Oxytetracycline Hydrochloride
PRODUCT DATA SHEET

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Product Name:	Oxytetracycline Hydrochloride
Product Number:	O004
CAS Number:	2058-46-0
Molecular Formula:	$C_{22}H_{24}N_2O_9$•HCl
Molecular Weight:	496.89
Form:	Powder
Appearance:	Yellow crystalline powder
Solubility:	Ethanol (95%) 33 mg/mL Ethanol (absolute): 12 mg/mL Water: Freely soluble Note: Concentrated aqueous solutions at neutral pH hydrolyze and precipitates crystals of oxytetracycline
Water Content (Karl Fischer):	6.0-9.0%
pH:	2.0-3.0
Melting Point:	180 °C
Storage Conditions:	2-8°C
Description:	Oxytetracycline was the second discovered tetracycline antibiotic. TOKU-E offers two forms of oxytetracycline: Oxytetracycline Dihydrate (O003)and Oxytetracycline Hydrochloride (O004). Oxytetracycline dihydrate is sparingly soluble in aqueous solution at 0.6 mg/mL. Oxytetracycline HCl is slightly soluble in aqueous solution at 6.9 mg/mL.
Mechanism of Action:	The mechanism of oxytetracycline involves diffusing through a cell and binding to the 30s ribosomal subunit preventing peptide elongation and ultimately inhibiting protein synthesis. Resistance to oxytetracycline can be a result of inactivation by cell enzymes or pumping the antibiotic out of the cell upon entering.
Spectrum:	Oxytetracycline is a broad spectrum antibiotic which targets gram positive and gram negative species as well as a few *Mycoplasma* species

Microbiology Applications

Oxytetracycline is commonly used in clinical *in vitro*microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against gram positive, gram negative, and Mycoplasma microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Haemophilus influenzae* 1.6 µg/mL – 6.3 µg/mL
- *Mycoplasma bovis* 0.12 µg/mL - 4 µg/mL
- For a complete list of oxytetracycline MIC values, click here.

Media Supplement

Oxytetracycline is used as a selective agent in OGYE, a selective media for yeasts and molds.

Plant Biology Applications

Oxytetracycline has been used to prevent fire blight in apple and pears in the Pacific Northwest of the USA. In a study by Hubbard et al., oxytetracycline was shown to be a better alternative to streptomycin to inhibit fire blight disease.

References:

Chopra, Ian, and Marilyn Roberts. "Tetracycline Antibiotics: Mode of Action, Applications, Molecular Biology, and Epidemiology of Bacterial Resistance." *Microbiology and Molecular Biology Reviews* (2001): 232-60. *Http://www.ncbi.nlm.nih.gov*. Web. 21 Aug. 2012.

Hubbard A.R., 2011, Evaluation of Kasugamycin-use strategies Designed to Delay Development of Resistance in Erwinia amylovora. Master thesis of Botany and Plant Pathology, Oregon state University.