

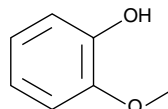
Product Information



Guaiacol

Item No. 70430

CAS Registry No.: 90-05-1
Formal Name: 2-methoxy phenol
MF: C₇H₈O₂
FW: 124.1
Purity: ≥98%
Stability: ≥1 year at Room Temperature
Supplied as: A colorless liquid
UV/Vis.: λ_{max}: 220, 277 nm



Laboratory Procedures

For long term storage, we suggest that guaiacol be stored as supplied at room temperature. It will be stable for at least one year.

Guaiacol is supplied as a colorless liquid. A stock solution may be made by diluting the guaiacol in an organic solvent purged with an inert gas. Guaiacol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of guaiacol in these solvents is approximately 30 mg/ml.

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 guaiacol can be prepared by directly diluting the colorless liquid in aqueous buffers. The solubility of guaiacol in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Guaiacol is a phenolic natural product first isolated from Guaiac resin and the oxidation of lignin. Guaiacol is readily oxidized by the heme iron of peroxidases including the peroxidase of cyclooxygenase (COX) enzymes. It can therefore serve as a reducing co-substrate for COX reactions.¹ The color yield per peroxide at 470 nm is 6,650 (M peroxide reduced)⁻¹ cm⁻¹.²⁻⁴ Two moles of guaiacol are oxidized for each mole of hydroperoxide reduced by the peroxidase. The resulting guaiacol chromophore can be used for the colorimetric determination of hydroperoxidase activity.

References

1. Markey, C.M., Alward, A., Weller, P.E., *et al.* Quantitative studies of hydroperoxide reduction by prostaglandin H synthase. Reducing substrate specificity and the relationship of peroxidase to cyclooxygenase activities. *J. Biol. Chem.* **262**, 6266-6279 (1987).
2. Doerge, D.R., Divi, R.L., and Churchwell, M.I. Identification of the colored guaiacol oxidation product produced by peroxidases. *Anal. Biochem.* **250**, 10-17 (1997).
3. Kulmacz, R.J. and Lands, W.E.M. Quantitative similarities in the several actions of cyanide on prostaglandin H synthase. *Prostaglandins* **29**, 175-190 (1985).
4. Marquez, L.A. and Dunford, H.B. Mechanism of the oxidation of 3,5,3',5'-tetramethylbenzidine by myeloperoxidase determined by transient-and steady-state kinetics. *Biochemistry* **36**, 9349-9355 (1997).

Related Products

TMB (dihydrochloride) - Item No. 70450 • TMPD (dihydrochloride) - Item No. 70455

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent via email to your institution.

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