Product Information

Phenazine Methosulfate

P9625

Product Description

Molecular Formula

$C_{14}H_{14}N_2O_4S$

Molecular Weight

306.3 g/mol

CAS Number

299-11-6

Extinction coefficient

E^M for oxidized phenazine methosulfate (PMS) at maximum wavelength 387 nm is 26,300 (pH 2-8). The difference in molar extinction coefficients between oxidized and reduced PMS is 25,000.[1]

Melting Point

158-160 °C

PMS is an electron acceptor and carrier in enzyme systems. The oxidized form is yellow, and the reduced form is colorless. Since the reduced PMS is easily oxidized by oxygen, it is used in assays as an electron carrier between enzymes and oxygen, cytochrome c, indophenols, or tetrazolium salts. The reduced PMS is used as an electron donor to reduce cytochrome c or in photosynthetic experiments. PMS is reduced by flavoproteins such as succinic dehydrogenase. PMS is reduced non-enzymatically by NADH and NADPH. PMS is also reduced by dithionite, sodium borohydride, ascorbic acid, reduced ubiquinones, and reduced vitamin K. PMS reacts with sulfhydryl groups including those of enzymes.[1] Usage of PMS for detection of specific dehydrogenases has been reported.[2,3]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Storage/Stability

Solutions should be prepared in deionized water, and not in neutral buffers. Solutions in water are stable frozen and protected from light for several months. Decomposition of solutions (with formation of pyocyanine and other products) may take hours when they are exposed to diffuse light, but only 5-10 minutes when exposed to sunlight.

Solutions are stabilized by polyvalent cations. Cations such as Ca^{2+}, Mg^{2+}, Mn^{2+}, Co^{2+}, Cu^{2+}, Ba^{2+}, Zn^{2+}, and Sn^{3+} at 100 mM each, prevented decomposition of PMS solutions when stored for 1 month, but were not protective when solutions were exposed to sunlight.[1,2]

References

1. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 356-357.
2. Nachlas, et al., J. Biol. Chem., 235, 499-503 (1960).
3. Babson, A. L., and Babson, S. R., Clin. Chem., 19(7), 766-769 (1973).

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