

PRODUCT INFORMATION



Nitro Blue Tetrazolium (chloride)

Item No. 17341

CAS Registry No.: 298-83-9

Formal Name: 2,2'-(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis[3-(4-nitrophenyl)-5-phenyl-2H-tetrazolium, dichloride

Synonyms: NBT, *p*-Nitro Blue Tetrazolium, Nitrotetrazolium Blue, NSC 27622

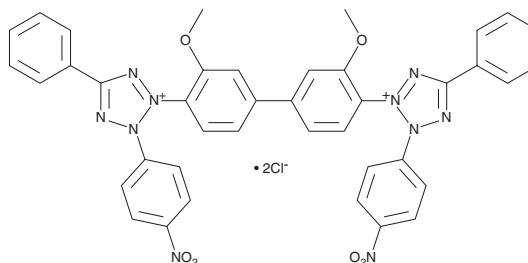
MF: C₄₀H₃₀N₁₀O₆ • 2Cl⁻

FW: 817.6

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

Nitro Blue Tetrazolium (NBT) (chloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the NBT (chloride) in the solvent of choice, which should be purged with an inert gas. NBT (chloride) is soluble in organic solvents such as ethanol and DMSO. The solubility of NBT (chloride) in these solvents is approximately 0.25 and 5 mg/ml, respectively.

NBT (chloride) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, NBT (chloride) should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. NBT (chloride) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

NBT is a chromogenic substrate that, like other tetrazolium compounds, can be reduced to produce a colored formazan derivative.¹ It is used in the "NBT test" to evaluate the activity of NADPH oxidase in phagocytes, which results in the production of blue reduced NBT formazan in normal cells but not in those from patients with chronic granulomatous disease.^{2,3} NBT can also be used as a chromogenic activity stain for oxidoreductases in gels or solutions.⁴ More commonly NBT is often paired with 5-bromo-4-chloro-3-inolyl phosphate (PCIB) for the colorimetric detection of alkaline phosphatase activity.⁵ Alkaline phosphate converts PCIB to a product that reduces NBT to its formazan derivative, resulting in a black-purple precipitate.

References

1. Sabnis, R.W. Handbook of biological dyes and stains: Synthesis and industrial applications. John Wiley & Sons, Inc., Hoboken, NJ, USA (2010).
2. Freeman, R. and King, B. *J. Clin. Pathol.* **25**(10), 912-914 (1972).
3. Nathan, D.G., Baechner, R.L., and Weaver, D.K. *J. Clin. Invest.* **48**(10), 1895-1904 (1969).
4. Nisimoto, Y., Wilson, E., Heyl, B.L., et al. *J. Biol. Chem.* **261**(1), 285-290 (1986).
5. Trinh, L.A., McCutchen, M.D., Bonner-Fraser, M., et al. *Biotechniques* **42**(6), 756-759 (2007).

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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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