AuSaMicS™ Life Science

TECHNICAL DATA SHEET
TDS-ASA-3017 | Rev 01
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Oxytetracycline Dihydrate, BP

Broad-Spectrum Tetracycline Antibiotic — Injectable-Grade Raw Material for Research & Microbiology

1. PRODUCT IDENTIFICATION

Product Name	Oxytetracycline Dihydrate, BP
Catalogue Number	ASA-3017 (pack sizes 1 kg, 2 kg; other sizes on request)
Synonyms	Terramycin dihydrate; 5-Hydroxytetracycline dihydrate; Oxytetracycline HCl-free base dihydrate
CAS Number	6153-64-6 (dihydrate) | 79-57-2 (anhydrous free base)
EC / EINECS Number	201-212-8
Molecular Formula	$C_{22}H_{24}N_2O_9 \cdot 2H_2O$ (equiv. $C_{22}H_{28}N_2O_{11}$)
Molecular Weight	496.46 g/mol
Grade	BP (British Pharmacopoeia) — Injectable Grade bulk actives, packaged for research/laboratory use
HS / AHECC Code	2941.50.00 — Tetracyclines and their derivatives

2. OVERVIEW

Oxytetracycline Dihydrate is a broad-spectrum tetracycline-class antibiotic produced by fermentation of Streptomyces rimosus and supplied by AuSaMicS as a BP-grade, injectable-quality bulk actinve substance for research, microbiological, and laboratory applications. It is widely used as a selective agent in culture media, for antibiotic-resistance and genetic-selection studies, and as a reference standard for analytical method development.

AuSaMicS sources this material from a qualified manufacturer and repackages it under controlled conditions into research-pack quantities, with each batch traceable to the originating Certificate of Analysis.

3. MODE OF ACTION

Oxytetracycline reversibly binds the 30S ribosomal subunit of susceptible bacteria, blocking attachment of aminoacyl-tRNA to the mRNA-ribosome complex. This arrests bacterial protein synthesis and produces a bacteriostatic effect against a broad range of Gram-positive and Gram-negative organisms, making the compound useful both as a selective supplement in culture media and as a tool for studying ribosomal function and antibiotic-resistance mechanisms.

4. PHYSICAL & CHEMICAL PROPERTIES

Property	Specification
Appearance	Yellow crystalline powder, slightly hygroscopic
Solubility	Very slightly soluble in water; soluble in dilute acids and alkalis
pH (1% aqueous suspension)	4.5 – 7.5
Water content (Karl Fischer)	6.0 – 9.0% (dihydrate water of crystallisation)
Sulphated ash	NMT 0.2%
Assay (HPLC, anhydrous basis)	NLT 94.5% and NMT 102.0% C22H24N2O9
Bacterial endotoxin	NMT 0.4 EU/mg
Light absorption	At 430 nm: NMT 0.25; At 490 nm: NMT 0.20

5. QUALITY CONTROL SPECIFICATION

Each batch is tested against British Pharmacopoeia (BP 2022) monograph requirements for Oxytetracycline Dihydrate prior to release, including identification (tests A–D), related substances by HPLC, water content, sulphated ash, assay, and bacterial endotoxin. A biological/inoculum performance check is additionally applied where the material is used as a selective agent in AuSaMicS culture media:

Test	Specification	Inoculum (CFU)
Identification (A–D)	Complies	—
Related substances (HPLC)	Total impurities NMT 3.5%	—
Assay (anhydrous basis)	94.5% – 102.0%	—
Water content	6.0% – 9.0%	—
Bacterial endotoxin	NMT 0.4 EU/mg	—
Selective performance (functional QC)	Complete inhibition of susceptible indicator strain	≤100 CFU per strain

6. RECOMMENDED WORKING CONCENTRATIONS

Application	Typical Working Concentration	Notes
Selective supplement in culture media	10 – 50 µg/mL	Prepare as filter-sterilised stock; add to media after autoclaving, at ≤50 °C
Plasmid/vector selection (bacterial genetics)	10 – 25 µg/mL	Confirm resistance-marker compatibility for the host strain
Reference/analytical standard	As required by method	Use appropriate diluent per validated method

7. PREPARATION & HANDLING GUIDANCE

- Prepare stock solutions in sterile distilled water or dilute acid; oxytetracycline is more stable and more soluble under mildly acidic conditions.
- Filter-sterilise stock solutions (0.22 µm); do not autoclave, as oxytetracycline degrades under moist heat.
- Protect stock solutions and dry powder from light; oxytetracycline is photosensitive and degrades on prolonged light exposure.
- Add to culture media only after the base medium has been autoclaved and cooled to ≤50 °C.
- Freshly prepared stock solutions are recommended; if stored, keep at 2–8 °C, protected from light, and use within the period validated in-house.

8. STORAGE & STABILITY

Storage Condition	2–8 °C, protected from light
Container	Keep tightly closed; moisture- and light-protected packaging
Re-test / Shelf Life	As stated on the Certificate of Analysis / product label for the specific batch
Handling Note	Hygroscopic — minimise exposure to atmospheric moisture during weighing/dispensing

9. INTENDED USE

For research and laboratory use only. Not for human, veterinary, food, feed, agricultural, cosmetic, or pharmaceutical use.

10. LITERATURE / REFERENCES

- British Pharmacopoeia Commission (2022). British Pharmacopoeia 2022 — Monograph: Oxytetracycline Dihydrate. The Stationery Office, London.
- Chopra, I. & Roberts, M. (2001). Tetracycline antibiotics: mode of action, applications, molecular biology, and epidemiology of bacterial resistance. Microbiology and Molecular Biology Reviews, 65(2), 232–260.
- Nguyen, F. et al. (2014). Tetracycline antibiotics and resistance mechanisms. Biological Chemistry, 395(5), 559–575.
- Griffin, M.O. et al. (2010). Tetracyclines: a pleitropic family of compounds with promising therapeutic properties. American Journal of Physiology-Cell Physiology, 299(3), C539–C548.

completeness or suitability for any particular application. This product is not intended for use in food, drugs, cosmetics, household, or other unauthorised applications. It is the responsibility of the user to determine the suitability of this product for their specific use and to comply with all applicable laws and regulations, including safe handling, storage, and disposal requirements. AuSaMicS Pty Ltd accepts no liability for any loss or damage arising from the use or misuse of this product or the information contained in this document.

For related documents, refer to the corresponding Safety Data Sheet (SDS) and Certificate of Analysis (COA) issued for the specific batch supplied.