].

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