

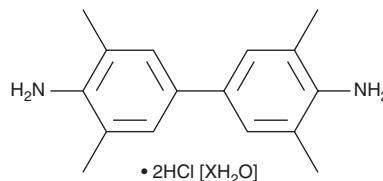
PRODUCT INFORMATION



TMB (hydrochloride hydrate)

Item No. 70450

CAS Registry No.: 207738-08-7
Formal Name: 3,3',5,5'-tetramethyl-[1,1'-biphenyl]-4,4'-diamine, dihydrochloride, hydrate
MF: C₁₆H₂₀N₂ • 2HCl [XH₂O]
FW: 313.2
Purity: ≥98%
UV/Vis.: λ_{max}: 295 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥1 year



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

Laboratory Procedures

TMB (hydrochloride hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the TMB (hydrochloride hydrate) in the solvent of choice, which should be purged with an inert gas. TMB (hydrochloride hydrate) is soluble in DMSO. The solubility of TMB (hydrochloride hydrate) in DMSO is approximately 1.7 mg/ml.

TMB (hydrochloride hydrate) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, TMB (hydrochloride hydrate) should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. TMB (hydrochloride hydrate) has a solubility of approximately 30 µg/ml in a 1:300 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

TMB is an aromatic amine that undergoes ready oxidation by the higher oxidation states of heme peroxidases (compounds I and II) thereby serving as a reducing co-substrate. One electron oxidation of TMB results in a radical cation that forms a charge-transfer complex with the unoxidized compound. This charge transfer complex absorbs at 652 nm ($\epsilon = 39,000$).¹ The completely oxidized form (diimine) absorbs at 450 nm ($\epsilon = 59,000$) and is formed by two sequential one-electron oxidations of TMB.^{1,2} Thus the stoichiometry of oxidation is 0.5 mole charge transfer complex ($\lambda_{\max} = 652$ nm) or 1 mole of diimine ($\lambda_{\max} = 450$ nm) formed (or TMB oxidized) per mole of hydroperoxide reduced by the peroxidase.

References

1. Josephy, P.D., Eling, T., and Mason, R.P. The horseradish peroxidase-catalyzed oxidation of 3,5,3',5'-tetramethylbenzidine. Free radical and charge-transfer complex intermediates. *J. Biol. Chem.* **257**, 3669-3675 (1982).
2. 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).

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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 02/04/2021

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM