Product Information Sheet

M5781
Methylene Blue, Trihydrate

Synonyms:	Basic Blue 9, Tetramethylthionine chloride
CAS:	7220-79-3
Formula:	$C_{16}H_{18}ClN_3S \cdot 3H_2O$
Mol. Weight:	373.9

Properties

Form:	Powder/Crystals
Appearance:	Dark Green
Solubility:	Soluble in Water
Application:	Biological Stain
Storage Temp:	Room Temperature
Typical Working Concentration:	Varies with Application, should be determined by end user

Application Notes

Methylene blue is a cationic dye with a maximum absorption of approximately 670 nm (Canens 1988). It has an array of uses and has been used in biological sciences as a stain since the early 1900's. It can be substituted for Crystal Violet in the Gram Staining method. Often, Methylene blue is used in solution as a redox indicator by turning from a blue solution to colorless when in the presence of a reducing agent (Prasetyo & Mufakhir 2011).

It can also be used as a nuclear stain, or for differentiating pectin compounds. In plants, the protoplast and lignified walls will stain a bright blue and the pectin compounds will stain a violet blue. In diatoms and other simple organisms Stevens (1916) suggests a 0.001 % solution for staining the nuclei.

Seeds can be stained using a 1% methylene blue solution to determine the anatomy of the seed (Orozco-Segovia *et al*. 2007).

References

Orozco-Segovia A, Márquez-Guzmán J, Sánchez-Coronado ME, Gamboa de Buen A, Baskin JM, Baskin CC (2007) Seed cha *Opuntia tomentosa* (*Cactaceae, Opuntioideae*). *Annals of Botany* 99: 581–592.

Stevens, WC (1916) Plant anatomy from the standpoint of the development and functions of the tissues, and handbook of microtechnic. P. Blakiston's Son & Co. Philadelphia, PA.

Cenens J and R. A. Schoonheydt (1988). Visible spectroscopy of methylene blue on hectorite, laponite b, and barasym in aqueous suspension. *Clay and Clay Minerals* 36 (3): 214-224.

Prasetyo E, FR Mufakhir (2011) Redox titration of iron using methylene blue as indicator and its application in ore analysis. *Asian Transactions on Basic & Applied Sciences* 1(5).

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