

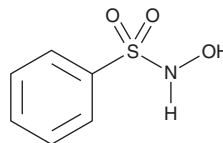
PRODUCT INFORMATION



Piloty's Acid

Item No. 10006995

CAS Registry No.: 599-71-3
Formal Name: N-hydroxy-benzenesulfonamide
Synonym: Benzenesulphonydroxamic Acid
MF: C₆H₇NO₃S
FW: 173.2
Purity: ≥98%
UV/Vis.: λ_{max}: 219 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Piloty's acid is supplied as a crystalline solid. A stock solution may be made by dissolving the Piloty's acid in the solvent of choice, which should be purged with an inert gas. Piloty's acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of Piloty's acid in DMSO is approximately 20 mg/ml and approximately 30 mg/ml in ethanol and dimethyl formamide.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of Piloty's acid can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of Piloty's acid in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Nitric Oxide (NO) is a free radical gas that is involved in a variety of biological processes including regulation vascular tone, neuronal signaling, and host defense.^{1,2} Nitroxyl (HNO) is the one electron reduced form of nitric oxide. Piloty's acid is one of the best known and most widely used HNO donors. Under basic conditions Piloty's acid decomposes to HNO and benzenesulfinate anion. The rate of HNO release at pH 7 is very slow ($t_{1/2} = 5,500$ minutes) making its use most effective above pH 8.0. The half-life of Piloty's acid decreases with an increase in pH to 561, 90, and 33 minutes at pH 8.0, 9.0, and 10.0, respectively.³ Piloty's acid also inhibits yeast aldehyde dehydrogenase with an IC₅₀ of 48 μM.⁴

References

1. Beckman, J.S. and Koppenol, W.H. Nitric oxide, superoxide, and peroxynitrite: The good, the bad, and the ugly. *Am. J. Physiol.* **271**, C1424-C1437 (1996).
2. Bredt, D.S. and Snyder, S.H. Nitric oxide: A physiologic messenger molecule. *Annu. Rev. Biochem.* **63**, 175-195 (1994).
3. Hughes, M.N. and Cammack, R. Synthesis, chemistry, and application of nitroxyl ion releasers sodium trioxodinitrate or Angeli's Salt and Piloty's Acid. *Methods Enzymol.* **301**, 279-287 (1999).
4. Nagasawa, H.T., Kawle, S.P., Elberling, J.A., *et al.* Prodrugs of nitroxyl as potential aldehyde dehydrogenase inhibitors vis-à-vis vascular smooth muscle relaxants. *J. Med. Chem.* **38**, 1865-1871 (1995).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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