Thiazolyl Blue Tetrazolium Bromide

Product Number  M 2128
Storage Temperature  2-8 °C

Product Description
Molecular Formula: C₁₈H₁₆BrN₅S
Molecular Weight: 414.3
CAS Number: 298-93-1
Melting Point: 195 °C (with decomposition)¹
209-210 °C (with decomposition)²
λₘₐₓ: 378 nm (methanol); 243 nm and 380 nm (water).¹
Extinction coefficient: E₅₇₈M = 20.7 (243 nm, water); 7.25 (380 nm, water).²
Extinction coefficient (formazan end product): E₅₇₈M = 13 (578 nm).³
Synonyms: MTT; 3-(4,5-dimethylthiazolyl-2)-2,5-diphenyltetrazoliumbromide; thiazolyl blue; methylthiazolyldiphenyl-tetrazolium bromide

Thiazolyl Blue Tetrazolium Blue (MTT) may be used in measurement of cell proliferation in studies that traditionally use incorporation of radioisotopes as a measurement of cell division.⁴ MTT is a yellowish solution and is converted to water-insoluble MTT-formazan of dark blue color by mitochondrial dehydrogenases of living cells. The blue crystals are solubilized with acidified isopropanol and the intensity is measured colorimetrically at a wavelength of 570 nm. Variations of this procedure have been published by other researchers.⁵-⁸

MTT has been used as a histochemical/cytochemical reagent.⁹ MTT is rapidly reduced to the formazan, which chelates with nickel, copper, and cobalt. The cobalt chelate is used in oxidative systems.¹⁰ MTT has been used for detection of NAD.¹¹ NADP-linked enzyme systems in tissue cannot be detected with MTT, due to binding of the cation by the cyanide trap used.¹² MTT, like other tetrazolium salts, has been replaced largely by nitro blue tetrazolium chloride (NBT).¹³

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
It is soluble in water (10 mg/ml), ethanol (20 mg/ml) and 2-methoxyethanol (20 mg/ml).¹ It is also soluble in buffered salt solutions and culture media (5 mg/ml).

Storage/Stability
MTT is light sensitive. Reconstituted MTT solution is stable for at least 6 months when stored frozen (-0 °C). Storage of a reconstituted MTT solution at 2 - 8 °C for more than 2 weeks may cause decomposition and yield erroneous results.

References