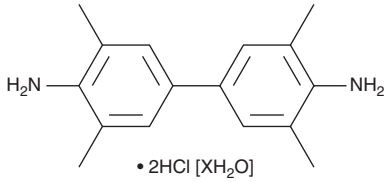
PRODUCT INFORMATION

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
Synonym:	3,3′,5,5′-Tetramethylbenzidine
MF:	$C_{16}H_{20}N_2$ • 2HCl [XH_2O]
FW:	313.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 295 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

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 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 a colorimetric substrate for peroxidases, including hemoglobin, myeloperoxidase, and horseradish peroxidase (HRP).[1-4] Enzymatic oxidation of TMB produces a radical cation followed by a diimine product that can be quantified by colorimetric detection at 652 and 450 nm, respectively, as a measure of peroxidase activity. TMB has commonly been used as a substrate for HRP in ELISA and immunohistochemical applications.[5,6]

References

1. Thomas, P.D. and Poznansky, M.J. A modified tetramethylbenzidine method for measuring lipid hydroperoxides. *Anal. Biochem.* **188(1)**, 228-232 (1990).
2. Marquez, L.A. and Dunford, H.B. Mechanism of the oxidation of 3,5,3',5'-tetramethylbenzidine by myeloperxidase determined by transient-and steady-state kinetics. *Biochemistry* **36(31)**, 9349-9355 (1997).
3. 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(7)**, 3669-3675 (1982).
4. Madersbacher, S. and Berger, P. Double wavelength measurement of 3,3',5,5'-tetramethylbenzidine (TMB) provides a three-fold enhancement of the ELISA measuring range. *J. Immunol. Methods* **138(1)**, 121-124 (1991).
5. Reyna-Bello, A., Eleizalde, M.C., and Silva, A.M. Assessment of chromogen suitability in ELISA for the detection of anaplasmosis and trypanosomosis. *J. Immunoassay Immunochem.* **28(1)**, 1-11 (2007).
6. Mesulam, M.M. and Rosene, D.L. Sensitivity in horseradish peroxidase neurohistochemistry: A comparative and quantitative study of nine methods. *J. Histochem. Cytochem.* **27(3)**, 763-773 (1979).

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