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Neutral Red

CAS Number: 553-24-2

Storage Temperature: 2-8 °C

Product Description :

Appearance: Fine dark green-black powder

Molecular Formula: C15H17ClN4

Molecular Weight: 288.78

Synonyms: toluylene red, basic red 5

Neutral Red is a weak cationic azine dye that is used extensively as a nuclear stain in a variety of biological stain applications. It is a pH indicator as well, changing color from red to yellow over the pH range 6.8-8.0. It is also incorporated into bacteriological growth media.

This product is often used for supravital staining of fresh peripheral blood. It can also be used for staining Nissl granules of neuroglial cells. However, this stain is not as permanent as another dye, Cresyl Violet acetate, for this application. Buffered 0.5% Neutral Red solutions are used as a counterstain for Naphthol AS acetate esterase, peroxidase and iron stains. Solutions can also be used to stain plankton for viability. Using 1 part Neutral Red to 10,000 parts sea water, dead cells were stained red and live cells remained unchanged. In addition, aqueous solutions of Neutral Red (0.1% in saline, pH 6.5) can be used as a fluorescent stain for lipids. Lipids will fluoresce blue-geen or yellow, depending on their composition. It has been used also as a Twort's stain for parasites in combination with Light Green SF, as a general histological stain for embryonic tissue in combination with Janus green,and for demostrating hydrolysis of fats. It can also be used in conjunction with Luxol Fast Blue for staining tissues embedded in glycol methacrylate: myelin sheaths stain blue, connective tissue stain blue to light purple, and nuclei and cytoplasmic basophilic structures are red.

Neutral Red is most commonly used for cytotoxicity assays to determine cell viability. The dye readily penetrates cell membranes of viable cells by diffusion and accumulates in the lysosomes. After the cells are allowed to incorporate the dye, they are briefly washed or fixed. The incorporated dye is then released from the cells and quantitated spectrophotometrically. The change in the level of dye incorporation reflects an increase or decrease in the number of viable cells or their physiological state. This indicates the degree of cytotoxicity caused by the test material, making it possible to distinguish between viable, damaged, or dead cells.

Precautions and Disclaimer :

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